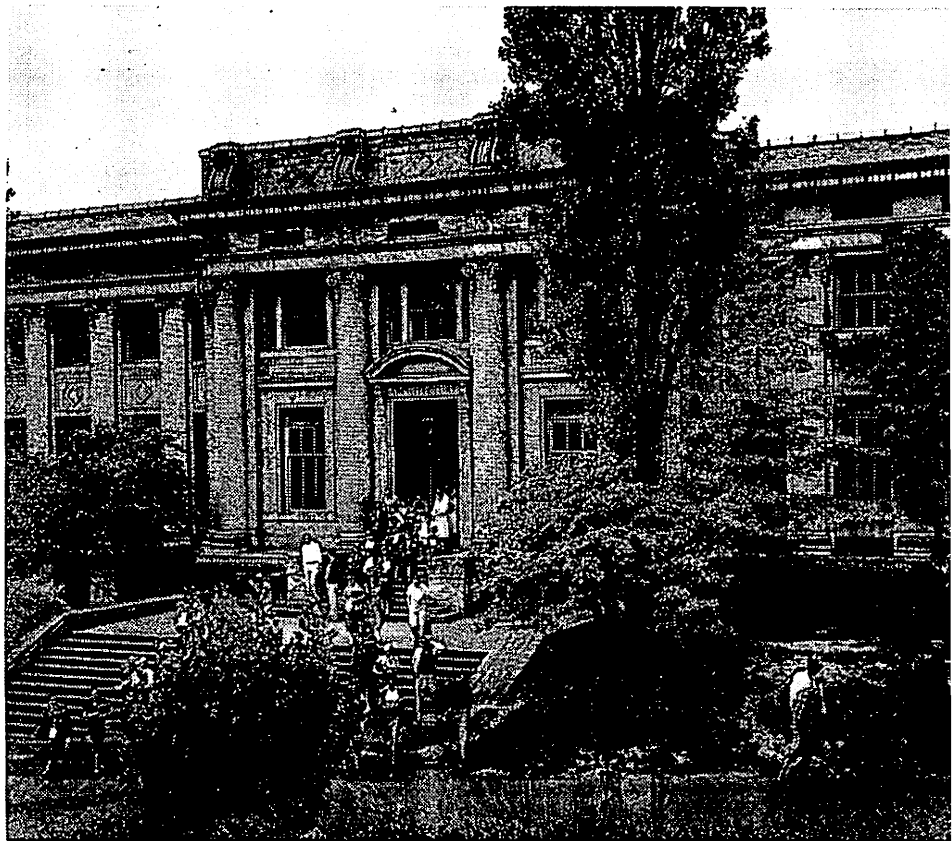


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**BULLETIN • UNIVERSITY OF WASHINGTON**



**COLLEGE OF  
ARCHITECTURE AND  
URBAN PLANNING**

**1959-1961**

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Department of Correspondence Study and the Department of Extension Classes, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Registrar.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS

INTRODUCTION TO THE UNIVERSITY

UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF DENTISTRY

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FISHERIES

COLLEGE OF FORESTRY

GRADUATE SCHOOL

SCHOOL OF LAW

SCHOOL OF MEDICINE

SCHOOL OF NURSING

COLLEGE OF PHARMACY

SCHOOL OF SOCIAL WORK

### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT

SUMMER QUARTER ANNOUNCEMENT

CENTER FOR GRADUATE STUDY AT HANFORD

CORRESPONDENCE STUDY

EVENING CLASSES

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BULLETIN  
UNIVERSITY OF WASHINGTON

General Series No. 937

March, 1959

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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	11
Board of Regents	
Officers of Administration	
Faculty of the College of Architecture and Urban Planning	
Cooperating Faculty	
Graduate Advisory Committee to the Dean of the College	
Library and Administrative Staff	
GENERAL INFORMATION . . . . .	15
College Building and Facilities	
Revised Admission Requirements for 1961	
Current Admission Requirements	
Korean Veterans	
Disabled Veterans	
Children of Deceased Veterans	
World War I or II Veterans	
Required Tests and Examinations	
Registration	
Scholarship and Minimum Credits	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE COLLEGE PROGRAMS . . . . .	35
Bachelor's Degrees	
Advanced Degrees	
Course-Numbering System	
Curricula	

# CALENDAR

AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS  
(Spring Quarter, 1959, through Winter Quarter, 1961)

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

## SPRING QUARTER, 1959

### REGISTRATION PERIOD

JAN. 26-FEB. 20

Advance Registration only for students in residence Winter Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

MAR. 24-26

In-Person Registration for former students not in residence Winter Quarter, 1959, and those attending Winter Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 13*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between February 24 and March 13. Deadline for applying for Registration Appointment or Permit is *March 13*.

FEB. 27

Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

MAR. 24-26

In-Person Registration for ALL new students.

MAR. 26

Last day to register for Spring Quarter, 1959.

MAR. 31-APR. 3

Change of registration by appointment only.

### ACADEMIC PERIOD

MAR. 30-MONDAY

Instruction begins

APR. 3-FRIDAY

Last day to add a course

MAY 8-FRIDAY

Last day to submit applications for advanced credit examinations

MAY 22-FRIDAY

Governors' Day

MAY 23-SATURDAY

Advanced credit examinations

MAY 30-SATURDAY

Memorial Day holiday

JUNE 7-SUNDAY

Baccalaureate Sunday

JUNE 8-12

Final examinations

JUNE 12-FRIDAY

Quarter ends

JUNE 13-SATURDAY

Commencement

## SUMMER QUARTER, 1959

### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 3-5

June 15-19

*Registration may be delayed if new student Applications for Admission or former*

*student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1959:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....	Monday, April 20, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 21, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 22, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 23, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1959*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 20 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

#### ACADEMIC PERIOD

JUNE 22—MONDAY	Instruction begins
JUNE 23—TUESDAY	Last day to add a course for the first term
JUNE 26—FRIDAY	Last day to add a course for the full quarter
JULY 3—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—SATURDAY	Independence Day holiday
JULY 18—SATURDAY	Advanced credit examinations
JULY 22—WEDNESDAY	Final examinations and first term end
JULY 23—THURSDAY	Second term begins
JULY 24—FRIDAY	Last day to add a course for the second term
JULY 31—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 15—SATURDAY	Advanced credit examinations
AUG. 21—FRIDAY	Final examinations and second term end

#### AUTUMN QUARTER, 1959

##### REGISTRATION PERIOD

MAY 4-29	Advance Registration only for students in residence Spring Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-29	In-Person Registration for former students not in residence Spring Quarter, 1959, and those attending Spring Quarter, 1959, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 8. Deadline for applying for Registration Appointment or Permit is <i>September 15</i> .

AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 14-25	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 14-29	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 29	Last day to register for Autumn Quarter, 1959.
OCT. 1-6	Change of registration by appointment only.

#### ACADEMIC PERIOD

SEPT. 28—MONDAY	Instruction begins (8 a.m.) for freshman entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 30—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 6—TUESDAY	Last day to add a course
NOV. 2—MONDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1960, due at Registrar's Office
NOV. 11—WEDNESDAY	State Admission Day holiday
NOV. 25—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 25-30	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 12—SATURDAY	Advanced credit examinations
DEC. 14-18	Final examinations
DEC. 18—FRIDAY	Quarter ends

#### WINTER QUARTER, 1960

##### REGISTRATION PERIOD

OCT. 26-Nov. 20	Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 28-30	In-Person Registration for former students not in residence Autumn Quarter, 1959, and those attending Autumn Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than December 11</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between November 23 and December 11. Deadline for applying for Registration Appointment or Permit is <i>December 11</i> .
DEC. 4	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 28-30	In-Person Registration for ALL new students.

DEC. 30	Last day to register for Winter Quarter, 1960.
JAN. 5-8	Change of registration by appointment only.

**ACADEMIC PERIOD**

JAN. 4—MONDAY	Instruction begins
JAN. 8—FRIDAY	Last day to add a course
FEB. 22—MONDAY	Washington's Birthday and Founder's Day holiday
FEB. 26—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 12—SATURDAY	Advanced credit examinations
MAR. 14-18	Final examinations
MAR. 18—FRIDAY	Quarter ends

**SPRING QUARTER, 1960****REGISTRATION PERIOD**

JAN. 25-FEB. 19	Advance Registration only for students in residence Winter Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 22-24	In-Person Registration for former students not in residence Winter Quarter, 1960, and those attending Winter Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than March 11</i> . Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between February 23 and March 11. Deadline for applying for Registration Appointment or Permit is <i>March 11</i> .
FEB. 26	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 22-24	In-Person Registration for ALL new students.
MAR. 24	Last day to register for Spring Quarter, 1960.
MAR. 29-APR. 1	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 28—MONDAY	Instruction begins
APR. 1—FRIDAY	Last day to add a course
MAY 6—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 20—FRIDAY	Governor's Day
MAY 21—SATURDAY	Advanced credit examinations
MAY 30—MONDAY	Memorial Day holiday
JUNE 5—SUNDAY	Baccalaureate Sunday
JUNE 6-10	Final examinations
JUNE 10—FRIDAY	Quarter ends
JUNE 11—SATURDAY	Commencement

## SUMMER QUARTER, 1960

### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 1-3

June 13-17

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1960:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....	Monday, April 18, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 19, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 20, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 21, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1960*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 19 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

### ACADEMIC PERIOD

JUNE 20—MONDAY	Instruction begins
JUNE 21—TUESDAY	Last day to add a course for the first term
JUNE 24—FRIDAY	Last day to add a course for the full quarter
JULY 1—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—MONDAY	Independence Day holiday
JULY 16—SATURDAY	Advanced credit examinations
JULY 20—WEDNESDAY	Final examinations and first term end
JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
JULY 29—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 13—SATURDAY	Advanced credit examinations
AUG. 19—FRIDAY	Final examinations and second term end

## AUTUMN QUARTER, 1960

### REGISTRATION PERIOD

MAY 2-27

Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

SEPT. 8-27	In-Person Registration for former students not in residence Spring Quarter, 1960, and those attending Spring Quarter, 1960, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning <i>June 6</i> . Deadline for applying for Registration Appointment or Permit is <i>September 13</i> .
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 12-23	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 12-27	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 27	Last day to register for Autumn Quarter, 1960.
SEPT. 29-OCT. 4	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 26—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 4—TUESDAY	Last day to add a course
NOV. 1—TUESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 18—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 10—SATURDAY	Advanced credit examinations
DEC. 12-16	Final examinations
DEC. 16—FRIDAY	Quarter ends

**WINTER QUARTER, 1961****REGISTRATION PERIOD**

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960, and those attending Autumn Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than December 9</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between November 22 and

	December 9. Deadline for applying for Registration Appointment or Permit is <i>December 9</i> .
DEC. 2	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 27-29	In-Person Registration for ALL new students.
DEC. 29	Last day to register for Winter Quarter, 1961.
JAN. 4-9	Change of registration by appointment only.

#### ACADEMIC PERIOD

JAN. 3—TUESDAY	Instruction begins
JAN. 9—MONDAY	Last day to add a course
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
FEB. 24—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 11—SATURDAY	Advanced credit examinations
MAR. 13-17	Final examinations
MAR. 17—FRIDAY	Quarter ends

*For further information concerning subsequent quarters inquire at the Registrar's Office.*

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#### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*



## ADMINISTRATION

### BOARD OF REGENTS

HAROLD S. SHEFELMAN, <i>President</i>	Seattle
JOHN L. KING, <i>Vice-President</i>	Seattle
THOMAS BALMER	Seattle
MRS. A. SCOTT BULLITT	Seattle
JOSEPH DRUMHELLER	Spokane
ALBERT B. MURPHY	Everett
ROBERT J. WILLIS	Yakima
HELEN E. HOAGLAND, <i>Secretary</i>	
NELSON A. WAHLSTROM, <i>Treasurer</i>	

### OFFICERS OF ADMINISTRATION

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Provost of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Treasurer</i>
ERNEST M. CONRAD, B.B.A.	<i>Business Manager</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
ARTHUR P. HERRMAN, B.A. in Arch.	<i>Dean of the College of Architecture and Urban Planning</i>

## FACULTY OF THE COLLEGE OF ARCHITECTURE AND URBAN PLANNING

(As of January 1, 1959)

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of the promotion to present academic rank.

- Bower, Theodore D., 1958, *Instructor in Architecture*
- Clark, Robert Service, 1959, *Acting Assistant Professor of Urban Planning*  
B.Arch., 1952, Illinois Institute of Technology; M. of City Planning, 1956, Pennsylvania
- Davis, Byron Vance, 1958, *Acting Associate Professor of Architecture*  
B.F.A., 1944, Southern California
- Dietz, Robert Henry, 1947 (1958), *Professor of Architecture*  
B.Arch., 1941, Washington; M.Arch., 1944, Massachusetts Institute of Technology
- Haag, Richard, 1958, *Acting Associate Professor of Landscape Design*  
B.S.L.A., 1950, California; M.L.A., 1952, Harvard
- Herrman, Arthur Philip, 1923 (1937), *Professor of Architecture; Dean of the College of Architecture and Urban Planning*  
B.A. in Arch., 1921, Carnegie Institute of Technology; F.A.I.A.
- Jacobson, Norman Gustav, Jr., 1957, *Assistant Professor of Architectural Engineering*  
B.S. in C.E., 1951, Washington
- Jensen, Alfred, 1930 (1956), *Professor Emeritus of Architectural Engineering*  
B.S. in C.E., 1925, M.S. in C.E., 1932, Washington
- Kolb, Keith Robert, 1952, *Assistant Professor of Architecture*  
B.Arch., 1947, Washington; M.Arch., 1950, Harvard
- Koski, Robert William, 1959, *Acting Assistant Professor of Urban Planning*  
B.B.A., 1951, M.A. in Urban Planning, 1957, Washington

- Lovett, Wendell Harper, 1948 (1951), *Assistant Professor of Architecture*  
B.Arch., 1947, Washington; M.Arch., 1948, Massachusetts Institute of Technology
- Mithun, Omer Lloyd, 1947 (1950), *Assistant Professor of Architecture*  
B.Arch., 1942, Minnesota
- Nelsen, Ibsen A., 1958, *Instructor in Architecture*  
B.Arch., 1951, Oregon
- Radcliffe, Donald Gregg, 1947 (1948), *Assistant Professor of Architectural Engineering*  
B.S. in C.E., 1932, M.S. in C.E., 1934, Illinois
- Rohrer, John Abram, 1948 (1956), *Assistant Professor of Architecture*  
B.Arch., 1937, Washington
- Sparling, Thomas Esval, 1956, *Lecturer in Architecture*  
B.S.E.E., 1939, Montana State College
- Sproule, John Robert, 1948 (1951), *Assistant Professor of Architecture*  
B.Arch., 1934, Washington
- Steinbrueck, Victor, 1946 (1954), *Associate Professor of Architecture*  
B.Arch., 1935, Washington
- Stern, Richard Morris, 1955, *Lecturer in Architecture*  
B.S. in C.E., 1935, North Dakota
- Streissguth, Daniel Michener, 1955, *Assistant Professor of Architecture*  
B.Arch., 1948, Washington; M.Arch., 1949, Massachusetts Institute of Technology
- Timpe, Carl Louis, 1957, *Lecturer in Architecture*
- Torrence, Gerard Rutgers, 1954, *Assistant Professor of Architectural Engineering*  
B.S. in C.E., 1949, Washington; M.S. in S.E., 1950, Massachusetts Institute of Technology
- Wherette, William Carnes, 1948 (1953), *Assistant Professor of Architecture*  
B.Arch., 1948, Carnegie Institute of Technology
- Wolfe, Myer Richard, 1949 (1958), *Professor of Urban Planning*  
B.S., 1940, New Hampshire; M. Regional Planning, 1947, Cornell
- Young, Henry Clayton, 1954 (1955), *Instructor in Architecture*  
B.S.C.E., 1941, Kentucky; B.F.A.A., 1947, Illinois

## COOPERATING FACULTY

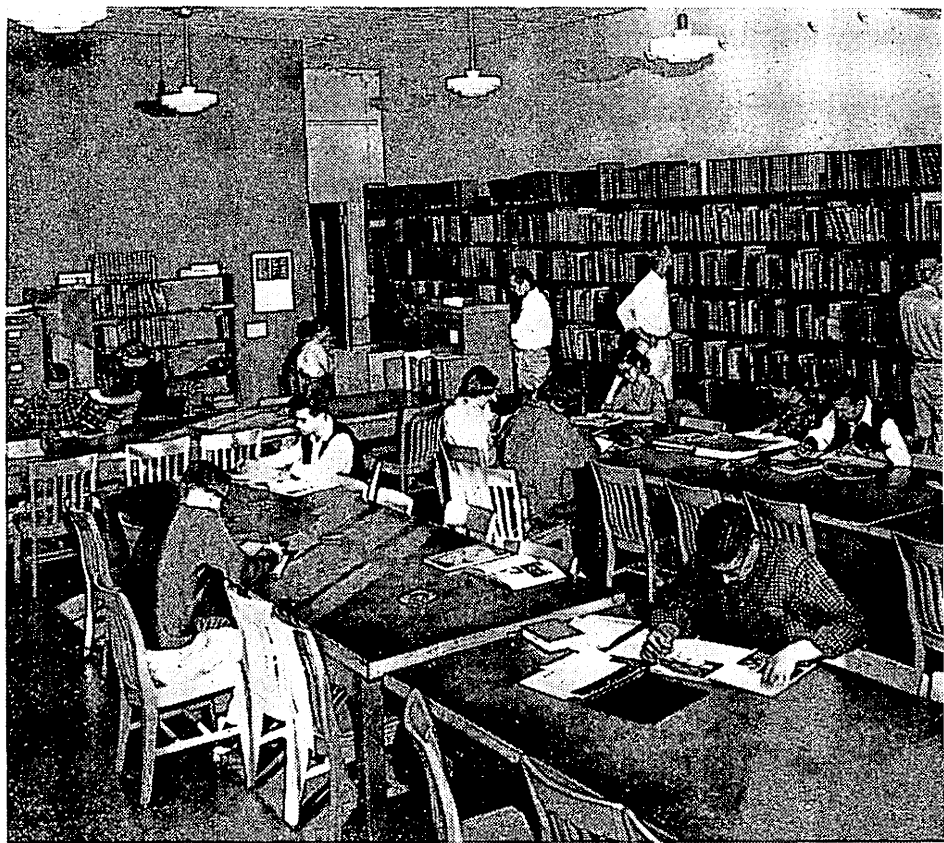
- Hafermehl, Louis C. .... *Assistant Professor, Art*
- Hill, Raymond L. .... *Professor, Art*
- Mason, Alden C. .... *Associate Professor, Art*
- Smith, Charles W. .... *Assistant Professor, Art*
- Tsutakawa, George. .... *Associate Professor, Art*

## GRADUATE ADVISORY COMMITTEE TO THE DEAN OF THE COLLEGE

- Horwood, Edgar M. .... *Associate Professor, Civil Engineering*
- Schmid, Calvin F. .... *Professor, Sociology*
- Sherman, John C. .... *Associate Professor, Geography*
- Webster, Donald H. .... *Professor, Political Science*
- Wheeler, Bayard O. .... *Professor, Business Administration*
- Wolfe, Myer R. .... *Professor, Urban Planning*

## LIBRARY and ADMINISTRATIVE STAFF

- Betty L. Austin .... *Librarian*
- Mary-Jane Worth. .... *Administrative Assistant to the Dean*
- Eliza M. Hayward. .... *Secretary*



## GENERAL INFORMATION

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## GENERAL INFORMATION

**I**NAUGURATED BY ACTION of the Board of Regents at the instigation of the Washington State Chapter of the American Institute of Architects, the Department of Architecture was established in 1914. In 1935 the status was changed to that of School of Architecture in the College of Arts and Sciences.

Since 1928 a five-year curriculum has been offered in Architecture, and in 1941 a five-year curriculum in Urban Planning was started. Either course of study leads to a bachelor's degree. A program leading to a degree in Landscape Architecture is being organized and may be approved by Autumn Quarter, 1959. The College also offers a program leading to the degree of Master of Arts in Urban Planning.

The College of Architecture and Urban Planning was recognized as an autonomous unit of the University in July, 1957. At that time Prof. Arthur P. Herrman, Director of the School of Architecture since 1937, was appointed Acting Dean, and in April, 1958, was appointed Dean.

A member of the Association of Collegiate Schools of Architecture since 1925, the College is also accredited by the National Architectural Accrediting Board.

### COLLEGE BUILDING AND FACILITIES

Instruction in architecture and urban planning is centered in Architecture Hall. This building was erected as a permanent structure to be used as the Art Gallery for the Alaska-Yukon-Pacific Exposition in 1909. Architecture Hall, in addition to regular classrooms and staff offices, contains drafting rooms, seminar rooms, and a library.

### THE LIBRARY

Since research is an essential part of the study of architecture and urban planning, the library is closely integrated into the teaching program of the College. Located in Architecture Hall, the library is a branch of the main University Library. The collection includes 4,000 books; 1,600 pamphlets; 63 currently received periodicals; a large file of manufacturers' catalogs, brochures, and samples which provide data on all aspects of building fabrication; a number of trade maga-

zines; a file of blueprints; 6,000 lantern slides; and 1,700 35-millimeter colored slides.

Literature on historic phases of architecture, its famous practitioners, past and present; the philosophy and theory of design, color, sculpture, drawing, lettering, mechanical and electrical equipment for buildings; materials and methods of architectural construction; city, county, and regional planning and landscape architecture is available for student use during the day and evening. Current and past issues of the most prominent architectural and urban planning periodicals of the United States and various other countries are also on file in the library.

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## Revised Admission Requirements for 1961

Effective in September, 1961, and thereafter the admission requirements for the College of Architecture and Urban Planning will be as follows:

### SUBJECT REQUIREMENTS

The College requirement is 16 high school units with grades certifiable for university entrance. The 16 units must include at least 11½ units in academic subjects. Requirements for admission to the College are as follows:

- |  |   |
|--|---|
| A. English   | 3 units of composition and literature   |
| B. Mathematics   | 1 unit elementary algebra<br>½ unit advanced algebra<br>1 unit plane geometry   |
| C. Foreign Language  | 2 units in one language   |
| D. Social Science  | 1 unit  |
| E. Science   | 1 unit of one laboratory science (physics preferred)  |
| F. Additional required courses:  |   |
| 1. 1 unit of literature, composition, drama, journalism or speech, or<br>a third unit of the foreign language; or 2 units of a second foreign<br>language. |   |
| 2. 1 unit of laboratory science or mathematics (solid geometry, trigo-<br>nometry, mathematical analysis).   |   |
| G. Electives   | 4½ units to be chosen from the above subjects or<br>other subjects accepted by an accredited high<br>school toward its diploma of graduation. |

### SCHOLARSHIP REQUIREMENTS

The College scholarship admission requirement is an average of 2.00 in all high school subjects presented for admission and 2.00 in the required subjects A through F above.

### SUBJECT MATTER DEFICIENCIES

Applicants with diplomas of graduation from accredited high schools who have a deficiency in not more than one of the subjects required for entrance (A through F) above may apply to the Dean of the College for permission to enter, provided that they meet the scholarship requirement. A student admitted with a subject deficiency will have provisional standing; he must begin to make up the deficiency upon entrance and continue toward that end each quarter until it is made up; he will not in any case be permitted to register beyond the sixth quarter unless the deficiency has been made up.

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## CURRENT ADMISSION REQUIREMENTS

The College of Architecture and Urban Planning offers two five-year curricula consisting of two preprofessional years and a three-year professional program. Students entering the University as freshmen will register in the College of Architecture and Urban Planning and pursue the preprofessional training program.

Candidates admitted with less than 90 college credits will be enrolled in the pre-architecture or pre-urban planning programs; candidates admitted with 90 or more college credits who have fulfilled the pre-architecture or pre-urban planning requirements will be enrolled in the professional program.

The general rules for admission to the College of Architecture and Urban Planning are outlined in brief below. Those who do not meet these requirements are requested to read the more detailed pertinent information in subsequent paragraphs.

1. No later than July 15, new students must have all secondary school and college credentials forwarded direct to the Registrar of the University by the principal or registrar of the last school attended.
2. A grade-point average of 2.00 (C) is required of legal residents of the state of Washington and all sons and daughters of University of Washington alumni.
3. The grade-point requirements for applicants who are not legal residents of the state of Washington, and who are not sons and daughters of University of Washington alumni, are as follows:
  - a) 3.00 (B) average or placement in the upper 25 per cent of the graduating class for applicants direct from high school.
  - b) 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also a 3.00 (B) average in their standard college courses for applicants with fewer than 45 acceptable college credits.
  - c) 2.70 (B-) average for applicants who have completed 45 or more standard college credits.
4. Upon acceptance by the University, the applicant will be assigned a registration date at which time he will report to the College of Architecture and Urban Planning office for counseling and arrangement of program.

## ADMISSION TO THE PROFESSIONAL PROGRAM OF THE COLLEGE OF ARCHITECTURE AND URBAN PLANNING

All candidates for admission to the professional program of the College of Architecture and Urban Planning must have completed at least two years of preprofessional training as prescribed by the College (90 academic quarter credits), with a cumulative grade-point average of 2.30. Candidates must have completed the minimum requirements or their equivalent, as listed under the curricula, pages 36-38 of this bulletin.

A 2.30 cumulative grade-point average must be maintained during the three professional program years in Architecture and Urban Planning. (Nonresidents, see page 21.)

## ADMISSION PROCEDURE

Admission to the professional program of the College of Architecture and Urban Planning is selective and based upon the recommendations of the Admissions Committee of the College. Each applicant must appear for a personal interview.

## GENERAL ADMISSION REGULATIONS

Regulations pertaining to admission to the University are administered by the Board of Admissions, an administrative board appointed by the President. First preference is given to qualified residents of Washington and all sons and daughters of University of Washington alumni. The College of Architecture and Urban Planning, like most colleges in the University, admits qualified out-of-state stu-

dents and encourages those who meet the nonresident scholarship requirements to apply.

Applications for Admission must be submitted by prescribed deadlines and must be substantiated by certain credentials and reports submitted in accordance with University rules and practices. It is important that the student's application be submitted by the proper time, for the University *will assume no responsibility for applicants who come to the campus before their credentials have been forwarded or before they have been notified of acceptance.*

Correspondence regarding requirements for admission to and graduation from any college or school of the University should be addressed to the Registrar.

It is the student's responsibility to make sure that complete credentials covering all his previous secondary and college education are submitted to the University. To be official they must be forwarded by the principal or registrar of the last school attended, direct to the Registrar of the University. These records become part of the official file and cannot be returned to the student nor duplicated for any purpose whatsoever, as the University does not issue or certify copies of transcripts from other institutions. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University.

To be assured of admission in Autumn Quarter, it is imperative that complete required credentials are forwarded after high school graduation and no later than July 15. The July 15 deadline also applies to applicants desiring to transfer from other colleges and universities. Applications, with complete credentials, postmarked between July 15 and August 31 will be accepted in order of receipt only as long as additional new students can be accommodated. No applications postmarked after August 31 will be considered. For admission in the other quarters, applications and credentials must be submitted by published deadlines. (For specific dates see Calendar, pages 4-10.) This applies to *all* new students seeking admission as graduates or undergraduates. *It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.* Telegraphed or airmailed messages or requests will *not* be given precedence over other material already received by regular mail.

Before notice of admission is given, a medical questionnaire, on a form supplied by the Registrar, is issued to new out-of-state students. This should be completed by a doctor of medicine and returned by him to the Registrar's Office.

#### ADMISSION FROM ACCREDITED HIGH SCHOOLS

Graduates who earn diplomas of graduation from accredited high schools and who meet the University unit and scholarship requirements for entrance are eligible for admission as freshmen with regular standing.

No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

Each entering freshman is required to submit from an accredited high school an official Application for Admission blank (obtainable from any high school principal or from the Registrar of the University), which includes all credits and grades and a statement that the student has completed his high school course with a diploma of graduation. A high school diploma cannot be substituted for the official blank. Accredited high schools in Washington are those accredited by the State Department of Public Instruction; in Alaska, by the Northwest Association of Secondary and Higher Schools; in other states, by the state university of the state or a regional accrediting association.

A high school senior may submit, after the end of the seventh semester, an official Application for Admission blank which includes all credits and grades through the seventh semester, a list of eighth-semester courses, and the expected date of graduation. Those who are found qualified will be notified they have been granted conditional admission; final admission will be contingent upon submission of a supplementary transcript after high school graduation, which includes the eighth-semester subjects with satisfactory grades and a statement that the high school

course has been completed with a diploma of graduation. *Final admission to the University will continue to be based on complete records through the eighth semester and a statement that a diploma of high school graduation has been awarded.*

#### **SCHOLARSHIP REQUIREMENT FOR APPLICANTS ENTERING DIRECTLY FROM HIGH SCHOOL**

See page 21 for applicants who have had college work.

#### **Legal Residents of the State of Washington and All Sons and Daughters of University of Washington Alumni**

The University scholarship requirement is a high school grade-point average of 2.00 (equivalent to a C average on the state of Washington grading system).

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his high school records.

The student who is admitted on probation may continue his attendance at the University at the discretion of the dean of his college but may not (1) be pledged to or initiated into a fraternity or sorority, or engage in those other student activities in which his right to participate is restricted by the regulations of the Committee on Student Welfare; (2) engage in those athletic activities in which his right to participate is restricted by the regulations of the Intercollegiate Athletics Committee. He will be removed from probation when he has earned a minimum of 12 credits, exclusive of those in lower-division physical education activity and Army, Air Force, and Navy ROTC courses, with a 2.00 grade average; however, if he carries less than 12 credits in one quarter, he may not be removed from probation unless he has earned at least a 2.00 average for the current quarter, as well as a minimum cumulative average of 2.00 for his total quarters in attendance. A student removed from probation under these provisions is then subject to the regular scholarship rules.

#### **Nonresidents or Students Residing in States and Countries Other Than the State of Washington**

The University scholarship requirement for nonresidents\* or students residing outside the state of Washington who apply for admission directly from high school is a grade-point average of 3.00 (equivalent to a B average on the state of Washington grading system) or placement in the upper 25 per cent of their graduating class. No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state (see Admission from Accredited High Schools, third paragraph, page 18).

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in the preceding section. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students from high schools in other states which use different grading systems will find their scholarship averages adjusted to the state of Washington four-point system.

A nonresident applicant who cannot meet the 3.00 (B) scholarship requirement, if he believes there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the college of his choice, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.



**UNIT REQUIREMENT FOR ALL APPLICANTS**

The minimum requirement of the University is 16 high school units<sup>1</sup> (or 15 units exclusive of activity credit in physical education, debate, etc.) with grades certifiable for university entrance. The 16 units should include at least 9 units in academic subjects (a unit equals 2 semester credits, or one full year of high school study). No unit which received lower than the lowest passing grade as defined by the high school itself may be included in the required total. However, requirements for admission to the College of Architecture and Urban Planning must include 9½ units in academic subjects as follows:

English	3 units	Physics	1 unit
One foreign language	2 units	Social Science	1 unit
Algebra	1½ units	Electives	6½ units
Plane geometry	1 unit		

Less than 1 unit in a foreign language will not be counted. Trigonometry and freehand drawing are strongly recommended.

Students should make every possible effort to complete this list of required subjects before entering the University. Under certain circumstances, however, and with the approval of the Dean of the College, deficiencies in admission requirements may be removed after entrance.

Students should possess a good working knowledge of algebra and geometry, and, if possible, trigonometry at the beginning of their course.

**SUBJECT MATTER DEFICIENCIES FOR ALL APPLICANTS**

Applicants with diplomas of graduation from accredited high schools who meet the scholarship requirement and have at least 3 units in English and 6 in other academic subjects, including either 1 unit of algebra or 1 unit of plane geometry, may petition the Dean of the College for permission to enter. (Typical academic subjects are English, foreign languages, mathematics, science, history, and economics. Some nonacademic courses are those in commerce, industrial arts, home economics, and band.) Students who are permitted to enter with provisional standing must register each quarter for make-up courses in the one or more subjects they lack until the entrance deficiency is removed. *Those deficient in first-year algebra or plane geometry and who have a grade-point average of below 2.30 (nonresidents, 2.70 or 3.00) will be expected to remove their deficiencies prior to entering the University.* Provisional standing continues until the student has satisfied the entrance requirements of the college in which he is enrolled. A student cannot enter the professional curriculum of either Architecture or Urban Planning until all entrance deficiencies have been removed, *nor can an application for a degree be accepted until these deficiencies have been removed.*

Deficiencies may be made up with university credit if college courses covering the high school material are available; 10 college credits are considered the equivalent of 1 high school unit, except that for foreign languages 15 quarter credits of college work are considered the equivalent of 2 units (4 semesters) of high school credit. No student may receive credit for repetition of work at the same or at a more elementary level, if credit has been granted in the earlier course. This rule applies whether the earlier course was taken in high school or in college, and whether, in the latter case, course numbers are duplicated or not. First-year algebra and plane geometry are offered by the Department of Extension Classes (fee \$24.00 per course) and do not carry University credit.

**GRADUATES FROM UNACCREDITED HIGH SCHOOLS**

A graduate of an *unaccredited* high school in Washington, if he has the recommendation of his principal, may petition the Board of Admissions for permission

<sup>1</sup> To count as a unit, a subject must be taught five times a week, in periods of not less than forty-five minutes, for a high school year of thirty-six weeks. The maximum allowance toward University entrance for junior high school study is 4 units.

to enter if he meets other entrance requirements. Before granting such permission, the Board may require these students to pass certain examinations.

#### NON-HIGH SCHOOL GRADUATES

In general, the Board of Admissions considers that College Entrance Board Examinations may be used to supplement unaccredited or incomplete preparatory study but may not be used as the sole basis to supply entrance credits. Applications of this kind must be reviewed by the Board of Admissions.

Information regarding College Entrance Board Examinations may be obtained by writing to the Educational Testing Service, P.O. Box 592, Princeton, New Jersey, or Box 27896, Los Feliz Station, Los Angeles 27, California.

#### ADMISSION WITH ADVANCED UNDERGRADUATE STANDING

Students in other institutions who plan to transfer to the College of Architecture and Urban Planning are urged to pattern their schedules after the curricula of this College, so that they may transfer as many credits as possible.

Applicants are admitted to the University and to the College of Architecture and Urban Planning by transfer from accredited colleges, universities, and junior colleges under these conditions:

1. The College of Architecture and Urban Planning requires that each candidate for a degree shall complete not less than five full academic years of training, including either of the preprofessional programs and a minimum of three years of professional instruction.

2. Credits for architecture courses may be transferred only from professional schools accredited by the National Architectural Accrediting Association.

3. Complete transcripts and letters of honorable dismissal must be sent directly to the University Registrar by the registrar of the former school. In general, the University will not accept a student who is in scholastic or disciplinary difficulty at his former school. Failure to supply full transcripts will be considered a serious breach of honor and may result in permanent dismissal from the University.

4. *Applicants who are legal residents of the state of Washington and all those who are sons or daughters of University of Washington alumni* and who have completed a year or more of college work must have a 2.30 (C+) grade-point average in their college record. The last term in college work must also show recommending grades. The applicant must present an admission and scholastic record equivalent to that required of students in attendance at the University. Applicants with less than a year of college work must, in addition to meeting these college transfer requirements, also meet the regular high school admission requirements.

5. *Applicants who are not legal residents\* of the state of Washington, applying with fewer than 45 acceptable college credits*, must have a 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also have a 3.00 (B) average in their standard college courses.

6. *Applicants who are not legal residents\* of the state of Washington and who have completed 45 or more standard college credits* must have a 2.70 (B-) average in their standard college courses.

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in paragraph 4 above. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students transferring from colleges or universities that employ a three-point or five-point system of passing grades will find their admission grade points adjusted to the four-point system of the University of Washington.

A nonresident applicant who cannot meet the 3.00 (B) or 2.70 (B-) scholarship requirement, whichever applies in his case, if he believes there are extenuat-

ing circumstances meriting consideration, and if he meets the subject requirements for admission to the College of Architecture and Urban Planning, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS

The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted.

1. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined until the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or fourth-year standing. Transfer credit will not be allowed in the fourth and fifth years.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution. This rule shall apply to students who enter the University of Washington in the Autumn Quarter, 1958, and thereafter.

3. Transfer credits from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits, exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training schools credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the fourth and fifth years.

6. A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of the credits can apply in the fourth and fifth years. Extension and correspondence credits from schools that are not members of the National University Extension Association are accepted only after examination.

7. Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Department of Extension Classes and Department of Correspondence Study. All credits earned by advanced-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum. Up to 10 extension or correspondence credits from this University can apply toward the work of the fourth or fifth year.

8. For work done in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advanced-credit examinations must be filed during the first quarter in residence.

9. No credit will be granted for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

**ADMISSION OF FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD**

Students educated entirely or partially in foreign countries must meet the same general requirements as those educated in American schools and must demonstrate a satisfactory command of the English language. A student who has graduated from a high school system that provides less than twelve years of instruction may be required to take additional school work.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in university attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students must meet the scholarship requirement for nonresident students. See pages 19 and 21.

In some background subjects, a student, with formal training below the university level but more than is usually given in American high schools, may be registered for a more advanced course.

**ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Persons twenty-one or older who are legal residents of Washington and are not eligible for admission as regular students may apply to the Board of Admissions for admission with special standing. With their applications they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the Dean of the College permits but may not participate in student activities or receive degrees. By fulfilling requirements for admission to the College, special students may change their status to that of regular students and may receive degrees.

Persons twenty-one or older may register as auditors in nonlaboratory courses or the lecture parts of laboratory courses by obtaining the consent of the Dean of the College and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter. Students who have been dropped for low scholarship or new applicants who do not qualify for admission may not register as auditors until they have been reinstated or accepted in some college of the University.

**ADMISSION TO THE GRADUATE SCHOOL**

Prospective graduate students must apply for admission to the Graduate School. Entrance requirements are described in the *Graduate School Bulletin*, which may be obtained from the Registrar. For further information write to the College of Architecture and Urban Planning.

**KOREAN VETERANS**

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. Veterans Administration regulations specify that the veteran's ultimate goal must be stated on his application for a certificate. Only one change of course is allowed on the Korean Bill. If the veteran has any questions regarding application for a certificate, he should contact the Veterans Division, 1B Administration Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

All graduate students not familiar with the number of credits necessary to receive full G.I. benefits should check with the Veterans Division, 1B Administration Building.

### KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to registration for the quarter the veteran wishes to enter the University. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which should be filed in the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

Veterans Administration regulations provide that after initiating his training a Korean veteran may discontinue training at any time as long as his interruption is not in excess of twelve consecutive calendar months.

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

### DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

### CHILDREN OF DECEASED VETERANS

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, 1B Administration Building, on the date of registration.

### WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 29).

### REQUIRED TESTS AND EXAMINATIONS

#### WASHINGTON PRE-COLLEGE DIFFERENTIAL GUIDANCE TEST

New students of freshmen standing (including transfer students with less than 45 quarter college credits, exclusive of credits in physical education activity and Army, Air Force, and Navy ROTC subjects) are required to take college aptitude tests at a time to be announced each quarter.

These tests have been selected on the basis of their proven value for the prediction of grades most likely to be earned by each student. The achieved scores are often used by members of staff in counseling students. In addition, a student's

score on three parts of the battery (spelling, usage, and vocabulary) is used to assign him to the appropriate section in freshman English; a student who scores in the lower fifth on these three tests must take the remedial, noncredit course, English N50 (Basic Grammar), offered in Evening Classes, for which an additional fee is charged. Little can be gained by preliminary study for these tests. Sample copies are not available. Special, foreign, and blind students and auditors are exempted.

Foreign students who have markedly inadequate previous training in the use of English are required to take a special examination under the supervision of the English department. *Since the aptitude tests are a prerequisite to English 101 (Composition) and Humanities-Social Studies 265 (Techniques of Communication) any student otherwise exempted must take these tests if he wishes to register for either of these courses.*

### MATHEMATICS QUALIFYING AND EXEMPTION TESTS

Students who have taken third-semester algebra in high school, or the equivalent course in any other college, and who plan to take Mathematics 104 (Plane Trigonometry) and/or 105 (College Algebra) are required to take a qualifying test before they are permitted to register for these University courses. Those who fail the qualifying test and who wish to study trigonometry at the University must choose one of the following alternative plans:

1. Pass Mathematics 101 (without credit for such students) and then take 104.
2. Take Mathematics 103 which meets five hours per week, but carries only 3 credits.

Those who fail the qualifying test and who wish to study college algebra must first pass either Mathematics 101 or 103.

Students who have taken trigonometry and/or college algebra in high school and whose University courses of study require these subjects may obtain exemption from Mathematics 104 and/or 105 by taking an exemption test. Particularly high scores on both of these tests will qualify students to be placed in special sections of Mathematics 153. Directions for taking these tests are included in *Registration Information for New Students* which is enclosed with the Official Notice of Admission blank. Students are advised to review their high school work before taking these tests.

### MEDICAL EXAMINATION

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, is required to pass a medical examination as a condition of registration. A definite appointment is made for the examination. This appointment takes precedence over all others scheduled for that hour. Students who fail to appear for the medical examination at the appointed time will be excluded from classes on notice to the Registrar. For a second appointment, a special fee of \$5.00 is assessed.

## REGISTRATION

### REGULAR STUDENTS

A regular student is a student who fulfills the following requirements: (1) he has been granted regular admission to a school or college of the University; (2) his current schedule for credit is satisfactory to the dean of his school or college; (3) he has completed registration, including paying tuition and fees.

### PROCEDURE

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing

registration procedures, dates, and deadlines which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to or telephoning the Registrar's Office at the time specified in the Calendar (see pages 4-10).

#### **ADVISING**

After notification of admission, and before registration, new students must visit the College for assistance in planning their course program. The College of Architecture and Urban Planning maintains an advisory office in 204 Architecture Hall.

#### **REGISTERED CREDITS ALLOWED EACH QUARTER**

Except with the consent of his dean, no student may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent) or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no case may a student be registered for, or receive credit for more than 20 credits (or the equivalent) of work, exclusive of physical education activity courses and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove entrance deficiencies, or concurrently in extension classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

#### **CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the Dean of the College. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean and the instructor whose class the student wishes to enter.

#### **WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

#### **WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the dean of his school or college the Request for Withdrawal From the University form. The same system of grading applies as that described under Withdrawal From a Course.

## SCHOLARSHIP AND MINIMUM CREDITS

A student enrolled in the College of Architecture and Urban Planning, in order to remain in good standing, must maintain a grade-point average of 2.30 (C+). A student whose average falls below 2.30 (C+) during any quarter is placed on probation and is allowed two additional quarters to attain a cumulative 2.30 (C+). Failure to earn the required average in this time will be cause for the student to be dropped from the College. A student who has been dropped and who wishes to be readmitted must apply to the College of Architecture and Urban Planning Admissions Committee. Grades earned at other institutions cannot be used to raise the grade-point average at this College.

Grade points per credit are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; and D, 1 point. A grade of E signifies failure and the grade point is 0. The grade-point average is computed by multiplying the grade point received in a course by the total number of credits the course carries, totaling these values for all courses, and dividing by the total number of credits for which the student registered.

For graduation, the College of Architecture and Urban Planning requires completion of one of the prescribed curricula, with a total of at least 225 academic credits (including Health Education 110 or 175) and the required quarters of military training and physical education activity.

### SENIOR-YEAR RESIDENCE

Senior standing is attained when 135 credits and the required credits in military, naval, or air science and physical education have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in a minimum of three quarters in residence. The remaining 10 credits may be earned either in residence or in this University's extension or correspondence courses.

In the College of Architecture and Urban Planning all credits required in the fourth- and fifth-year programs must be earned in residence at the University of Washington.

### MILITARY TRAINING

Male students who enter the University as freshmen or sophomores are required to complete six quarters of military training. Students should meet this requirement during the first two years they are in residence (registered in regular University classes).

The requirement may be met with courses in one of three University departments: Air Science, Military Science and Tactics, or Naval Science. The Departments of Air Science and Military Science offer six-quarter (two-year) basic programs of classwork and drill which fulfill University requirements, and two years of advanced ROTC training which selected students may enter after completing the basic program. Information about these programs may be obtained from the Professor of Air Science and the Professor of Military Science and Tactics at the University. The Department of Naval Science offers four-year programs only, and prospective students who are interested in Naval ROTC should write to the Professor of Naval Science.

Students with junior or senior standing in the Naval ROTC, and those who enter advanced Air Force or Army ROTC, must complete the program as a condition of graduation unless excused or dismissed by authority of the Secretary of the service concerned.

Exemptions from the requirement are granted to:

1. Students who are twenty-three years of age or over at the time of original entry into the University.
2. Students who enter as juniors or seniors.
3. Special students.
4. Students registered for 6 credits or less.



5. Students who are not citizens of the United States.
6. Students who, because of physical condition, are exempted by the University Health Officer.
7. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.
8. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.
9. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.
10. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.
11. Students who seek exemption on grounds other than specified above, and whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the Dean of the College after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 5 or 11 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

#### PHYSICAL AND HEALTH EDUCATION

**Activity Courses.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

**Men** students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

**Women** students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

The following students are exempt from the requirement of activity courses:

1. Students who have attained the age of twenty-five. A student who attains the age of twenty-five during a quarter in which he is registered for a required physical education activity course shall be held for the completion of that course. This rule shall not be retroactive in its application to students who entered prior to Spring Quarter, 1951, and were exempted from required physical education courses under previous rules.

2. Students who enter as sophomores, juniors, or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who, because of physical condition, are exempted by the Graduation Committee upon the recommendation of the Dean of the College. Such action will be taken only when the Dean has received a joint recommendation for exemption from the University Health Officer and the Executive Officer of the Department of Physical Education for Men or for Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfit to join regular classes will be assigned by the Executive Officer of the Department of Physical Education for Men or for Women to special programs adapted to their needs.

6. Students who are veterans of military service. Complete exemption is granted for one year or more of active duty. This exemption does not grant credit. Veterans with less than one year of service receive no exemption.

7. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**Health Courses.** All men students who enter the University as freshmen are required to take Health Education 175, a course in personal health, within the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption does not grant credit.

Women students who enter the University as freshmen are required to take Health Education 110 within the first three quarters of residence. Women entering the University for the first time may satisfy this requirement by passing a health-knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement, but does not grant credit for Health Education 110.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

### Tuition

Resident students, per quarter	\$35.00
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A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter	105.00
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Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Nonresident Office, 205A Administration Building, for a change of classification.

Auditors, per quarter	12.00
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Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one half the nonresident tuition.

This exemption is not granted to Summer Quarter students.

### Incidental Fee, per quarter

Full-time resident students	27.50
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Part-time resident students (registered for 6 credits or less, exclusive of ROTC)	10.00
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Full-time nonresident students	52.50
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Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC)	35.00
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Auditors do not pay an incidental fee; there are no other exemptions.

### ASUW Fees

Membership, per quarter	8.50
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Optional for auditors and part-time students.

Athletic admission ticket (optional for ASUW members)	3.00-5.00
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Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00; Spring Quarter only, \$3.00.

### Military Uniform Deposit

	25.00
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Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.

<b>Breakage Ticket Deposit</b>	3.00
Required in some laboratory courses; ticket is returnable for full or partial refund.	
<b>Locker Fee, per quarter</b>	1.50
Required of men students taking physical education activities.	
<b>Grade Sheet Fee</b>	.25
One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.	
<b>Transcript Fee</b>	.50
One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.	
<b>Graduation Fee</b>	10.00

#### SPECIAL FEES

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Permits to register by In-Person Registration. A late registration fee of \$15.00 is charged students eligible for In-Person Registration who fail to register before the first day of instruction Autumn, Winter, and Spring Quarters. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. A fee of \$5.00 is charged for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00 and for removal of an Incomplete, \$2.00.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter, are: bowling, \$5.00; canoeing, \$2.50; golf instruction, \$3.00 per quarter.

#### REFUND OF FEES

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

#### ESTIMATE OF YEARLY EXPENSES

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

##### *Tuition, Incidental, and ASUW Membership Fees*

Full-time resident student	\$213.00
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Full-time nonresident student	498.00
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<i>Athletic Admission Ticket</i> (optional)	3.00-5.00
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<i>Accident Insurance</i> (optional)	3.60
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<i>Special Fees and Deposits</i>	38.50
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Military uniform deposit, breakage ticket, and locker fees.

<i>Books and Supplies</i>	90.00
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##### *Board and Room*

Room and meals in Men's Residence Halls	630.00
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Room and meals in Women's Residence Halls	630.00-660.00
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Room and meals in fraternity or sorority house	660.00-700.00
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Initial cost of joining is not included; this information may be obtained from the Interfraternity or Panhellenic Council.

<i>Personal Expenses</i>	200.00
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## STUDENT ACTIVITIES AND SERVICES

### ASSOCIATED STUDENTS

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

### HONORARY AND PROFESSIONAL SOCIETIES

Tau Sigma Delta, the International Honorary Professional Fraternity in Architecture and Allied Arts, was organized in 1913 at the University of Michigan. Chapters have been established in most of the recognized schools of architecture. The Iota Chapter was established in 1924 at the University of Washington. Membership is selective and based upon scholastic attainment. The purpose of Tau Sigma Delta is to promote scholarship and professional excellence in design.

Atelier, a professional student society and social organization, was formed at the inception of the school to unite the students and to encourage them to handle their own problems and become aware of the ethics and high standards of the profession. It is open to all students in the College and all are urged to join. Included in the many social events sponsored by Atelier is an annual ball. It also publishes a students' yearbook.

Urban Planning Students Association, a professional student society, sponsors lectures and meetings of planning interest, as well as several social functions during the year. It is open to all urban planning students.

### AWARDS AND LOANS

The University offers a number of awards for outstanding academic achievement. Some are given by the University, and many others are available through the generosity of friends and alumni. A handbook listing the current awards may be obtained from the Office of the Dean of Students.

An emergency loan fund is administered by the Office of the Dean of Students.

Scholarships and medals created especially for architectural students with high scholastic standing, general excellence, and outstanding design ability are awarded each year. Medals are presented by the American Institute of Architects; Alpha Rho Chi, national social fraternity of Architecture; and the Faculty of the College. Scholarships and monetary awards are:

**AMERICAN INSTITUTE OF ARCHITECTS, WASHINGTON STATE CHAPTER, SCHOLARSHIP.** Awarded to outstanding student or students of Architecture Design, Grade I, who may also need financial assistance to continue formal training.

**ARCHITECTURAL FOUNDATION.** Traveling or study scholarship awarded to an outstanding student.

**ARCHITECTURE ALUMNI TRAVELING SCHOLARSHIP.** Awarded to an outstanding student for summer travel preceding the final year.

**NORTHWEST PLASTER BUREAU, INC. SCHOLARSHIP.** Awarded to a student with high scholastic standing and in need of financial assistance.

**STRUCTURAL CLAY PRODUCTS INSTITUTE.** Several small prizes awarded to senior students of Architecture Design, Grade IV.

**TAU SIGMA DELTA, IOTA CHAPTER.** Several small prizes awarded Spring Quarter in a competition for all design classes.

**UNIT MASONRY ASSOCIATION SCHOLARSHIP.** Awarded to a fourth-year student in Architecture who has done outstanding work in design. Three merit certificates are also given by the Unit Masonry Association.

### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and social problems. The Dean of Students Office also has current information on Selective Service regulations.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, employment, and home hospitality should be referred to this Adviser. Students who are interested in study abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

### COUNSELING CENTER

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors, and psychologists, works closely with other student services and supplements the academic advisory program.

### HOUSING

Accommodations are available to men in the Men's Residence Halls, 1201 Campus Parkway, Seattle 5, Washington. Interested students should write to the Manager, Men's Residence Halls. Preference in assignment to the Women's Residence Halls is given to younger girls. Interested women should write to the Manager, Women's Residence Halls, University of Washington, Seattle 5, Washington. Information about fraternities may be obtained from the Interfraternity Council, Student Union Building, University of Washington, and about sororities from the Panhellenic Council, Student Union Building, University of Washington.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardians.

Married students who have children are eligible to apply to the Office of Student Residences for accommodations in Union Bay Village and Sand Point Homes, the University's family housing projects. Because there is a long waiting list, new students should not rely on the possibility of obtaining immediate housing.

The Office of Student Residences, 23 Administration Building, keeps listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must be consulted in person.

### HEALTH CENTER

The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

### WORK PLACEMENT

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence in Seattle has been established. Placement in jobs on campus is handled by the Personnel Department and the ASUW Personnel Office.



## THE COLLEGE PROGRAMS

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# THE COLLEGE PROGRAMS

**T**HE COLLEGE OF ARCHITECTURE AND URBAN PLANNING offers courses leading to the degrees of Bachelor of Architecture and Bachelor of Urban Planning. The College will soon announce the inauguration of a curriculum leading to a degree in Landscape Architecture. Site planning and landscape design disciplines are currently being extended to architectural students. The College also offers a program leading to the degree of Master of Arts in Urban Planning.

## BACHELOR'S DEGREES

Students working toward the bachelor's degree in architecture or urban planning must meet certain general requirements of the University and the College as well as the particular course requirements of either curriculum. These general requirements include military training, physical education, scholarship and minimum credits, and senior-year residence.

Students should apply for bachelor's degrees during the first quarter of the final year. A student may choose to graduate under the graduation requirements of the appropriate school or college bulletin published most recently before the date of his entry into the college in which he is to graduate, provided that not more than ten years have elapsed since that date. As an alternative he may choose to fulfill the graduation requirements as outlined in the appropriate school or college bulletin published most recently before the date of his graduation. All responsibility for fulfilling graduation requirements will rest with the student concerned. No student whose standing is provisional because he has not removed his entrance deficiencies can have an application for degree accepted until the deficiency is cleared.

## ADVANCED DEGREES

Students who intend to work toward the degree of Master of Arts in Urban Planning must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. *Graduate students must satisfy the requirements for an advanced degree which are in force at the time the degree*

is to be awarded. For graduate study, the approval of both the College of Architecture and Urban Planning and the Graduate School is necessary.

## COURSE-NUMBERING SYSTEM

Courses numbered from 100 through 299 are lower-division courses, for freshmen and sophomores; those numbered from 300 through 499 are upper-division, for juniors and seniors. Courses open to graduate students only are numbered 500 and above.

The number in parentheses following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## CURRICULA

Students are not permitted to deviate from a curriculum or to substitute courses except with the consent of the Dean of the College.

The College reserves the right to retain student work for temporary or permanent record.

## BACHELOR OF ARCHITECTURE

The five-year curriculum leading to the degree of Bachelor of Architecture is outlined below.

### PREPROFESSIONAL REQUIREMENTS

#### First Year

AUTUMN QUARTER	CREDITS
Arch. 100 Appreciation...	2
English 101 Composition...	3
Math. 104 Plane Trig. ....	3
Approved electives .....	5
Health Educ. 110 or 175 ..	2
Health .....	2
Phys. Educ. activity .....	1
ROTC .....	2-3
	<hr/> 16-19

WINTER QUARTER	CREDITS
Arch. 101 Appreciation...	2
English 102 Composition...	3
Math. 105 College Algebra	5
Approved electives .....	5
Phys. Educ. activity .....	1
ROTC .....	2-3
	<hr/> 16-19

SPRING QUARTER	CREDITS
Arch. 105 The House .....	2
English 103 Composition...	3
Sociol. 110 Survey .....	5
Approved electives .....	5
Phys. Educ. activity .....	1
ROTC .....	2-3
	<hr/> 16-19

#### Second Year

AUTUMN QUARTER	CREDITS
Arch. 124 Design Gr. I...	6
Physics 101 General .....	4
Physics 107 General Lab. ...	1
Approved electives .....	4
ROTC .....	2-3
	<hr/> 15-18

WINTER QUARTER	CREDITS
Arch. 125 Design Gr. I...	6
Art 258 Water Color .....	3
Physics 102 General .....	4
Physics 108 General Lab. ...	1
Approved electives .....	2
ROTC .....	2-3
	<hr/> 16-19

SPRING QUARTER	CREDITS
Arch. 126 Design Gr. I...	6
Art 259 Adv. Water Color	3
Physics 103 General .....	4
Physics 109 General Lab. ...	1
ROTC .....	2-3
	<hr/> 14-17

Electives should be approved by the adviser of the College.

### PROFESSIONAL REQUIREMENTS

#### Third Year

AUTUMN QUARTER	CREDITS
Arch. 200 History .....	3
Arch. 224 Design Gr. II ...	7
Arch. 235 Mech. Equip. ....	2
Arch. 276 Statics .....	3
	<hr/> 15

WINTER QUARTER	CREDITS
Arch. 201 History .....	3
Arch. 225 Design Gr. II ...	7
Arch. 236 Mech. Equip. ....	2
Arch. 277 Strength of Materials .....	3
	<hr/> 15

SPRING QUARTER	CREDITS
Arch. 202 History .....	3
Arch. 226 Design Gr. II ...	7
Arch. 237 Mech. Equip. ....	2
Arch. 278 Trusses .....	3
	<hr/> 15



## Fourth Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Arch. 303 History . . . . .	3	Arch. 325 Design Gr. III . . .	7	Arch. 326 Design Gr. III . . .	7
Arch. 324 Design Gr. III . . .	7	Arch. 331 Materials . . . . .	2	Arch. 369 Specifications . . .	3
Arch. 330 Materials . . . . .	2	Arch. 360 Theory & Anal. . .	3	Arch. 378 Reinforced Concrete . . . . .	4
Arch. 376 Timber & Steel . . .	4	Arch. 377 Reinforced Concrete . . . . .	4	Urban Plan. 380 Intro. to City Planning . . . . .	3
	<u>16</u>		<u>16</u>		<u>17</u>

## Fifth Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Arch. 424 Design Gr. IV . . .	7	Arch. 425 Design Gr. IV . . .	7	Arch. 426 Design Gr. IV . . .	7
Arch. 430 Contract Draw. . .	3	Arch. 431 Contract Draw. . .	3	Arch. 432 Contract Draw. . .	3
Arch. 460 Building Econ. . .	2	Arch. 438 Illumin. Sem. . .	3	Arch. 439 Acoustics Sem. . .	3
Urban Plan. 485 Housing. . .	2	Bus. Law 307 Business Law . . . . .	3	Arch. 468 Prof. Practice . . .	2
	<u>14</u>		<u>16</u>		<u>15</u>

## BACHELOR OF URBAN PLANNING

The five-year curriculum leading to the degree of Bachelor of Urban Planning is outlined below. Myer R. Wolfe is in charge.

## PREPROFESSIONAL REQUIREMENTS

## First Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Arch. 100 Appreciation . . .	2	Arch. 101 Appreciation . . .	2	Arch. 105 The House . . . .	2
English 101 Composition . .	3	English 102 Composition . .	3	English 103 Composition . .	3
Math. 104 Plane Trig. . . .	3	Math. 105 College Algebra .	5	Sociol. 110 Survey . . . . .	5
Health Educ. 110 or 175 . . .		Approved electives . . . . .	5	Approved electives . . . . .	5
Health . . . . .	2	Phys. Educ. activity . . . . .	1	Phys. Educ. activity . . . . .	1
Approved electives . . . . .	5	ROTC . . . . .	2-3	ROTC . . . . .	2-3
Phys. Educ. activity . . . . .	1		<u>16-19</u>		<u>16-19</u>
ROTC . . . . .	2-3				
	<u>16-19</u>				

## Second Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Arch. 124 Design Gr. I . . .	6	Arch. 125 Design Gr. I . . .	6	Arch. 126 Design Gr. I . . .	6
Physics 101 General . . . . .	4	Art 258 Water Color . . . . .	3	Art 259 Adv. Water Color . .	3
Physics 107 General Lab. . .	1	Physics 102 General . . . . .	4	Physics 103 General . . . . .	4
Approved electives . . . . .	4	Physics 108 General Lab. . .	1	Physics 109 General Lab. . .	1
ROTC . . . . .	2-3	Approved electives . . . . .	2	ROTC . . . . .	2-3
	<u>15-18</u>	ROTC . . . . .	2-3		<u>14-17</u>
			<u>16-19</u>		

Electives should be approved by the adviser of the College.

## PROFESSIONAL REQUIREMENTS

## Third Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Arch. 200 History . . . . .	3	Arch. 201 History . . . . .	3	Arch. 202 History . . . . .	3
Arch. 224 Design Gr. II . . .	7	Arch. 225 Design Gr. II . . .	7	Arch. 226 Design Gr. II . . .	7
Econ. 200 Introduction . . .	5	Geog. 477 Urban Geog. . . .	5	Urban Plan. 380 Intro. to City Planning . . . . .	3
	<u>15</u>		<u>15</u>	Gen. Engr. 121 Surveying . .	3
					<u>16</u>

## Fourth Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Arch. 324 Design Gr. III . . .	7	Arch. 325 Design Gr. III . . .	7	Urban Plan. 481 Urban Plan. Anal. II . . . . .	3
Urban Plan. 479 Urb. Form . . . . .	2	Urban Plan. 480 Urban Plan. Anal. I . . . . .	3	Urban Plan. 490 City Plan. Design . . . . .	7
Urban Plan. 485 Housing . . .	2	Pol. Sci. 375 Munic. Govt. and Admin. . . . .	5	Civil Engr. 429 Traffic Engr.-Operations . . . . .	3
Econ. 350 Pub. Finance & Taxation I . . . . .	5		<u>15</u>	Approved electives . . . . .	3
	<u>16</u>				<u>16</u>

## Fifth Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Urban Plan. 491 City Plan. Design .....	7	Urban Plan. 482 Urban Commun. Fac. ....	2	Urban Plan. 493 City Plan. Design .....	7
Civil Engr. 403 Urban Planning .....	3	Urban Plan. 492 City Plan. Design .....	7	Approved electives .....	8
Real Estate 301 Urban Real Estate .....	5	Approved electives .....	6	(usually includes Pol. Sci. 582)	
	<hr/> 15	(usually includes Pol. Sci. 581)			<hr/> 15
			<hr/> 15		

Approved electives: Civil Engr. 315 Photogrammetry (3); Civil Engr. 350 Introduction to Sanitary Engineering (3); Civil Engr. 428 Highway Policy and Economics (3); Pol. Sci. 470 Introduction to Public Administration (5); Pol. Sci. 580, 581, 582 Seminar in Metropolitan and Urban Planning Problems (3,3,3); Sociol. 430 Human Ecology (5); Sociol. 531 Demography (3).

## COURSES FOR UNDERGRADUATES

## ARCHITECTURE COURSES

- 100, 101 Architectural Appreciation (2,2)** **Herrman**  
Survey of architectural design from an historical viewpoint.
- 105 The House (2)** **Herrman**  
Analysis of domestic architecture.
- 124, 125, 126 Architectural Design, Grade I (6,6,6)** **Staff**  
Design and drawing fundamentals to provide a working knowledge, language, and tools for the architect. Prerequisite, permission.
- 200, 201, 202 History of Architecture (3,3,3)** **Davis, Kolb**  
Comparative study of the Classic, Byzantine, Romanesque, Gothic, and Renaissance periods. Prerequisite, 101.
- 224, 225, 226 Architectural Design, Grade II (7,7,7)** **Staff**  
Prerequisite, 126.
- 235, 236, 237 Mechanical Equipment of Buildings (2,2,2)** **Staff**  
Analysis and methods of plumbing and sanitation; electric wiring and illumination; heating, ventilating, and air conditioning.
- 276 Statics (3)** **Jacobson, Torrence**  
Basic analysis of forces and force systems by analytical and graphic methods. Stress analysis of trusses. Prerequisite, Mathematics 105.
- 277 Strength of Materials (3)** **Jacobson, Torrence**  
Stress and strain. Strength and elastic properties of structural materials. Riveted and welded joints. Designs of simple timber and steel beams, girders, and columns. Prerequisite, 276.
- 278 Analysis and Design of Trusses (3)** **Jacobson, Torrence**  
Determination of roof loads. Complete design of various types of roof trusses in timber and steel. Prerequisite, 277.
- 303 History of Architecture (3)** **Sproule**  
Analysis of architectural developments since the Renaissance. Prerequisite, 202.
- 314, 315, 316 Architectural Drawing (4,4,4)** **Staff**  
Orthographic projection, shades and shadows, perspective, drafting, and rendering techniques.
- 324, 325, 326 Architectural Design, Grade III (7,7,7)** **Staff**  
Prerequisite, 226.
- 330, 331 Materials and Their Uses (2,2)** **Lovett**  
Manufacture, properties, and design potentials of building materials. Prerequisite, Physics 103 and 109.
- 360 Design Theory and Analysis (3)** **Steinbrueck**  
Design theory, analysis of planning, and building types. Prerequisite, 226.
- 369 Specifications and Contracts (3)** **Mithun**  
Form and composition of building specifications and related contract documents. Prerequisite, 331.
- 376 Structural Design: Timber and Steel (4)** **Radcliffe, Torrence**  
Analysis and design of complete building frames. Laminated wood frames. Uses of arches and rigid frames in building construction. Earthquake resistance in design. Prerequisite, 278.
- 377, 378 Structural Design: Reinforced Concrete (4,4)** **Radcliffe, Torrence**  
377: introduction to the analysis of continuous structures. Development of basic design equations. Design of reinforced concrete beams, girders, and one-way and two-way floor slabs. Prerequisite, 376. 378: design of flat slabs, columns, stairways, footings, foundation walls, and retaining walls. Prerequisite, 377.

- 424, 425, 426 Architectural Design, Grade IV (7,7,7)** **Staff**  
Prerequisite, 326.
- 427, 428, 429 Architectural Problems (3-7,3-7,3-7)** **Herrman, Staff**  
Prerequisite, 426.
- 430, 431, 432 Contract Drawings (3,3,3)** **Dietz**  
Lectures and drafting-room practice. Prerequisites, 326 and 378.
- 438 Illumination Seminar (3)** **Whorrette**  
Principles of illumination as applied to buildings. Prerequisite, senior in architecture.
- 439 Acoustics Seminar (3)** **Lovett**  
Principles of acoustical designing as applied to buildings. Prerequisite, senior in architecture.
- 460 Building Economics (2)** **Mithun**  
Social, political, and economic factors affecting the location, construction, financing, and marketing of buildings. Prerequisite, senior in architecture.
- 468 Professional Practice (2)** **Herrman**  
Introduction to the architectural office, business operation, and professional procedure. Prerequisite, senior in architecture.

### URBAN PLANNING COURSES

- 380 Introduction to City Planning (3)** **Koski, Wolfe**  
History, principles, theories of city growth and planning. Emphasis on city structure as a physical monument to contemporary culture. Present urban faults and remedial action. Prerequisite, urban planning or architecture major, or permission.
- 479 The Urban Form (2)** **Wolfe**  
Evolution of the urban form. Development of the physical setting as related to building groupment, open spaces, and circulation patterns. Cultural influences on the city structure. Prerequisite, urban planning or architecture major, or permission.
- 480 Urban Planning Analysis I (3)** **Koski, Wolfe**  
The urban plan and plan making. Emphasis on comprehensive, coordinative urban planning. Various planning surveys with methodology and techniques discussed. Prerequisite, 380 or permission.
- 481 Urban Planning Analysis II (3)** **Koski, Wolfe**  
Factors relating to the timing, phasing, and programming of urban development. The bearing of amenity, density, etc. on the actual development process. Prerequisite, 480.
- 482 Urban Community Facilities (2)** **Koski**  
Relationships of goal structure and physical requirements of public facilities. Criteria pertinent to schools, parks, utilities, etc., and their effect on the comprehensive plan. Prerequisite, urban planning or architecture major, or permission.
- 485 Housing (2)** **Wolfe**  
Survey of housing and redevelopment problems, theories, standards, and practice. Prerequisite, 380.
- 490, 491, 492, 493 City Planning Design (7,7,7,7)** **Wolfe**  
Planning problems, with emphasis on urban design based on the interpretation of social, economic, and physical data. Prerequisite, Architecture 325 or permission.

### COURSES FOR GRADUATES ONLY

- 590, 591, 592, 593 Urban Planning Problems (7,7,7,7)** **Koski, Wolfe**  
Typical planning problems using the city as a laboratory. Emphasis on urban research, evaluation of basic data, planning proposals, and presentation techniques. Prerequisite, graduate student in urban planning.

## MASTER OF ARTS IN URBAN PLANNING

### DEGREE DATA

The degree, Master of Arts in Urban Planning, is awarded by the Graduate School, through the College of Architecture and Urban Planning, upon completion of two years of graduate work and a thesis.

### ADMISSION REQUIREMENTS

To be admitted as a graduate student, the applicant must have received a bachelor's degree from an accredited institution, must meet the Graduate School scholastic requirements, and must give evidence of a genuine interest in the field of urban studies.

### PROGRAM OF STUDY

The normal graduate program covers five quarters with the sixth devoted to a thesis (9 credits) plus, usually, one seminar course. In subjects such as urban

planning survey, problems, and analysis, 36 credits are required. In such courses as urban transportation and public policy in governmental planning, organized specifically for planning students, 14 credits are required. Approximately 23 credits are required in urban study or background courses from the social sciences, engineering, and humanities.

*Further information on specific courses will be sent on request.*

#### **FACULTY AND ADVISERS**

The planning curricula emanate from a distinct area in the College of Architecture and Urban Planning. A curriculum advisory committee to the Dean of the College of Architecture and Urban Planning consists of faculty members from the Colleges of Arts and Sciences, Engineering, and Business Administration.

##### **Full-Time Faculty Members:**

M. R. Wolfe, Professor, Urban Planning

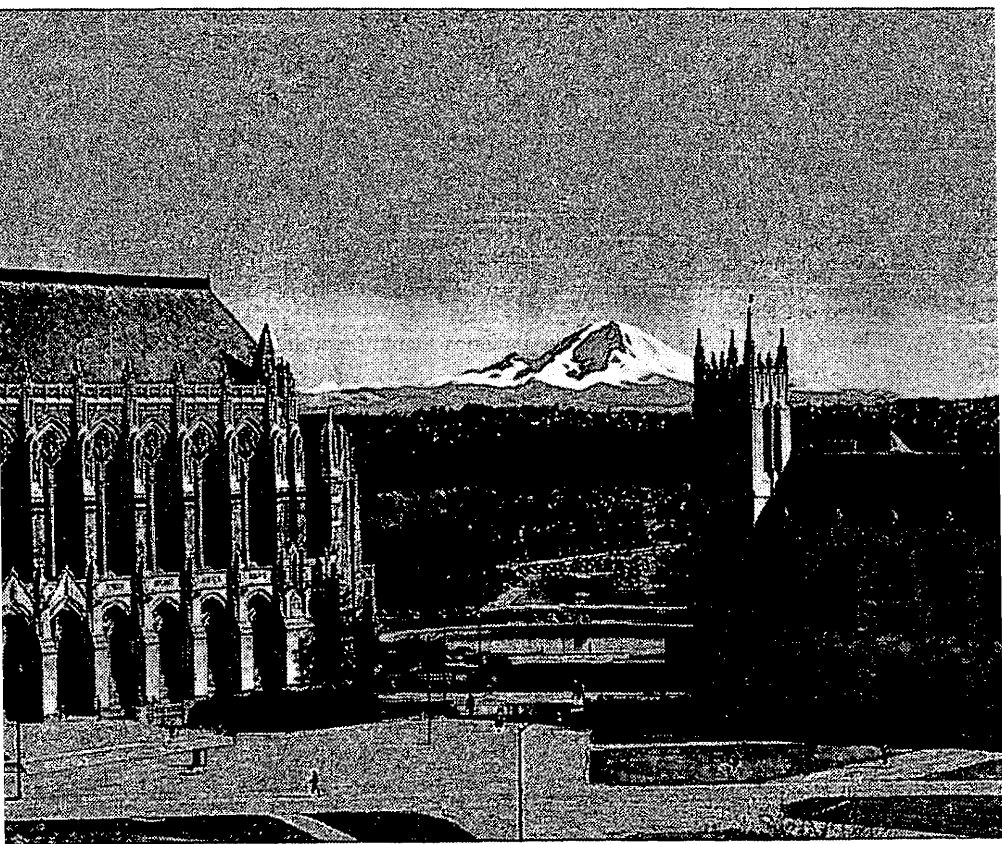
Robert W. Koski, Acting Assistant Professor, Urban Planning

##### **Part-Time Faculty Members:**

Specific members of the advisory committee, who are full-time faculty members in their own areas, contribute special courses to the planning curriculum. Visiting lecturers and planning study critics also make a contribution in the areas of Market Analysis, Urban Redevelopment Studies, Zoning Ordinance Drafting, Planning Administration, and the like.

Inquiries concerning the program should be sent to: Dean, College of Architecture and Urban Planning. Attention: M. R. Wolfe, Professor of Urban Planning.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF  
**ARTS AND SCIENCES**  
1959-1961

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Department of Correspondence Study and the Department of Extension Classes, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Registrar.

#### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS

INTRODUCTION TO THE UNIVERSITY

UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

#### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF DENTISTRY

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FISHERIES

COLLEGE OF FORESTRY

GRADUATE SCHOOL

SCHOOL OF LAW

SCHOOL OF MEDICINE

SCHOOL OF NURSING

COLLEGE OF PHARMACY

SCHOOL OF SOCIAL WORK

#### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT

SUMMER QUARTER ANNOUNCEMENT

CENTER FOR GRADUATE STUDY AT HANFORD

CORRESPONDENCE STUDY

EVENING CLASSES

# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	11
Board of Regents	
Officers of Administration	
Officers of the College of Arts and Sciences	
Faculty of the College of Arts and Sciences	
Cooperating Faculty	
GENERAL INFORMATION . . . . .	39
College Facilities and Services	
Revised Admission Requirements for 1961	
Current Admission Requirements	
Veterans	
Required Tests and Examinations	
Registration	
Scholarship and Minimum Credits	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE DEPARTMENTAL PROGRAMS . . . . .	61
Undergraduate Curricula	
Bachelor's Degrees	
Advanced Degrees	
Course-Numbering System	
Anthropology . . . . .	64
Architecture . . . . .	67
Art . . . . .	67
Astronomy . . . . .	76
Basic Medical Science . . . . .	76
Biology . . . . .	77
Botany . . . . .	77
Chemistry . . . . .	80
Classics . . . . .	85
Communications . . . . .	88
Dental Hygiene . . . . .	93
Dentistry . . . . .	93
Drama . . . . .	94
Economics . . . . .	96
Education . . . . .	100
English . . . . .	101
Far Eastern and Russian Institute . . . . .	105
Far Eastern and Slavic Languages . . . . .	109
Fisheries . . . . .	115
Food Technology . . . . .	115
General and Comparative Literature . . . . .	116
General Education . . . . .	118
General Studies . . . . .	121
Genetics . . . . .	122
Geography . . . . .	122
Geology . . . . .	126
Germanic Languages . . . . .	129
History . . . . .	132
Home Economics . . . . .	139
Law . . . . .	147
Liberal Arts . . . . .	148
Librarianship . . . . .	148
Linguistics . . . . .	149
Mathematics . . . . .	150
Medical Technology . . . . .	155
Medicine . . . . .	156
Meteorology and Climatology . . . . .	157
Microbiology . . . . .	159
Music . . . . .	161
Occupational Therapy . . . . .	171
Oceanography . . . . .	171
Philosophy . . . . .	174
Physical and Health Education . . . . .	177
Physical Therapy . . . . .	187
Physics . . . . .	187
Political Science . . . . .	192
Premajor . . . . .	197
Psychology . . . . .	198
Public Health . . . . .	202
Romance Languages . . . . .	207
Scandinavian Languages . . . . .	214
Social Work . . . . .	216
Sociology . . . . .	216
Speech . . . . .	220
Zoology . . . . .	224
RESERVE OFFICERS TRAINING PROGRAMS . . . . .	231

# CALENDAR

**AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS**  
(Autumn Quarter, 1959, through Summer Quarter, 1961)

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

## AUTUMN QUARTER, 1959

### REGISTRATION PERIOD

MAY 4-29	Advance Registration only for students in residence Spring Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-29	In-Person Registration for former students not in residence Spring Quarter, 1959, and those attending Spring Quarter, 1959, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 8. Deadline for applying for Registration Appointment or Permit is September 15.
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 14-25	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 14-29	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 29	Last day to register for Autumn Quarter, 1959.
OCT. 1-6	Change of registration by appointment only.

### ACADEMIC PERIOD

SEPT. 28—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 30—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 6—TUESDAY	Last day to add a course
NOV. 2—MONDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1960, due at Registrar's Office
NOV. 11—WEDNESDAY	State Admission Day holiday
NOV. 25—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 25-30	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 12—SATURDAY	Advanced credit examinations
DEC. 14-18	Final examinations
DEC. 18—FRIDAY	Quarter ends

## WINTER QUARTER, 1960

### REGISTRATION PERIOD

OCT. 26-Nov. 20	Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of \$15.00 will be
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- assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- DEC. 28-30 In-Person Registration for former students not in residence Autumn Quarter, 1959, and those attending Autumn Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than December 11*. Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between November 23 and December 11. Deadline for applying for Registration Appointment or Permit is *December 11*.
- DEC. 4 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- DEC. 20 Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
- DEC. 28-30 In-Person Registration for ALL new students.
- DEC. 30 Last day to register for Winter Quarter, 1960.
- JAN. 5-8 Change of registration by appointment only.

**ACADEMIC PERIOD**

- JAN. 4—MONDAY Instruction begins
- JAN. 8—FRIDAY Last day to add a course
- FEB. 22—MONDAY Washington's Birthday and Founder's Day holiday
- FEB. 26—FRIDAY Last day to submit applications for advanced credit examinations
- MAR. 12—SATURDAY Advanced credit examinations
- MAR. 14-18 Final examinations
- MAR. 18—FRIDAY Quarter ends

**SPRING QUARTER, 1960****REGISTRATION PERIOD**

- JAN. 25-FEB. 19 Advance Registration only for students in residence Winter Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- MAR. 22-24 In-Person Registration for former students not in residence Winter Quarter, 1960, and those attending Winter Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 11*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between February 23 and March 11. Deadline for applying for Registration Appointment or Permit is *March 11*.

FEB. 26	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
MAR. 22-24	In-Person Registration for ALL new students.
MAR. 24	Last day to register for Spring Quarter, 1960.
MAR. 29-APR. 1	Change of registration by appointment only.

#### ACADEMIC PERIOD

MAR. 28—MONDAY	Instruction begins
APR. 1—FRIDAY	Last day to add a course
MAY 6—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 20—FRIDAY	Governor's Day
MAY 21—SATURDAY	Advanced credit examinations
MAY 30—MONDAY	Memorial Day holiday
JUNE 5—SUNDAY	Baccalaureate Sunday
JUNE 6-10	Final examinations
JUNE 10—FRIDAY	Quarter ends
JUNE 11—SATURDAY	Commencement

#### SUMMER QUARTER, 1960

##### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 1-3  
June 13-17

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hospital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

##### *Students in residence Spring Quarter, 1960:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 18, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 19, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 20, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 21, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1960*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 19 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 20—MONDAY	Instruction begins
JUNE 21—TUESDAY	Last day to add a course for the first term
JUNE 24—FRIDAY	Last day to add a course for the full quarter
JULY 1—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—MONDAY	Independence Day holiday
JULY 16—SATURDAY	Advanced credit examinations
JULY 20—WEDNESDAY	Final examinations and first term end
JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
JULY 29—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 13—SATURDAY	Advanced credit examinations
AUG. 19—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1960****REGISTRATION PERIOD**

MAY 2-27	Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 8-27	In-Person Registration for former students not in residence Spring Quarter, 1960, and those attending Spring Quarter, 1960, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning <i>June 6</i> . Deadline for applying for Registration Appointment or Permit is <i>September 13</i> .
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
SEPT. 12-23	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 12-27	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 27	Last day to register for Autumn Quarter, 1960.
SEPT. 29-OCT. 4	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 26—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 4—TUESDAY	Last day to add a course

NOV. 1—TUESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 18—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 10—SATURDAY	Advanced credit examinations
DEC. 12-16	Final examinations
DEC. 16—FRIDAY	Quarter ends

## WINTER QUARTER, 1961

### REGISTRATION PERIOD

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960, and those attending Autumn Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than December 9</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between November 22 and December 9. Deadline for applying for Registration Appointment or Permit is <i>December 9</i> .
DEC. 2	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
DEC. 27-29	In-Person Registration for ALL new students.
DEC. 29	Last day to register for Winter Quarter, 1961.
JAN. 4-9	Change of registration by appointment only.

### ACADEMIC PERIOD

JAN. 3—TUESDAY	Instruction begins
JAN. 9—MONDAY	Last day to add a course
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
FEB. 24—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 11—SATURDAY	Advanced credit examinations
MAR. 13-17	Final examinations
MAR. 17—FRIDAY	Quarter ends

**SPRING QUARTER, 1961****REGISTRATION PERIOD**

JAN. 23-FEB. 17	Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 21-23	In-Person Registration for former students not in residence Winter Quarter, 1961, and those attending Winter Quarter, 1961, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than March 10</i> . Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between February 20 and March 10. Deadline for applying for Registration Appointment or Permit is <i>March 10</i> .
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
MAR. 21-23	In-Person Registration for ALL new students.
MAR. 23	Last day to register for Spring Quarter, 1961.
MAR. 27-31	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 27—MONDAY	Instruction begins
MAR. 31—FRIDAY	Last day to add a course
MAY 12—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 19—FRIDAY	Governor's Day
MAY 27—SATURDAY	Advanced credit examinations
MAY 30—TUESDAY	Memorial Day holiday
JUNE 4—SUNDAY	Baccalaureate Sunday
JUNE 5-9	Final examinations
JUNE 9—FRIDAY	Quarter ends
JUNE 10—SATURDAY	Commencement

**SUMMER QUARTER, 1961****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

May 31-June 2

June 12-16

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hos-

pital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 17, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 18, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 19, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 20, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1961*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 17 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

#### ACADEMIC PERIOD

JUNE 19—MONDAY	Instruction begins
JUNE 20—TUESDAY	Last day to add a course for the first term
JUNE 23—FRIDAY	Last day to add a course for the full quarter
JUNE 30—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—TUESDAY	Independence Day holiday
JULY 15—SATURDAY	Advanced credit examinations
JULY 19—WEDNESDAY	Final examinations and first term end
JULY 20—THURSDAY	Second term begins
JULY 21—FRIDAY	Last day to add a course for the second term
JULY 28—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 12—SATURDAY	Advanced credit examinations
AUG. 18—FRIDAY	Final examinations and second term end

*For further information concerning subsequent quarters inquire at the Registrar's Office.*

#### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*

## ADMINISTRATION

### BOARD OF REGENTS

HAROLD S. SHEFELMAN, *President*

JOHN L. KING, *Vice-President*

MRS. A. SCOTT BULLITT

JOSEPH DRUMHELLER

ALBERT B. MURPHY

ROBERT J. WILLIS

Seattle

Seattle

Seattle

Spokane

Everett

Yakima

HELEN E. HOAGLAND, *Secretary*  
NELSON A. WAHLSTROM, *Treasurer*

### OFFICERS OF ADMINISTRATION

CHARLES E. ODEGAARD, Ph.D.

FREDERICK P. THIEME, Ph.D.

ETHEL TONER, B.A.

HAROLD A. ADAMS, M.S.

NELSON A. WAHLSTROM, B.B.A.

ERNEST M. CONRAD, B.B.A.

DONALD K. ANDERSON, B.A.

*President of the University*

*Provost of the University*

*Registrar*

*Director of Admissions*

*Comptroller and Treasurer*

*Business Manager*

*Dean of Students*

### OFFICERS OF THE COLLEGE OF ARTS AND SCIENCES

LLOYD S. WOODBURNE, Ph.D.

PHILIP W. CARTWRIGHT, Ph.D.

*Dean of the College of Arts and Sciences*

*Associate Dean of the*

*College of Arts and Sciences*

WALTER L. RILEY, Ph.D.

WILLIAM L. PHILLIPS, Ph.D.

EDWARD H. LAUER, Ph.D.

*Assistant Dean of the College of Arts and Sciences*

*Assistant Dean of the College of Arts and Sciences*

*Dean Emeritus of the College of Arts and Sciences*

### FACULTY OF THE COLLEGE OF ARTS AND SCIENCES

(As of August 14, 1959)

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

#### DEPARTMENT OF ANTHROPOLOGY

Anderson, Robert Thomas, 1959, *Acting Assistant Professor of Anthropology*

B.A., 1949, M.A., 1953, Ph.D., 1956, California; Docteur en Sociologie, 1959,  
Université de Paris

Garfield, Viola Edmundson, 1937 (1955), *Associate Professor of Anthropology*

B.A., 1928, M.A., 1931, Washington; Ph.D., 1939, Columbia

Gearing, Frederick O., 1957, *Assistant Professor of Anthropology*

B.A., 1950, M.A., 1953, Ph.D., 1956, Chicago

Greengo, Robert E., 1957, *Assistant Professor of Anthropology*

A.B., 1948, M.A., 1951, California; Ph.D., 1957, Harvard

Gunther, Erna, 1923 (1941), *Professor of Anthropology; Director of Washington State Museum*

A.B., 1919, Barnard; A.M., 1920, Ph.D., 1928, Columbia

Jacobs, Melville, 1928 (1952), *Professor of Anthropology*

A.B., 1922, City College of New York; A.M., 1923, Ph.D., 1931, Columbia

Li, Fang-kuei, 1949 (1950), *Professor of Chinese Linguistics and of Anthropology*

A.B., 1926, Michigan; A.M., 1927, Ph.D., 1928, Chicago

Ottenberg, Simon, 1955 (1957), *Assistant Professor of Anthropology*

B.A., 1948, Wisconsin; Ph.D., 1957, Northwestern

- Poppe, Nicholas Nikolaevich, 1949 (1950), *Professor of Slavic and Altaic Studies and of Anthropology*  
M.A., 1923, Petrograd; Ph.D., 1934, Petersburg University (Russia)
- Ray, Verne Frederick, 1933 (1947), *Professor of Anthropology*  
B.A., 1931, M.A., 1933, Washington; Ph.D., 1937, Yale
- Read, Kenneth Eyre, 1957 (1958), *Associate Professor of Anthropology*  
B.A., 1939, M.A., 1945, University of Sydney; Ph.D., 1948, University of London
- Roys, Ralph L., 1959, *Research Professor of Anthropology*  
Ph.B., 1900, Michigan; Hon. L.H.D., 1936, Whitman College
- Spiro, Melford E., 1957, *Professor of Anthropology*  
B.A., 1941, Minnesota; Ph.D., 1950, Northwestern
- Watson, James Bennett, 1955, *Professor of Anthropology; Executive Officer of the Department of Anthropology*  
A.B., 1941, A.M., 1945, Ph.D., 1948, Chicago

#### SCHOOL OF ART

- Alps, Glen Earl, 1945 (1955), *Associate Professor of Art*  
B.A., 1940, Colorado State College of Education; M.F.A., 1947, Washington
- Anderson, Frederick Neil, 1945 (1959), *Associate Professor of Art*  
B.A., 1943, Washington; M.F.A., 1954, Minnesota
- Benson, Edna Grace, 1927 (1954), *Associate Professor Emeritus of Commercial Art*  
B.A., 1909, M.A., 1923, Columbia
- Bonifas, Paul Ami, 1946 (1959), *Associate Professor Emeritus of Art*  
1913, School of Fine Arts; 1914, Swiss School of Ceramics (Renens);  
1918, University-Laboratory of Geology (Geneva)
- Brazeau, Wendell Phillips, 1945 (1955), *Associate Professor of Art*  
B.F.A., 1933, M.F.A., 1947, Washington
- Curtis, Elizabeth Long, 1930 (1947), *Assistant Professor of Art*  
B.F.A., 1929, M.F.A., 1933, Washington
- Del Giudice, Frank, 1948, *Lecturer in Art*  
Pratt Institute
- Du Pen, Everett George, 1945 (1954), *Associate Professor of Art*  
B.F.A., 1937, Yale
- Erickson, John Wilbur, 1956, *Assistant Professor of Art*  
B.S., 1941, B.F.A., 1947, M.F.A., 1951, Illinois
- Foote, Hope Lucille, 1923 (1948), *Professor of Art*  
A.B., 1920, Iowa State Teachers College; M.A., 1923, Columbia
- Fuller, Steven D., 1946 (1958), *Associate Professor of Art*  
B.A., 1939, M.F.A., 1948, Washington
- Gonzales, Boyer, 1954, *Professor of Art; Director of the School of Art; Director of Henry Art Gallery*  
B.S. in Arch., 1931, Virginia; Student of McFee and Kuniyoshi
- Hafermehl, C. Louis, 1957, *Assistant Professor of Art*  
B.F.A., 1940, Bethany College (Kansas); M.F.A., 1955, Cranbrook Academy of Art (Michigan)
- Hensley, Merdecas Hoover, 1939 (1952), *Lecturer in Art*  
B.F.A., 1930, M.F.A., 1938, Washington
- Hill, Raymond Leroy, 1927 (1945), *Professor of Art*  
Graduate, 1913, Rhode Island School of Design
- Hill, Warren T., 1959, *Instructor in Art*  
B.A., 1950, Washington
- Hixson, William John, 1950 (1958), *Associate Professor of Art*  
B.A., 1948, M.F.A., 1950, Oregon
- Isaacs, Walter F., 1922 (1956), *Professor Emeritus of Fine Arts*  
B.S.F.A., 1909, James Millikin
- Johnson, Pauline, 1941 (1958), *Professor of Art*  
B.A., 1929, Washington; M.A., 1936, Columbia



- Mason, Alden C., 1946 (1957), *Associate Professor of Art*  
B.A., 1942, M.F.A., 1947, Washington
- Moseley, Spencer Altemont, 1948 (1959), *Associate Professor of Art*  
B.A., 1948, M.F.A., 1951, Washington
- Patterson, Ambrose McCarthy, 1919 (1947), *Professor Emeritus of Painting; Consultant in Painting*  
National School of Art (Melbourne); Juliens, Colorossi, Delacluse, Whistler, Simon, and Lhote Schools of Art (Paris)
- Patterson, Viola Hansen, 1947 (1958), *Associate Professor of Art*  
B.A., 1921, B.S. in L.S., B.F.A., 1925, M.F.A., 1947, Washington
- Penington, Ruth Esther, 1928 (1951), *Professor of Art*  
B.F.A., 1927, M.F.A., 1929, Washington
- Pizzuto, Eugene C., 1957, *Instructor in Art*  
B.S., 1950, Wisconsin; M.F.A., 1951, Cranbrook Academy of Art
- Rand, Theodore L., 1954, *Lecturer in Art*  
Cornish School of Allied Arts
- Reed, Truman Gervais, 1951 (1955), *Lecturer in Art; Assistant Director of the Henry Art Gallery*  
B.A., 1949, Yale
- Rogers, Millard Buxton, 1952, *Lecturer in Art*  
B.F.A., 1937, M.F.A., 1940, School of the Art Institute of Chicago; M.A., 1940, Chicago
- Smith, Charles Wallace, 1948 (1959), *Associate Professor of Art*  
Pratt Institute; M.F.A., 1956, Cranbrook Academy of Art
- Sperry, Robert, 1954 (1957), *Assistant Professor of Art*  
B.A., 1950, Saskatchewan; M.F.A., 1955, Washington
- Tsutakawa, George, 1946 (1957), *Associate Professor of Art*  
B.A., 1937, M.F.A., 1950, Washington
- Welman, Valentine S., 1954 (1957), *Assistant Professor of Art*  
B.F.A., 1952, Denver; M.F.A., 1954, Colorado

## ASTRONOMY

- Jacobsen, Theodor Siegmundfeldt, 1928 (1952), *Professor of Astronomy*  
B.A., 1922, Stanford; Ph.D., 1926, California

## DEPARTMENT OF BOTANY

- Blaser, Henry Weston, 1946 (1948), *Associate Professor of Botany*  
B.S., 1931, A.M., 1933, Temple; Ph.D., 1940, Cornell
- Frye, Theodore Christian, 1903 (1947), *Professor Emeritus of Botany; Research Consultant*  
B.S., 1894, Illinois; Ph.D., 1902, Chicago
- Hitchcock, Charles Leo, 1937 (1944), *Professor of Botany; Executive Officer of the Department of Botany*  
A.B., 1927, Pomona College; A.M., 1929, Claremont Colleges; Ph.D., 1931, Washington University
- Kruckeberg, Arthur Rice, 1950 (1954), *Assistant Professor of Botany*  
B.A., 1941, Occidental College; Ph.D., 1950, California
- Meeuse, Bastiaan Jacob Dirk, 1952 (1955), *Associate Professor of Botany*  
B.Sc., 1936, Doctoraal Examen, 1939, Leiden (Holland); Doctor, 1943, Delft (Holland)
- Muhlick, Clarence Victor, 1948 (1952), *Lecturer in Botany*  
B.S., 1933, Montana
- Rigg, George Burton, 1909 (1947), *Professor Emeritus of Botany; Research Consultant*  
B.S., 1896, Iowa; M.A., 1909, Washington; Ph.D., 1914, Chicago
- Stuntz, Daniel Elliot, 1940 (1958), *Professor of Botany*  
B.S., 1935, Washington; Ph.D., 1940, Yale
- Walker, Richard Battson, 1948 (1956), *Associate Professor of Botany*  
B.S., 1938, Illinois; Ph.D., 1948, California

**DEPARTMENT OF CHEMISTRY**

- Anderson, Arthur G., Jr., 1946 (1957), *Professor of Chemistry*  
A.B., 1940, Illinois; M.S., 1942, Ph.D., 1944, Michigan
- Cady, George Hamilton, 1938 (1947), *Professor of Chemistry*  
A.B., 1927, A.M., 1928, Kansas; Ph.D., 1930, California
- Crittenden, Alden LaRue, 1947 (1949), *Assistant Professor of Chemistry*  
B.S., 1942, Ph.D., 1946, Illinois
- Cross, Paul Clifford, 1949, *Professor of Chemistry; Executive Officer of the Department of Chemistry; Director of Bagley Hall Laboratories*  
B.S., 1928, Geneva College; M.S., 1930, Ph.D., 1932, Wisconsin
- Dauben, Hyp Joseph, Jr., 1945 (1950), *Associate Professor of Chemistry*  
B.A., 1937, M.S., 1937, Ohio State; A.M., 1941, Ph.D., 1941, Harvard
- Eggers, David Frank, Jr., 1950 (1956), *Associate Professor of Chemistry*  
B.S., 1943, Illinois; Ph.D., 1950, Minnesota
- Fairhall, Arthur W., 1954 (1958), *Associate Professor of Chemistry*  
B.Sc., 1946, Queen's (Kingston, Ontario); Ph.D., 1952, Massachusetts Institute of Technology
- Gregory, Norman Wayne, 1946 (1957), *Professor of Chemistry*  
B.S., 1940, M.S., 1941, Washington; Ph.D., 1943, Ohio State
- Halsey, George Dawson, Jr., 1951 (1958), *Professor of Chemistry*  
B.S., 1943, South Carolina; Ph.D., 1948, Princeton
- Lingafelter, Edward Clay, Jr., 1939 (1952), *Professor of Chemistry*  
B.S., 1935, Ph.D., 1939, California
- Powell, Sargent Gastman, 1919 (1943), *Professor of Chemistry*  
B.S., 1916, M.S., 1916, Washington; Ph.D., 1920, Illinois
- Rabinovitch, Benton Seymour, 1948 (1957), *Professor of Chemistry*  
B.S., 1939, Ph.D., 1942, McGill
- Ritter, David Moore, 1944 (1959), *Professor of Chemistry*  
S.B., 1933, Ph.D., 1937, Chicago
- Robinson, Rex Julian, 1929 (1945), *Professor of Chemistry*  
B.A., 1925, DePauw; M.A., 1927, Ph.D., 1929, Wisconsin
- Schubert, Wolfgang Manfred, 1947 (1958), *Professor of Chemistry*  
B.S., 1941, Illinois; Ph.D., 1947, Minnesota
- Simpson, William Tracy, 1948 (1957), *Professor of Chemistry*  
A.B., 1943, Ph.D., 1948, California
- Sivertz, Victorian, 1926 (1949), *Associate Professor of Chemistry; Executive Secretary of the Department of Chemistry*  
B.S., 1922, Washington; M.S., 1924, West Virginia; Ph.D., 1926, McGill
- Stout, George H., 1957, *Assistant Professor of Chemistry*  
B.S., 1953; M.S., 1954; Ph.D., 1956, Harvard
- Tartar, Herman Vance, 1918 (1952), *Professor Emeritus of Chemistry*  
B.S., 1902, Oregon Agricultural College; Ph.D., 1920, Chicago
- Wiberg, Kenneth Berle, 1950 (1958), *Professor of Chemistry*  
B.S., 1948, Massachusetts Institute of Technology; Ph.D., 1950, Columbia

**DEPARTMENT OF CLASSICS**

- Densmore, Harvey Bruce, 1907 (1952), *Professor Emeritus of Classics; Research Consultant*  
A.B., 1903, Oregon; A.B., 1907, Oxford
- Grummel, William Charles, 1950 (1955), *Associate Professor of Classics*  
A.B., 1937, St. Louis; A.M., 1940, Washington University (St. Louis); Ph.D., 1949, New York
- McDiarmid, John Brodie, 1949 (1956), *Professor of Classics; Executive Officer of the Department of Classics*  
B.A., 1936, Toronto; Ph.D., 1940, Johns Hopkins
- Pascal, Paul, 1953 (1956), *Assistant Professor of Classics*  
B.A., 1948, Vermont; Ph.D., 1953, North Carolina

Read, William Merritt, 1927 (1945), *Professor of Classics; Director of the University Press*

A.B., 1923, DePauw; M.A., 1924, Ph.D., 1927, Michigan

Rosenmeyer, Thomas Gustav, 1955 (1957), *Associate Professor of Classics*

B.A., 1944, McMaster (Hamilton, Ontario); M.A., 1945, Toronto; Ph.D., 1949, Harvard

#### SCHOOL OF COMMUNICATIONS

Adams, Edwin Hubbard, 1939 (1950), *Associate Professor of Radio-Television*

B.A., 1927, M.A., 1931, Washington State

Ames, William E., 1957, *Assistant Professor of Journalism*

B.S., 1948, South Dakota State College; M.S., 1952, Iowa State

Baker, Robert A., 1957, *Lecturer in Advertising*

Benson, Merritt Elihu, 1931 (1948), *Professor of Journalism*

LL.B., 1930, Minnesota; B.A., 1942, Washington

Brier, Howard Maxwell, 1947 (1955), *Associate Professor of Journalism*

B.A., 1925, M.Ed., 1931, Washington

Christian, Byron Hunter, 1926 (1949), *Professor of Journalism*

B.A., 1921, M.A., 1929, Washington

Cranston, Pat, 1954 (1957), *Assistant Professor of Radio-Television*

B.J., 1944, M.J., 1954, Texas

Denis, Robert Alan, 1956 (1958), *Instructor in Advertising*

B.F.A., 1949, Colorado; M.S., 1959, Oregon

Edelstein, Alex, 1955 (1959), *Associate Professor of Journalism*

A.B., 1946, San Francisco State; M.A., 1948, Stanford; Ph.D., 1958, Minnesota

Everest, Harold Philip, 1940 (1959), *Professor Emeritus of Journalism*

B.A., 1938, M.A., 1950, Washington

Hopkins, Thomas Francis, 1956 (1958), *Lecturer in Radio-Television*

B.A., 1949, Teaching Certificate, 1950, Washington; M.A., 1954, Colorado State College of Education

Irwin, Ples Lee, 1956 (1957), *Assistant Professor of Journalism*

B.A., 1941, Washington; M.A., 1951, Minnesota

McKenzie, Vernon, 1928 (1959), *Professor Emeritus of Journalism*

B.A., 1909, Toronto; M.A., 1914, Harvard

Murton, Clarence Charles, 1943 (1957), *Lecturer in Journalism*

B.A., 1924, Washington

Niven, Harold Franklin, Jr., 1958, *Assistant Professor of Radio-Television*

B.A., 1948, Denver; M.A., 1949, Stanford; Ph.D., 1958, Ohio State

Ryan, Milo, 1946 (1957), *Professor of Radio-Television*

B.A., 1928, M.A., 1934, Michigan

Shaw, Robert MacGregor, 1957, *Assistant Professor of Journalism*

B.A., 1950, M.A., 1951, Minnesota

Smith, Henry Ladd, 1955, *Professor of Journalism; Director of the School of Communications*

Ph.B., 1929, Yale; M.A., 1936, Ph.D., 1946, Wisconsin

Sprague, Frederick D., Jr., 1957, *Lecturer in Advertising*

B.A., 1942, Washington

Warner, Daniel S., 1954 (1955), *Associate Professor of Advertising*

B.A. 1928, Michigan; M.S., 1958, Oregon

#### SCHOOL OF DRAMA

Carr, Kenneth Mills, 1944 (1953), *Assistant Professor of Drama*

B.A., 1942, Eastern Washington College of Education; M.A., 1945, Washington

Conway, John Ashby, 1927 (1950), *Professor of Drama*

B.A., 1927, Carnegie Institute of Technology

Crider, James Roberts, 1952 (1957), *Assistant Professor of Drama*

B.A., 1945, Cornell College (Iowa); M.A., 1950, Washington

Davis, Alanson Bewick, 1947 (1955), *Lecturer and Stage Designer*

A.B., 1947, Washington

- Galstaun, Vanick Samuel, 1950 (1959), *Assistant Professor of Drama*  
B.A., 1946, San Francisco State College; M.A., 1948, Washington
- Gray, Robert Simpson, 1939 (1951), *Assistant Professor of Drama*  
B.A., 1936, M.A., 1938, Washington
- Haaga, Agnes Marie, 1947 (1955), *Assistant Professor of Drama*  
B.A., 1936, Siena College (Tennessee); M.A., 1952, Northwestern
- Harrington, Donal Francis, 1938 (1952), *Professor of Drama*  
B.A., 1928, Montana State; M.A., 1933, Columbia
- Hughes, Glenn Arthur, 1919 (1941), *Professor of Drama; Director of the School of Drama*  
B.A., 1916, Stanford; M.A., 1920, Washington
- Lounsbury, Warren Carson, 1948 (1958), *Lecturer in Drama*  
A.B., 1946, Western Reserve; M.A., 1953, Washington
- Siks, Geraldine Brian, 1950 (1956), *Assistant Professor of Drama*  
B.A., 1935, Central Washington College of Education; M.A., 1940, Northwestern

#### DEPARTMENT OF ECONOMICS

- Buechel, Henry Theodore, 1946 (1949), *Associate Professor of Economics*  
B.A., 1929, M.A., 1937, Washington State; Ph.D., 1949, Wisconsin
- Cartwright, Philip Windsor, 1947 (1952), *Associate Professor of Economics; Associate Dean of the College of Arts and Sciences*  
A.B., 1940, M.A., 1942, Ph.D., 1950, Stanford
- Crutchfield, James Arthur, Jr., 1949 (1957), *Associate Professor of Economics*  
A.B., 1940, M.A., 1942, California (Los Angeles); Ph.D., 1954, California
- Gillingham, John Benton, 1947, *Assistant Professor of Economics*  
A.B., 1939, Washington State; M.A., 1941, Wisconsin
- Gordon, Donald Flemming, 1950 (1957), *Associate Professor of Economics*  
B.A., 1944, Saskatchewan; M.A., 1946, Toronto; Ph.D., 1949, Cornell
- Hall, James Kendall, 1930 (1934), *Professor of Economics*  
B.A., 1925, M.A., 1926, Oregon; Ph.D., 1929, Stanford
- Holzman, Franklyn Dunn, 1952 (1959), *Professor of Economics*  
B.A., 1940, North Carolina; M.A., 1948, Ph.D., 1952, Harvard
- Hopkins, William Stephen, 1946, *Professor of Economics*  
B.S., 1925, M.A., 1928, Oregon; Ph.D., 1932, Stanford
- Huber, John Richard, 1939 (1949), *Professor of Economics; Executive Officer of the Department of Economics*  
B.A., 1931, College of Wooster; M.A., 1933, Ph.D., 1937, Princeton
- McCaffree, Kenneth Maurice, 1949 (1956), *Associate Professor of Economics*  
B.A., 1940, Southwestern College; M.A., 1942, Denver; Ph.D., 1950, Chicago
- Morris, Morris David, 1949 (1958), *Associate Professor of Economics*  
A.B., 1941, Ph.D., 1954, California
- Mund, Vernon Arthur, 1932 (1937), *Professor of Economics*  
B.B.A., 1928, M.B.A., 1929, Washington; Ph.D., 1932, Princeton
- North, Douglass Cecil, 1950 (1956), *Associate Professor of Economics*  
B.A., 1942, Ph.D., 1952, California
- Worcester, Dean Amory, Jr., 1946 (1951), *Associate Professor of Economics*  
A.B., 1939, M.A., 1940, Nebraska; Ph.D., 1943, Minnesota
- Zellner, Arnold, 1955 (1959), *Associate Professor of Economics*  
A.B., 1949, Harvard, Ph.D., 1957, California

#### DEPARTMENT OF ENGLISH

- Adams, Robert Pardee, 1947, *Associate Professor of English*  
B.A., 1931, Oberlin; Ph.D., 1937, Chicago
- Anderson, Sylvia Finlay, 1920 (1947), *Assistant Professor of English*  
B.A., 1919, M.A., 1923, Washington
- Beal, Maud Layton, 1933 (1952), *Assistant Professor Emeritus of English*  
B.A., 1926, M.A., 1929, Washington
- Beaty, Jerome, 1956 (1958), *Assistant Professor of English*  
A.B., 1947, M.A., 1948, Johns Hopkins; Ph.D., 1956, Illinois

- Benham, Allen Rogers, 1905 (1949), *Professor Emeritus of English; Research and Editorial Consultant*  
A.B., 1900, A.M., 1901, Minnesota; Ph.D., 1905, Yale
- Bentley, G. Nelson, 1952 (1957), *Assistant Professor of English*  
A.B., 1941, M.A., 1945, Michigan
- Blankenship, William Russell, 1932 (1943), *Professor of English*  
A.B., 1914, Missouri; M.A., 1929, Ph.D., 1935, Washington
- Bluestone, George, 1957 (1959), *Assistant Professor of English*  
B.A., 1949, Harvard; M.F.A., 1951, Iowa; Ph.D., 1956, Johns Hopkins
- Bostetter, Edward Everett, 1940 (1959), *Professor of English*  
A.B., 1935, Franklin and Marshall (Pennsylvania); M.A., 1937, Ph.D., 1938, Princeton
- Bowen, Robert Owen, 1958, *Assistant Professor of English*  
B.A., 1948, M.A., 1950, Alabama
- Brown, Malcolm Johnston, 1946 (1946), *Associate Professor of English*  
B.A., 1931, Ph.D., 1946, Washington
- Burgess, Janna Potgieter, 1937 (1955), *Assistant Professor Emeritus of English*  
B.A., 1912, Iowa; M.A., 1928, Washington
- Burns, Harry Hamilton, 1934 (1948), *Associate Professor of English*  
B.A., 1928, Ph.D., 1935, Washington
- Burns, Wayne, 1948 (1954), *Associate Professor of English*  
A.B., 1938, Miami (Ohio); A.M., 1940, Harvard; Ph.D., 1946, Cornell
- Cornu, Max Donald, 1928 (1953), *Professor of English*  
LL.B., 1922, M.A., 1926, Ph.D., 1928, Washington
- Cox, Edward Godfrey, 1911 (1947), *Professor Emeritus of English; Editorial Consultant and Managing Editor of Modern Language Quarterly*  
B.A., 1899, Wabash College; M.A., 1901, Ph.D., 1906, Cornell
- Davis, Merrell Rees, 1947 (1953), *Associate Professor of English*  
A.B., 1935, Whitman; M.A., 1937, Tufts; Ph.D., 1948, Yale
- Duckett, Margaret Ruth, 1947 (1952), *Assistant Professor of English*  
A.B., 1926, Winthrop College; M.A., 1941, North Carolina
- Eby, Edwin Harold, 1927 (1947), *Professor of English*  
Ph.B., 1923, Chicago; Ph.D., 1927, Washington
- Emery, Donald William, 1934 (1954), *Associate Professor of English*  
B.A., 1927, M.A., 1928, Iowa
- Ethel, Garland Oral, 1927 (1958), *Associate Professor of English*  
B.A., 1923, M.A., 1927, Ph.D., 1928, Washington
- Fowler, David Covington, 1952 (1959), *Associate Professor of English*  
B.A., 1942, Florida; M.A., 1947, Ph.D., 1949, Chicago
- Gould, Florence Jones, 1948 (1958), *Associate Professor of English*  
A.B., 1928, M.A., 1931, Oregon
- Griffith, Dudley David, 1924 (1952), *Professor Emeritus of English; Graduate Adviser*  
B.A., 1903, Simpson College; Ph.D., 1916, Chicago
- Guberlet, Muriel Lewin, 1943 (1959), *Assistant Professor Emeritus of English*  
A.B., 1910, Bethany College (Kansas); A.M., 1928, Washington
- Gullans, Charles Bennett, 1955 (1957), *Assistant Professor of English*  
B.A., 1948, M.A., 1951, Minnesota; Ph.D., 1956, Stanford
- Hall, James Winford, 1949 (1955), *Associate Professor of English*  
A.B., 1937, Kansas City; M.A., 1938, Wisconsin; Ph.D., 1949, Cornell
- Hamilton, Albert Charles, 1952 (1959), *Associate Professor of English*  
B.A. (Hons.), 1945, Manitoba; M.A., 1948, Toronto; Ph.D., 1952, Cambridge
- Harris, Markham, 1946 (1957), *Associate Professor of English*  
A.B., 1929, M.A., 1931, Williams
- Heilman, Robert Bechtold, 1948, *Professor of English; Executive Officer of the Department of English*  
A.B., 1927, Lafayette; M.A., 1930, Ohio State; M.A., 1931, Ph.D., 1935, Harvard
- Hilen, Andrew Reuben, Jr., 1945 (1959), *Professor of English*  
B.A., 1937, Washington; Ph.D., 1943, Yale

- Hoover, Benjamin Beard, 1952 (1954), *Assistant Professor of English*  
A.B., 1947, M.A., 1948, Ph.D., 1951, California
- Jacobs, Morton Yale, 1956, *Instructor in English*  
A.B., 1950, Cornell
- Jones, Frank William, 1955, *Associate Professor of English and Comparative Literature*  
B.A., 1934, Manitoba; Ph.D., 1941, Wisconsin; B.A., M.A., 1955, Oxford
- Kaufman, Helen Andrews, 1930 (1959), *Professor Emeritus of English; Research Consultant*  
B.A., 1909, Wilson College (Pennsylvania); M.A., 1911, Indiana; Ph.D., 1934, Washington
- Korg, Jacob, 1955 (1956), *Assistant Professor of English*  
B.A., 1943, City College of N.Y.; M.A., 1947, Ph.D., 1952, Columbia
- Kuhn, Bertha Mehitabel, 1940 (1947), *Assistant Professor of English*  
B.A., 1916, M.A., 1917, North Dakota; Ph.D., 1941, Washington
- Lawson, Jane Sorrie, 1922 (1952), *Professor Emeritus of English; Consultant in Composition*  
M.A., 1907, St. Andrews (Scotland)
- Leggett, Glenn Hubert, 1952, *Associate Professor of English; Director of Freshman English*  
B.A., 1940, Middlebury College; B.A., 1941, Ph.D., 1949, Ohio State
- Levant, Howard Stanley, 1957, *Instructor in English*  
B.A., 1950, M.A., 1954, Iowa
- Matchett, William H., 1954 (1956), *Assistant Professor of English*  
B.A., 1949, Swarthmore; M.A., 1950, Ph.D., 1957, Harvard
- McKinlay, Florence Dillow, 1937 (1956), *Assistant Professor Emeritus of English*  
B.A., 1908, Lombard (Illinois); M.A., 1931, Washington
- Nix, Martha Jeanette, 1928 (1947), *Assistant Professor of English*  
B.A., 1922, M.A., 1925, Washington
- Park, Ben Allen, 1959, *Instructor in English*  
B.A., 1951, M.A., 1954, Oklahoma
- Pellegrini, Angelo M., 1930 (1957), *Professor of English*  
B.A., 1927, Ph.D., 1942, Washington
- Perrin, Porter Gale, 1947, *Professor of English*  
A.B., 1917, Dartmouth; M.A., 1921, Maine; Ph.D., 1936, Chicago
- Person, Henry Axel, 1937 (1947), *Assistant Professor of English*  
B.A., 1927, Ph.D., 1942, Washington
- Peterson, Douglas Lee, 1956 (1958), *Assistant Professor of English*  
B.A., 1949, M.A., 1952, Ph.D., 1957, Stanford
- Phillips, William Louis, 1949 (1952), *Assistant Professor of English; Assistant Dean of the College of Arts and Sciences*  
B.A., 1942, Iowa State Teachers College; M.A., 1947, Ph.D., 1949, Chicago
- Redford, Grant H., 1945 (1956), *Associate Professor of English*  
B.S., 1937, Utah State; M.A., 1940, Iowa
- Reinert, Otto, 1956 (1958), *Assistant Professor of English*  
B.A., 1947, Lafayette; M.A., 1948, Ph.D., 1952, Yale
- Rivenburgh, Viola K., 1944 (1955), *Acting Assistant Professor of English*  
A.B., 1919, Nebraska; M.A., 1926, Hawaii
- Roethke, Theodore Huebner, 1947 (1948), *Professor of English*  
A.B., 1929, A.M., 1936, Michigan
- Stanton, Robert Bruce, 1956 (1958), *Assistant Professor of English*  
B.A., 1949, M.A., 1950, Kansas City; Ph.D., 1953, Indiana
- Stein, Arnold Sydney, 1948 (1953), *Professor of English*  
A.B., 1936, Yale; A.M., 1938, Ph.D., 1942, Harvard
- Stirling, Thomas Brents, 1932 (1949), *Professor of English*  
LL.B., 1926, Ph.D., 1934, Washington
- Taylor, Donald S., 1954 (1955), *Assistant Professor of English*  
B.A., 1947, M.A., 1948, Ph.D., 1950, California

- Taylor, E. Ayers, 1929 (1952), *Professor Emeritus of English*  
B.A., 1909, Denver; M.A., 1918, Ph.D., 1925, Chicago
- Thorpe, Berenice Du Rae, 1946 (1952), *Assistant Professor of English*  
B.A., 1924, M.A., 1925, Washington
- Vanderbilt, Rolfe Kermit, 1958, *Instructor in English*  
B.A., 1947, Luther College (Iowa); M.A., 1949, Ph.D., 1956, Minnesota
- Wagoner, David R., 1954 (1955), *Assistant Professor of English*  
B.A., 1947, Pennsylvania State; M.A., 1949, Indiana
- Walters, Margaret Curtis, 1929 (1947), *Assistant Professor of English*  
B.A., 1917, Mills College; M.A., 1919, Yale
- Weiss, Daniel Aaron, 1955 (1958), *Assistant Professor of English*  
B.A., 1939, Northwestern; M.A., 1950, Columbia; Ph.D., 1955, Northwestern
- Willis, Leota Snider, 1943 (1953), *Lecturer in English*  
B.A., 1923, California; M.A., 1930, Ph.D., 1931, Pennsylvania; Cert. of Studies, 1932, Sorbonne (Paris)
- Winther, Sophus Keith, 1925 (1940), *Professor of English*  
B.A., 1918, M.A., 1919, Oregon; Ph.D., 1926, Washington
- Yaggy, Elinor May, 1943 (1950), *Assistant Professor of English*  
B.A., 1929, M.A., 1939, Idaho; Ph.D., 1946, Washington
- Zillman, Lawrence John, 1932 (1953), *Professor of English*  
B.A., 1928, Ph.D., 1936, Washington

# FAR EASTERN AND RUSSIAN INSTITUTE

## DEPARTMENT OF FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE

- Chang, Kun, 1951 (1957), *Associate Professor of Far Eastern and Slavic Languages and Literature*  
B.A., 1938, National Tsinghua (China); M.A., 1949, Ph.D., 1955, Yale
- Erlich, Victor, 1948 (1959), *Professor of Slavic Languages and Literature*  
M.A., 1937, Free Polish University (Warsaw); Ph.D., 1951, Columbia
- Gershevsky, Noah David, 1943 (1957), *Associate Professor of Russian Language*  
B.S., in Met., 1930, Montana School of Mines
- Hsiao, Kung-chuan, 1952 (1959), *Professor of Far Eastern Languages and Literature*  
Graduate, 1920, National Tsinghua (China); B.A., 1922, M.A., 1923, Missouri; Ph.D., 1926, Cornell
- Hurvitz, Leon M., 1955, *Assistant Professor of Japanese Language and Literature*  
B.A., 1949, Chicago; M.A., 1951, Columbia
- Li, Fang-kuei, 1949 (1950), *Professor of Chinese Linguistics and of Anthropology*  
A.B., 1926, Michigan; A.M., 1927, Ph.D., 1928, Chicago
- Maki, John McGilvrey, 1939 (1956), *Professor of Japanese Government and Politics*  
B.A., 1932, M.A., 1936, Washington; Ph.D., 1948, Harvard
- McKinnon, Richard Nichols, 1951 (1957), *Associate Professor of Japanese Language and Literature*  
A.B., 1947, A.M., 1949, Ph.D., 1951, Harvard
- Michael, Franz Henry, 1942 (1948), *Professor of Far Eastern History and Government; Assistant Director of the Far Eastern and Russian Institute*  
Dr. Jur., 1933, Freiburg (Germany)
- Micklesen, Lew Reid, 1953, *Assistant Professor of Slavic Languages*  
B.S., 1942, Minnesota; Ph.D., 1951, Harvard
- Novikow, Elias Theodore, 1947 (1953), *Lecturer in Russian Language*  
B.M., 1939, Oklahoma; M.Mus., 1942, Michigan; M.A., 1946, Washington
- Pahn, Vadim Otto, 1946 (1953), *Lecturer in Russian Language*  
B.A., 1935, B.S., Agr., 1938, British Columbia
- Poppe, Nicholas Nikolaevich, 1949 (1951), *Professor of Slavic and Altaic Studies and of Anthropology*  
Master's, 1923, Petrograd; Ph.D., 1934, Petersburg University (Russia)

Posch, Udo, 1955, *Visiting Assistant Professor of Far Eastern and Slavic Languages and Literature*

Ph.D., 1949, Vienna (Austria)

Reifler, Erwin, 1947 (1955), *Professor of Chinese Language*

Dr. Rer. Pol., 1931, Vienna (Austria)

Shih, Vincent Yu-chung, 1945 (1956), *Professor of Chinese Literature and Philosophy*

B.A., 1925, Fukien Christian (China); M.A., 1930, Yenching (China); Ph.D., 1939, Southern California

Spector, Ivar, 1931 (1943), *Associate Professor of Russian Civilization and Literature*

Graduate, 1919, Teachers' Seminar (Russia); M.A., 1926, Northwestern; Ph.D., 1928, Chicago

Suh, Doo Soo, 1955, *Visiting Lecturer in Korean Languages and Literature*

M.A. equivalent, 1930, Keijo Imperial University (Seoul, Korea); M.A., 1950, Ph.D., 1953, Columbia

Tatsumi, Henry Saburo, 1935 (1946), *Associate Professor of Japanese Language*

B.A., 1932, M.A., 1935, Washington

Taylor, George Edward, 1939 (1941), *Professor of Far Eastern History and Politics; Executive Officer of the Department of Far Eastern and Slavic Languages and Literature; Director of the Far Eastern and Russian Institute*

A.B., 1927, A.M., 1928, D.Litt., 1957, Birmingham (England)

Thompson, Laurence Cassius, Jr., 1957 (1959), *Assistant Professor of Linguistics and Russian*

A.B., 1949, Middlebury College; M.A., 1950, Ph.D., 1954, Yale

Treadgold, Donald Warren, 1949 (1959), *Professor of Russian History*

B.A., 1943, Oregon; M.A., 1947, Harvard; D.Phil., 1950, Oxford (England)

Wilhelm, Hellmut, 1948 (1953), *Professor of Chinese History and Literature*

Ph.D., 1932, Berlin (Germany)

Williston, Frank Goodman, 1943 (1949), *Professor of Far Eastern History*

A.B., 1922, Ohio Wesleyan; M.A., 1926, Ph.D., 1935, Chicago

Wittfogel, Karl August, 1947 (1949), *Professor of Chinese History*

Ph.D., 1928, Frankfurt (Germany)

Wylie, Turrell Verl, 1958 (1959), *Assistant Professor of Tibetan Language and Civilization*

B.A., 1952, Ph.D., 1958, Washington

Yang, Richard Fu-sen, 1948 (1957), *Assistant Professor of Chinese Language*

B.A., 1943, Yenching (China); M.A., 1950, Ph.D., 1955, Washington

#### DIVISION OF GENERAL STUDIES

Lutey, William Glen, 1934 (1949), *Assistant Professor of Liberal Arts; Director of General Studies*

B.A., 1930, M.A., 1931, Washington

#### DEPARTMENT OF GENETICS

Roman, Herschel Lewis, 1942 (1952), *Professor of Genetics; Executive Officer of the Department of Genetics*

A.B., 1936, Ph.D., 1942, Missouri

Stadler, David Ross, 1956 (1957), *Assistant Professor of Genetics*

A.B., 1948, Missouri; M.A., 1950, Ph.D., 1952, Princeton

#### DEPARTMENT OF GEOGRAPHY

Earle, Frances Merritt, 1931 (1941), *Associate Professor of Geography*

B.A., 1918, Winthrop College; M.S., 1926, Columbia; Ph.D., 1929, George Washington

Garrison, William Louis, 1950 (1959), *Professor of Geography*

B.S., 1946, M.A., 1947, George Peabody College; Ph.D., 1950, Northwestern

Heath, Willis Robertson, 1957 (1959), *Assistant Professor of Geography*

B.A., 1954, M.A., 1956, Ph.D., 1958, Washington



- Hudson, George Donald, 1951, *Professor of Geography; Executive Officer of the Department of Geography*  
Ph.B., 1925, A.M., 1926, Ph.D., 1934, Chicago
- Jackson, W. A. Douglas, 1955 (1958), *Associate Professor of Geography*  
B.A., 1946, M.A., 1949, Toronto; Ph.D., 1953, Maryland
- Kakiuchi, Hiroaki George, 1957, *Instructor in Geography*  
A.B., 1952, A.M., 1953, Ph.D., 1957, Michigan
- Martin, Howard Hanna, 1930 (1940), *Professor of Geography*  
B.S., 1922, Pennsylvania, A.M., 1923, Ph.D., 1929, George Washington; Sc.D. (Hon.), 1937, Monmouth College
- Marts, Marion Ernest, 1946 (1955), *Associate Professor of Geography; Executive Officer of the Department of Extension Classes*  
B.A., 1937, M.A., 1944, Washington; Ph.D., 1950, Northwestern
- Murphey, William Rhoads, III, 1952 (1956), *Associate Professor of Geography*  
A.B., 1941, A.M., 1942, A.M., 1948, Ph.D., 1950, Harvard
- Sherman, John Clinton, 1942 (1954), *Associate Professor of Geography*  
A.B., 1937, Michigan; M.A., 1943, Clark; Ph.D., 1947, Washington
- Ullman, Edward Louis, 1951, *Professor of Geography*  
S.B., 1934, Chicago; A.M., 1935, Harvard; Ph.D., 1942, Chicago

## DEPARTMENT OF GEOLOGY

- Barksdale, Julian Devreau, 1936 (1949), *Professor of Geology*  
B.A., 1930, Stanford; Ph.D., 1936, Yale
- Coombs, Howard Abbott, 1934 (1949), *Professor of Geology; Executive Officer of the Department of Geology*  
B.S., 1929, M.S., 1932, Ph.D., 1935, Washington
- Ellis, Ross C., 1954 (1957), *Assistant Professor of Geology*  
B.A., 1953, Occidental College; Ph.D., 1959, Washington
- Fuller, Richard, *Research Professor of Geology*  
B.S., 1924, Ph.D., 1930, Washington
- Goodspeed, George Edward, 1919 (1957), *Professor Emeritus of Geology*  
B.S. in Min. E., 1910, Massachusetts Institute of Technology
- Mackin, Joseph Hoover, 1934 (1947), *Professor of Geology*  
B.S., 1930, New York; M.A., 1932, Ph.D., 1936, Columbia
- Mallory, Virgil Standish, 1952 (1957), *Associate Professor of Geology*  
A.B., 1943, Oberlin; M.A., 1948, Ph.D., 1952, California
- McKee, Bates, 1958, *Assistant Professor of Geology*  
B.S., 1955, Yale; Ph.D., 1958, Stanford
- Misch, Peter Hans, 1947 (1950), *Professor of Geology*  
D.Sc., 1932, Goettingen (Germany)
- Neumann, Frank, 1953 (1958), *Assistant Professor and Seismologist*
- Vance, Joseph Alan, 1957, *Assistant Professor of Geology*  
B.S., 1951; Ph. D., 1957, Washington
- Wheeler, Harry Eugene, 1948 (1951), *Professor of Geology*  
B.S., 1930, Oregon; A.M., 1932, Ph.D., 1935, Stanford

## DEPARTMENT OF GERMANIC LANGUAGES AND LITERATURE

- Ankele, Felice, 1927 (1952), *Assistant Professor Emeritus of German*  
B.A., 1925, M.A., 1926, Ph.D., 1936, Washington
- Buck, George Crawford, 1950 (1958), *Assistant Professor of Germanic Literature*  
B.A., 1942, Amherst; M.A., 1948, Ph.D., 1954, Yale
- Kahn, Robert Ludwig, 1948 (1955), *Assistant Professor of Germanic Literature*  
B.A., 1944, M.A., 1945, Dalhousie (Nova Scotia); Ph.D., 1950, Toronto
- Lauer, Edward Henry, 1934 (1955), *Professor Emeritus of Germanic Languages and Literature; Dean Emeritus of the College of Arts and Sciences*  
A.B., 1906, A.M., 1909, Ph.D., 1916, Michigan

- Meyer, Herman Carl Henry, 1934 (1942), *Associate Professor of Germanic Languages; Executive Secretary of the Department of Germanic Languages and Literature*  
B.A., 1924, Capital; Ph.D., 1936, Chicago
- Reed, Carroll Edward, 1946 (1959), *Professor of Germanic Languages*  
B.A., 1936, M.A., 1937, Washington; Ph.D., 1941, Brown
- Rey, William Henry, 1950 (1959), *Professor of Germanic Literature*  
Ph.D., 1937, Frankfurt (Germany)
- Sauerlander, Annemarie Margaret, 1947 (1949), *Associate Professor of Germanic Literature*  
B.A., 1928, M.A., 1930, Buffalo; Ph.D., 1936, Cornell
- Schertel, Max, 1931 (1950), *Assistant Professor Emeritus of German; Consultant on Reading Examinations for Advanced Degrees*  
B.Ed., 1909, Colorado State College of Education; B.A., 1923, M.A., 1928, Ph.D., 1938, Washington
- Sommerfeld, Franz Rene, 1947 (1952), *Acting Assistant Professor of Germanic Literature*  
A.B., 1944, California; M.A., 1946, Columbia
- Wesner, Elenora M., 1924 (1950), *Assistant Professor Emeritus of German; Undergraduate Examiner*  
B.Ped., 1909, Colorado State Normal School; A.B., 1915, Chicago; M.A., 1923, Northwestern
- Wilkie, Richard Francis, Jr., 1937 (1948), *Assistant Professor of Germanic Literature*  
B.A., 1934, M.A., 1936, Washington; Ph.D., 1953, California

#### DEPARTMENT OF HISTORY

- Alden, Dauril, 1959, *Instructor in History*  
A.B., 1950, M.A., 1952, Ph.D., 1959, California
- Burke, Robert Eugene, 1957, *Assistant Professor of History*  
A.B., 1946, Chico State College; M.A., 1947, Ph.D., 1950, California
- Costigan, Giovanni, 1934 (1948), *Professor of History*  
B.A., 1926, B.Litt., 1930, M.A., 1930, Oxford (England); M.A., 1928, Ph.D., 1930, Wisconsin
- Dobie, Edith, 1926 (1957), *Professor Emeritus of History*  
B.A., 1914, Syracuse; A.M., 1922, Chicago; Ph.D., 1925, Stanford
- Emerson, Donald Eugene, 1946 (1953), *Associate Professor of History*  
A.B., 1937, Johns Hopkins; M.A., 1938, Columbia; Ph.D., 1942, Johns Hopkins
- Gates, Charles Marvin, 1936 (1951), *Professor of History*  
B.A., 1926, Yale; M.A., 1928, Harvard; Ph.D., 1934, Minnesota
- Griffiths, Gordon, 1959, *Associate Professor of History*  
A.B., 1936, Ph.D., 1942, California; B.A., 1939, M.A., 1946, Oxford
- Holt, William Stull, 1940, *Professor of History*  
A.B., 1920, Cornell; Ph.D., 1926, Johns Hopkins
- Kaminsky, Howard, 1957, *Assistant Professor of History*  
M.A., 1949, Ph.D., 1952, Chicago
- Katz, Solomon, 1936 (1950), *Professor of History; Executive Officer of the Department of History*  
A.B., 1930, Ph.D., 1933, Cornell
- Levy, Ernst, 1937 (1952), *Professor Emeritus of History, Law, and Political Science*  
J.D., 1906, Berlin; LL.D. (Hon.), 1949, Frankfurt; Ph.D. (Hon.), 1949, Heidelberg
- Lucas, Henry Stephen, 1921 (1959), *Professor Emeritus of History*  
A.B., 1913, Olivet College; A.M., 1915, Indiana; Ph.D., 1921, Michigan
- Lytle, Scott Harrison, 1949 (1957), *Associate Professor of History*  
A.B., 1940, Princeton; Ph.D., 1948, Cornell
- MacKirdy, Kenneth Alexander, 1957, *Acting Assistant Professor of History*  
B.A., 1947, British Columbia; M.A., 1948, Ph.D., 1959, Toronto

- Pressly, Thomas James, 1949 (1954), *Associate Professor of History*  
A.B., 1940, A.M., 1941, Ph.D., 1950, Harvard
- Savelle, Max, 1947, *Professor of History*  
A.B., 1924, M.A., 1926, Ph.D., 1932, Columbia
- Sugar, Peter Frigyes, 1959, *Assistant Professor of History*  
A.B., 1954, City College of New York; A.M., 1956, Ph.D., 1959, Princeton
- Treadgold, Donald Warren, 1949 (1959), *Professor of History*  
B.A., 1943, Oregon; M.A., 1947, Harvard; D.Phil., 1950, Oxford (England)
- Woolf, Harry, 1955 (1958), *Associate Professor of History*  
B.S., 1948, M.A., 1949, Chicago; Ph.D., 1955, Cornell

#### SCHOOL OF HOME ECONOMICS

- Anderson, Luanne Ruth Shaw, 1958, *Instructor in Home Economics*  
B.S. in H.E., 1955, Washington
- Brockway, Doris J., 1951, *Associate Professor of Home Economics*  
B.A., 1926, Washington State; M.A., 1939, Washington
- Crum, Jeanette, 1956, *Instructor in Home Economics*  
B.S., 1930, M.S., 1932, Washington
- Denny, Grace Goldena, 1913 (1950), *Professor Emeritus of Home Economics*  
B.A., 1907, Nebraska; M.A., 1919, Columbia
- Dresslar, Martha Estella, 1918 (1955), *Associate Professor Emeritus of Home Economics*  
A.B., 1913, Southern California; B.S., 1917, Washington; M.S., 1918, Columbia
- Gould, Sigrid P., 1956, *Instructor in Home Economics*  
B.S., 1930, Wooster College; M.A., 1948, Columbia
- Henderson, Dorothy I., 1959, *Acting Assistant Professor of Home Economics*  
B.S. in H.E., 1944, Georgia State College for Women; M.S., 1951, Tennessee
- Hendren, Beulah Bertena, 1957, *Instructor in Home Economics*  
B.S., 1950, Murray State College (Kentucky); M.A., 1957, Columbia
- Hosmer, Margaret George, 1948 (1954), *Lecturer in Home Economics*  
B.S., 1918, North Carolina
- Johnson, Mary Louise, 1945 (1957), *Professor of Home Economics; Director of the School of Home Economics*  
B.A., 1940, Hardin-Simmons; M.S., 1942, Wisconsin; D.Sc., 1954, Harvard
- McAdams, Laura Elizabeth, 1941 (1951), *Associate Professor of Home Economics*  
B.S., 1923, M.S., 1932, Kansas State College
- Nielsen, Mabel Mullikin, 1957, *Assistant Professor of Home Economics*  
B.S., 1935, Idaho; M.S., 1941, Iowa State College
- Payne, Blanche, 1927 (1942), *Professor of Home Economics*  
B.S., 1916, Kansas State Teachers College; M.A., 1924, Columbia
- Rowntree, Jennie Irene, 1925 (1956), *Professor Emeritus of Home Economics*  
B.S., 1918, Wisconsin; M.S., 1925, Chicago; Ph.D., 1929, Iowa
- Shigaya, Mabel Kyo, 1953, *Acting Instructor in Home Economics*  
B.A., 1951, Washington
- Smith, Hazel Martha, 1944 (1948), *Acting Instructor in Home Economics*  
B.S., 1927, Oregon State College
- Terrell, Margaret Elma, 1928 (1944), *Professor of Home Economics*  
B.A., 1923, Penn College (Iowa); M.A., 1927, Chicago
- Turnbull, Florence, 1952, *Assistant Professor of Home Economics*  
B.S., 1943, Manitoba; M.S., 1945, Minnesota

#### DEPARTMENT OF MATHEMATICS

- Allendoerfer, Carl Barnett, 1951, *Professor of Mathematics; Executive Officer of the Department of Mathematics*  
B.S., 1932, Haverford College; B.A., 1934, M.A., 1939, Oxford (England); Ph.D., 1937, Princeton
- Arsove, Maynard Goodwin, 1951 (1956), *Associate Professor of Mathematics*  
B.S., 1943, Lehigh; Sc.M., 1948, Ph.D., 1950, Brown

- Avann, Sherwin Parker, 1946, *Assistant Professor of Mathematics*  
B.S., 1938, Washington; M.S., 1940, Ph.D., 1942, California Institute of Technology
- Ballantine, John Perry, 1926 (1937), *Professor of Mathematics*  
A.B., 1918, Harvard; Ph.D., 1923, Chicago
- Bear, Herbert Stanley, Jr., 1957 (1958), *Assistant Professor of Mathematics*  
B.A., 1950, Ph.D., 1957, California
- Beaumont, Ross Allen, 1940 (1954), *Professor of Mathematics*  
A.B., 1936, M.S., 1937, Michigan; Ph.D., 1940, Illinois
- Birnbaum, Zygmunt William, 1939 (1950), *Professor of Mathematics; Director of the Laboratory of Statistical Research*  
L.L.M., 1925, Ph.D., 1929, John Casimir (Lwow, Poland)
- Blumenthal, Robert McCallum, 1956 (1957), *Assistant Professor of Mathematics*  
B.A., 1952, Oberlin; Ph.D., 1956, Cornell
- Brownell, Francis Herbert, III, 1950 (1956), *Associate Professor of Mathematics*  
B.A., 1943, M.S., 1947, Yale; Ph.D., 1949, Princeton
- Chapman, Douglas George, 1949 (1957), *Professor of Mathematics*  
B.A., 1938, Saskatchewan; M.A., 1940, Ph.D., 1949, California
- Corson, Harry Herbert, 1958 (1959), *Assistant Professor of Mathematics*  
A.B., 1952, Vanderbilt; M.A., 1954, Ph.D., 1957, Duke
- Cramlet, Clyde Myron, 1920 (1948), *Professor of Mathematics*  
B.S., 1916, Walla Walla College; M.S., 1920, Ph.D., 1926, Washington
- Dekker, David Bliss, 1948 (1959), *Associate Professor of Mathematics; Director of the Research Computer Laboratory*  
A.B., 1941, California; M.S., 1943, Illinois Institute of Technology; Ph.D., 1948, California
- Fell, James Michael Gardner, 1956 (1957), *Assistant Professor of Mathematics*  
B.S., 1943, British Columbia; M.S., 1945, Ph.D., 1951, California
- Forrester, Herbert Amasa, 1954 (1956), *Assistant Professor of Mathematics*  
B.S., 1950, California Institute of Technology; M.A., 1951, Ph.D., 1954, Princeton
- Getoor, Ronald Kay, 1956, *Assistant Professor of Mathematics*  
A.B., 1950, M.S., 1951, Ph.D., 1954, Michigan
- Haller, Mary Elizabeth, 1931 (1949), *Associate Professor of Mathematics*  
B.A., 1924, M.S., 1931, Ph.D., 1934, Washington
- Hano, Jun-ichi, 1957 (1959), *Assistant Professor of Mathematics*  
M.S., 1950, Tokyo; Ph.D., 1957, Nagoya (Japan)
- Hewitt, Edwin, 1948 (1954), *Professor of Mathematics*  
A.B., 1940, M.A., 1941, Ph.D., 1942, Harvard
- Hufford, George Allen, 1958, *Assistant Professor of Mathematics*  
B.S., 1946, California Institute of Technology; M.S., 1948, Washington; M.A., 1952, Ph.D., 1953, Princeton
- Isbell, John Rolfe, 1957 (1959), *Associate Professor of Mathematics*  
B.S., 1951, Chicago; Ph.D., 1954, Princeton
- Jans, James P., 1957, *Assistant Professor of Mathematics*  
A.B., 1949, M.A., 1950, Ph.D., 1955, Michigan
- Jerbert, Arthur Rudolph, 1921 (1937), *Associate Professor of Mathematics*  
B.S., 1916, M.S., 1923, Ph.D., 1928, Washington
- Kimura, Naoki, 1958, *Acting Assistant Professor of Mathematics*  
M.S., 1944, Osaka University (Japan); Ph.D., 1957, Tulane University
- Kingston, John Maurice, 1940 (1959), *Associate Professor of Mathematics; Executive Secretary of the Department of Mathematics*  
B.A., 1935, Western Ontario; M.A., 1936, Ph.D., 1939, Toronto
- Klee, Victor L., 1953 (1957), *Professor of Mathematics*  
B.A., 1945, Pomona College; Ph.D., 1949, Virginia
- Livingston, Arthur Eugene, 1953 (1955), *Assistant Professor of Mathematics*  
B.A., 1949, Fresno State College; M.A., 1950, Ph.D., 1952, Oregon
- Macauley, Ronald Alvin, 1957, *Assistant Professor of Mathematics*  
B.A., 1949; M.A., 1951, British Columbia; Ph.D., 1955, Illinois
- McFarlan, Lee Horace, 1927 (1946), *Professor of Mathematics*  
B.S., 1917, Kansas State Teachers College; A.M., 1921, Ph.D., 1924, Missouri

- McMinn, Trevor James, 1956, *Assistant Professor of Mathematics*  
B.A., 1942, Utah; Ph.D., 1955, California
- Michael, Ernest Arthur, 1953 (1956), *Associate Professor of Mathematics*  
B.A., 1947, Cornell; M.A., 1948, Harvard; Ph.D., 1951, Chicago
- Minty, George J., Jr., 1959, *Instructor in Mathematics*  
B.S., 1949, M.A., 1951, Wayne; Ph.D., 1959, Michigan
- Nijenhuis, Albert, 1956 (1958), *Associate Professor of Mathematics*  
B.S., 1947, M.S., 1950, Ph.D., 1952, Amsterdam
- Nunke, Ronald John, 1958, *Assistant Professor of Mathematics*  
B.S., 1950, M.S., 1951, Ph.D., 1955, Chicago
- Pierce, Richard Scott, 1955 (1958), *Associate Professor of Mathematics*  
B.S., 1950, Ph.D., 1952, California Institute of Technology
- Tate, Robert Flemming, 1953 (1955), *Assistant Professor of Mathematics*  
A.B., 1944, California; M.A., 1949, North Carolina; Ph.D., 1952, California
- Walter, John Harris, 1954 (1956), *Assistant Professor of Mathematics*  
B.S., 1948, California Institute of Technology; M.S., 1953, Ph.D., 1954, Michigan
- Winger, Roy Martin, 1918 (1956), *Professor Emeritus of Mathematics*  
A.B., 1906, Baker; Ph.D., 1912, Johns Hopkins
- Woolf, William B., 1959, *Instructor in Mathematics*  
B.A., 1953, Pomona College; M.A., 1955, Claremont College; Ph.D., 1959, Michigan
- Zuckerman, Herbert Samuel, 1939 (1952), *Professor of Mathematics*  
B.S., 1932, California Institute of Technology; M.S., 1934, Chicago; Ph.D., 1936, California

#### DEPARTMENT OF METEOROLOGY AND CLIMATOLOGY

- Badgley, Franklin Ilsley, 1950 (1959), *Associate Professor of Meteorology and Climatology*  
B.S., 1935, Chicago; M.S., 1948, Ph.D., 1951, New York
- Buettner, Konrad J. K., 1953 (1957), *Professor of Meteorology and Climatology*  
B.S., 1922, Gymnasium (Pforte, Germany); Dr.phil., 1926, Goettingen (Germany); Dr.phil.habil., 1934, Kiel (Germany)
- Businger, Joost A., 1958, *Assistant Professor of Meteorology and Climatology*  
B.S., (Candidaatsexamen) 1947, M.Sc., (Doctoralexamen), 1950, Ph.D., 1954, University of Utrecht
- Church, Phil Edwards, 1935 (1948), *Professor of Meteorology and Climatology; Executive Officer of the Department of Meteorology and Climatology*  
B.S., 1923, Chicago; M.A., 1932, Ph.D., 1937, Clark
- Fleagle, Robert Guthrie, 1948 (1956), *Professor of Meteorology and Climatology*  
A.B., 1940, Johns Hopkins; M.S., 1944, Ph.D., 1949, New York
- Hilst, Glen Rudolph, 1957, *Lecturer in Meteorology and Climatology*  
S.B., 1942, S.M., 1949, Massachusetts Institute of Technology; Ph.D., 1957, Chicago
- Reed, Richard John, 1954 (1958), *Associate Professor of Meteorology and Climatology*  
B.S., 1945, California Institute of Technology; Sc.D., 1949, Massachusetts Institute of Technology

#### SCHOOL OF MUSIC

- Babb, Warren, 1955, *Assistant Professor of Music*  
B.A., 1938, M.A., 1939, Harvard
- Beale, James MacArthur, Jr., 1948 (1958), *Associate Professor of Music*  
B.A., 1945, Harvard; B.Mus., 1946, M.Mus., 1947, Yale
- Bostwick, Irene Neilson, 1930 (1957), *Associate Professor of Music*  
B.M., 1922, M.A., 1950, Washington
- Chapple, Stanley, 1948, *Professor of Music; Director of the School of Music*  
D.Mus. (Hon.), 1947, Colby College
- Clarke, Henry Leland, 1958 (1959), *Associate Professor of Music*  
A.B., 1928, A.M., 1929, Ph.D., 1947, Harvard
- Cole, William D., 1957, *Instructor in Music*  
B.S., 1946, Illinois; M.A., 1954, Washington
- Eichinger, Walter A., 1936 (1954), *Associate Professor of Music*  
B.Mus., 1932, M.Mus., 1933, Northwestern

- Ferrin, Richard Royce, 1959, *Instructor in Music*  
B. of Music, 1950, M. of Music, 1951, Eastman School of Music, University of Rochester
- Geissmar, Else Johanna-Marie, 1947 (1952), *Assistant Professor of Music*  
L.R.A.M., 1937, Royal Academy (London); M.Mus., 1944, Michigan
- Harris, Edison Davis, 1947, *Associate Professor of Music*  
B.S., 1942, New York
- Heinitz, Eva Maria, 1948 (1956), *Associate Professor of Music*  
Studied at State Academy of Music (Berlin)
- Hokanson, Randolph, 1949, *Assistant Professor of Music*  
Studied with Dame Myra Hess, Howard Ferguson (London)
- Irvine, Demar Buel, 1937 (1947), *Associate Professor of Music*  
B.A., 1929, M.A., 1931, California; Ph.D., 1937, Harvard
- Jacobson, Berthe Poncy, 1937 (1948), *Professor of Music*  
Diplomas, 1915, Conservatory of Music (Geneva); Diplomas, 1917, Schola Cantorum (Paris);  
Diplomas, 1921, Dalcroze School (Geneva)
- Jones, Iris Ann, 1957, *Assistant Professor of Music*  
A.B., 1940, College of Holy Names (Oakland); M.A., 1953, Supv. Credit, 1955, California
- Kechley, Gerald, 1947 (1958), *Assistant Professor of Music*  
B.A., 1946, M.A., 1950, Washington
- Kinsella, Hazel Gertrude, 1942 (1958), *Professor Emeritus of Music*  
B.Mus., 1916, B.F.A., 1928, B.A., 1931, Nebraska; M.A., 1934, Columbia; Ph.D., 1941,  
Washington; D.Mus. (Hon.), 1953, Nebraska
- Kirchner, George Casino, 1919 (1959), *Associate Professor Emeritus of Music*  
Graduate, 1911, Leipzig
- Lawrence, Charles Wilson, 1926 (1934), *Associate Professor of Music*  
Mus.B., 1918, Oberlin College; M.A., 1930, Washington
- McKay, George Frederick, 1927 (1943), *Professor of Music*  
B.Mus., 1923, Rochester
- Moore, John Terence, 1948, *Assistant Professor of Music*  
B.Mus., 1940, M.Mus., 1941, Illinois
- Munro, Kathleen, 1929 (1945), *Professor of Music*  
B.M., 1924, Washington; M.A., 1929, Columbia; Ph.D., 1937, Washington
- Normann, Theodore Frederick, 1940 (1958), *Professor of Music*  
B.A., 1925, Macalaster College; M.A., 1928, Columbia
- Ringgold, John Robert, 1957, *Assistant Professor of Music*  
B.S., 1941, California
- Risegari, Eilene French, 1945 (1952), *Lecturer in Music*  
B.M., 1916, Washington; M.A., 1920, Columbia
- Rosinbum, Ralph Rambo, 1948 (1953), *Assistant Professor of Music*  
B.A., 1947, M.A., 1948, Washington
- Sokol, Vilem Mark, 1948 (1958), *Associate Professor of Music*  
Mus.B., 1938, Oberlin Conservatory; Grad. Cert., 1939, Conservatory of Music (Prague)
- Swanson, Bessie R., 1955 (1957), *Assistant Professor of Music*  
A.B., B.M., 1943, M.A., 1953, College of the Pacific
- Terry, Miriam, 1930 (1950), *Associate Professor of Music*  
B.M., 1926, M.A., 1948, Washington
- Verrall, John Weedon, 1948 (1959), *Professor of Music*  
B.Mus., 1929, Minneapolis College of Music; Cert. of Mus., 1932, Liszt Conservatory  
(Budapest); B.A., 1934, Minnesota
- Welke, Walter Carl, 1929 (1943), *Associate Professor of Music*  
B.M., 1927, Michigan
- Werner, August Hansen, 1931 (1932), *Professor of Music*  
B.S., 1913, College of Agriculture (Stend, Norway); Graduate, 1924, Master School of  
Music (New York)
- Woodcock, Edith, 1930 (1945), *Associate Professor of Music*  
B.M., 1925, Rochester; M.M., 1936, Washington
- Zetlin, Emanuel Roman, 1947, *Professor of Music*  
B.A., 1916, Imperial Conservatory (Petrograd); Dr. Mus. (Hon.), 1936, Washington  
College of Music (Washington, D.C.)

**DEPARTMENT OF OCEANOGRAPHY**

Barnes, Clifford Adrian, 1947 (1955), *Professor of Oceanography*

B.S., 1930, Ph.D., 1936, Washington

Creager, Joe Scott, 1958, *Assistant Professor of Oceanography*

B.A., 1951, Colorado College; M.S., 1953, Ph.D., 1958, Agricultural and Mechanical College of Texas

Fleming, Richard Howell, 1951, *Professor of Oceanography; Executive Officer of the Department of Oceanography*

B.A., 1929, M.A., 1931, British Columbia; Ph.D., 1935, California

Paquette, Robert George, 1946 (1952), *Lecturer in Oceanography; Research Associate Professor of Oceanography*

B.S., 1936, Ph.D., 1941, Washington

Rattray, Maurice, Jr., 1950 (1957), *Associate Professor of Oceanography*

B.S., 1944, M.S., 1947, Ph.D., 1951, California Institute of Technology

Richards, Francis Asbury, 1959, *Associate Professor of Oceanography*

B.S., 1939, Illinois; M.S., 1942, Nevada; Ph.D., 1950, Washington

Thompson, Thomas Gordon, 1919 (1959), *Professor Emeritus of Oceanography*

A.B., 1914, Clark; M.S., 1915, Ph.D., 1918, Washington

**DEPARTMENT OF PHILOSOPHY**

Dietrichson, Paul, 1955, *Assistant Professor of Philosophy*

A.B., 1947, Georgia; Ph.D., 1955, Yale

Keyt, David, 1957, *Instructor in Philosophy*

A.B., 1951, Kenyon College; M.A., 1953, Ph.D., 1955, Cornell

Melden, Abraham Irving, 1946 (1956), *Professor of Philosophy*

A.B., 1931, California (Los Angeles); A.M., 1932, Brown; Ph.D., 1938, California

Miller, Leonard Gordon, 1954, *Assistant Professor of Philosophy*

B.A., 1948, British Columbia; M.A., 1950, Washington; Ph.D., 1954, Cornell

Rader, Melvin Miller, 1930 (1948), *Professor of Philosophy*

A.B., 1925, M.A., 1927, Ph.D., 1929, Washington

Smullyan, Arthur Francis, 1946 (1956), *Professor of Philosophy; Acting*

*Executive Officer of the Department of Philosophy*

A.B., 1937, City College of New York; M.A., 1940, Ph.D., 1941, Harvard

**DEPARTMENT OF PHYSICAL EDUCATION FOR MEN**

Buckley, Robert William, 1942 (1954), *Acting Assistant Professor of Physical Education*

B.A., 1950, Washington

Cipriano, Joseph A., 1957, *Acting Instructor in Physical Education; Freshman Basketball Coach*

B.A., 1953, Washington

Cutler, Russell Kelsey, 1946 (1948), *Associate Professor of Physical Education; Executive Officer of the Department of Physical Education for Men*

B.Ed., 1930, California (Los Angeles); M.S., 1934, Oregon; D.Ed., 1958, Stanford

Grayson, John A., 1959, *Lecturer in Physical Education; Head Basketball Coach*

B.S., 1938, Oklahoma; M.A., 1953, Wayne

Hendershott, Robert Wheeler, 1955, *Acting Instructor in Physical Education*

B.S., 1941, M.S., 1951, Oregon

Hiserman, Stanley J., *Lecturer in Men's Physical Education; Track Coach*

B.A., 1939, Stanford; M.S., 1954, Idaho

Huey, Richard N., 1957, *Acting Instructor in Physical Education*

Hughes, Eric Lester, 1951 (1956), *Assistant Professor of Physical Education*

B.S., 1947, M.S., 1948, Illinois; D.Ed., 1956, Washington

Kunde, Norman Frederick, 1931 (1949), *Associate Professor of Physical Education*

B.S., 1928, M.S., 1932, Washington; D.Ed., 1946, New York

Mills, Caswell Albert, 1942 (1955), *Lecturer in Physical Education*

B.A., 1935, North Dakota State Teachers College; M.A., 1943, Washington

- Owens, James, 1957, *Lecturer in Men's Physical Education; Head Football Coach*  
B.S., 1950, Oklahoma
- Parker, E. Dale, 1957, *Lecturer in Physical Education; Head Baseball Coach*  
B.S., 1950, B.Ed., 1951, Seattle Pacific
- Peek, Clifford L., 1938, *Assistant Professor of Physical Education*  
B.S., 1929, Washington; M.A., 1931, Columbia
- Peterson, Robert A., 1958, *Lecturer in Physical Education; Athletic Trainer*
- Reeves, George Spencer, 1935 (1948), *Associate Professor of Physical Education*  
B.S., 1933, Oregon State College; M.S., 1937, Oregon; M.P.H., 1951, California
- Stevens, Leonard Woodbury, 1937 (1948), *Assistant Professor of Physical Education*  
B.S., 1933, M.S., 1941, Washington
- Torney, John Alfred, Jr., 1930 (1948), *Associate Professor of Physical Education*  
B.S., 1928, Washington; M.A., 1920, Columbia

#### DEPARTMENT OF PHYSICAL EDUCATION FOR WOMEN

- Broer, Marion Ruth, 1947 (1955), *Associate Professor of Physical Education*  
B.S., 1933, M.S., 1936, Wisconsin; Ph.D., 1954, New York
- Culver, Elizabeth Jean, 1958, *Instructor in Physical Education*  
B.S., 1955, Skidmore College (New York); M.S., 1958, Washington
- de Vries, Mary Aid, 1921 (1939), *Associate Professor of Physical Education*  
B.A., 1920, Wisconsin
- Fox, Katharine Shirley, 1945 (1948), *Assistant Professor of Physical Education*  
B.S., 1938, Washington; M.S., 1943, Oregon; Ph.D., 1955, Iowa
- Gunn, Elizabeth, 1946, *Assistant Professor of Physical Education; Physician, Hall Health Center*  
B.S., 1921, Washington; M.D., 1927, Oregon
- Horne, Dorthalee Belle, 1944, *Assistant Professor of Physical Education*  
B.S., 1930, Missouri; M.S., 1939, Oregon
- Kidwell, M. Kathro, 1939 (1950), *Associate Professor of Physical Education*  
B.S., 1927, Nebraska; M.S., 1928, Wisconsin; Ed.D., 1954, Columbia
- MacLean, Dorothy G., 1936 (1943), *Assistant Professor of Physical Education*  
B.S., 1933, Oregon; M.S., 1938, Washington
- Rulifson, Leone Helmich, 1926 (1943), *Associate Professor of Physical Education*  
B.S., 1922, M.A., 1936, Washington
- Waters, Ellen Harriet, 1946, *Assistant Professor of Physical Education*  
B.S., 1927, Washington; M.A., 1940, Columbia; R.P.T., 1946, Stanford
- Wilson, Ruth Marian, 1936 (1945), *Associate Professor of Physical Education; Executive Officer of the Department of Physical Education for Women*  
B.S., 1931, Utah; M.S., 1936, Wisconsin

#### DEPARTMENT OF PHYSICS

- Blair, John Sanborn, 1952 (1957), *Associate Professor of Physics*  
B.S., 1943, Yale; M.S., 1949, Ph.D., 1951, Illinois
- Bodansky, David, 1954 (1958), *Associate Professor of Physics*  
B.S., 1943, M.A., 1948, Ph.D., 1950, Harvard
- Brakel, Henry Louis, 1905 (1947), *Professor Emeritus of Physics; Major Adviser*  
B.A., 1902, Olivet College; M.A., 1905, Washington; Ph.D., 1912, Cornell
- Clark, Kenneth Courtright, 1948 (1955), *Associate Professor of Physics*  
B.A., 1940, Texas; M.A., 1941, Ph.D., 1947, Harvard
- Dehmelt, Hans Georg, 1955 (1957), *Associate Professor of Physics*  
Ph.D., 1950, University of Goettingen (Germany)
- Fairhall, Arthur William, 1954 (1958), *Associate Professor of Physics*  
B.Sc., 1946, Queens (Kingston, Ontario); Ph.D., 1952, Massachusetts Institute of Technology
- Farwell, George Wells, 1948 (1959), *Professor of Physics*  
B.S., 1941, Harvard; Ph.D., 1948, Chicago



- Geballe, Ronald, 1946 (1959), *Professor of Physics; Executive Officer of the Department of Physics*  
B.S., 1938, M.S., 1940, Ph.D., 1943, California
- Gerhart, James Basil, 1956, *Assistant Professor of Physics*  
B.S., 1950, California Institute of Technology; M.A., 1952, Ph.D., 1954, Princeton
- Halpern, Isaac, 1953 (1956), *Associate Professor of Physics*  
B.S., 1924, City College of New York; Ph.D., 1948, Massachusetts Institute of Technology
- Henderson, Joseph Edmonds, 1929 (1942), *Professor of Physics; Director of the Applied Physics Laboratory*  
B.S., 1922, College of Wooster; Ph.D., 1928, Yale
- Henley, Ernest M., 1954 (1957), *Associate Professor of Physics*  
B.E.E., 1944, City College of New York; Ph.D., 1951, California
- Higgs, Paul McClellan, 1926 (1959), *Associate Professor of Physics*  
B.S., 1919, Washington
- Jacobsohn, Boris Abbott, 1948 (1959), *Professor of Physics*  
A.B., 1938, A.M., 1939, Columbia; Ph.D., 1947, Chicago
- Kenworthy, Ray William, 1929 (1950), *Associate Professor of Physics*  
B.A., 1924, M.S., 1925, Iowa; Ph.D., 1938, Washington
- Kim, Young Bae, 1955 (1957), *Assistant Professor of Physics*  
B.S., 1950, Washington; Ph.D., 1954, Princeton
- Lord, Jere Johns, 1952 (1957), *Associate Professor of Physics*  
A.B., 1943, Reed College; M.A., 1948, Ph.D., 1950, Chicago
- Masek, George Edward, 1957, *Assistant Professor of Physics*  
B.S., 1950, M.S., 1951, Ph.D., 1955, Stanford
- Neddermeyer, Seth Henry, 1946 (1952), *Professor of Physics*  
B.A., 1929, Stanford; Ph.D., 1935, California Institute of Technology
- Sanderman, Llewellyn Arthur, 1928 (1952), *Associate Professor of Physics*  
B.S., 1923, Linfield College; M.S., 1931, Ph.D., 1943, Washington
- Scarf, Frederick Leonard, 1956, *Assistant Professor of Physics*  
A.B., 1951, Temple; Ph.D., 1955, Massachusetts Institute of Technology
- Schmidt, Fred Henry, 1946 (1956), *Professor of Physics*  
B.S.E., 1937, Michigan; M.A., 1940, Buffalo; Ph.D., 1945, California
- Silsbee, Henry Briggs, 1958, *Acting Associate Professor of Physics*  
B.S., 1943, M.A., 1948, Ph.D., 1951, Harvard
- Streib, John Frederick, Jr., 1947, *Assistant Professor of Physics*  
B.S., 1936, Ph.D., 1942, California Institute of Technology
- Uehling, Edwin Albrecht, 1936 (1947), *Professor of Physics*  
B.A., 1925, Wisconsin; M.A., 1930, Ph.D., 1932, Michigan
- Utterback, Clinton Louis, 1918 (1955), *Professor Emeritus of Physics*  
B.S., 1908, Purdue; M.S., 1918, Washington; Ph.D., 1926, Wisconsin
- Wilets, Lawrence, 1958 (1959), *Associate Professor of Physics*  
B.S., Wisconsin, 1948; M.A., 1950, Ph.D., 1952, Princeton
- Williams, Robert W., 1959, *Visiting Professor of Physics*  
A.B., 1941, Stanford; M.A., 1943, Princeton; Ph.D., 1948, Massachusetts Institute of Technology

#### DEPARTMENT OF POLITICAL SCIENCE

- Bone, Hugh Alvin, 1948, *Professor of Political Science; Executive Officer of the Department of Political Science*  
B.A., 1931, North Central College; M.A., 1935, Wisconsin; Ph.D., 1937, Northwestern
- Campbell, Ernest Howard, 1946 (1949), *Assistant Professor of Political Science; Associate Director of the Bureau of Governmental Research and Services*  
B.A., 1932, LL.B., 1935, M.A., 1936, Washington; M.A., 1942, Ph.D., 1945, Harvard
- Cole, Kenneth Carey, 1924 (1936), *Professor of Political Science*  
B.Litt. in Law, 1924, Oxford (England); Ph.D., 1930, Harvard
- Gottfried, Alex, 1950, *Assistant Professor of Political Science*  
B.Ed., 1941, Chicago Teachers College; A.M., 1948, Ph.D., 1952, Chicago

- Harbold, William Henry, 1949 (1955), *Assistant Professor of Political Science*  
B.S., 1938, Oklahoma; M.A., 1953, Wayne
- Hitchner, Dell Gillette, 1947 (1951), *Associate Professor of Political Science*  
B.A., 1936, Wichita; M.A., 1937, Missouri; Ph.D., 1940, Wisconsin
- Kroll, Morton, 1958, *Acting Associate Professor of Political Science*  
B.A., 1946, Ph.D., 1952, California (Los Angeles)
- Leavel, Willard H., 1958, *Lecturer in Political Science*  
B.A., 1951, M.A., 1954, Denver
- Mander, Linden Alfred, 1928 (1937), *Professor of Political Science*  
B.A., 1917, M.A., 1920, Adelaide (Australia)
- Martin, Charles Emanuel, 1924, *Professor of Political Science; Director of the Institute of International Affairs*  
B.L., 1914, A.M., 1915, California; Ph.D., 1918, Columbia; LL.D., 1942, Southern California
- Reshetar, John Stephen, Jr., 1957 (1958), *Associate Professor of Political Science*  
B.A., 1945, Williams; M.A., 1946, Ph.D., 1950, Harvard
- Riley, Walter Lee, 1946 (1951), *Acting Assistant Professor of Political Science; Assistant Dean of the College of Arts and Sciences*  
B.A., 1933, Adams State College; M.A., 1935, Stanford; Ph.D., 1957, Washington
- Shipman, George Anderson, 1946, *Professor of Political Science; Director of the Institute of Public Affairs*  
B.A., 1925, M.A., 1926, Wesleyan (Connecticut); Ph.D., 1931, Cornell
- Webster, Donald Hopkins, 1939 (1948), *Professor of Political Science; Director of the Bureau of Governmental Research and Services*  
B.A., 1929, LL.B., 1931, Ph.D., 1933, Washington

#### DEPARTMENT OF PSYCHOLOGY

- Baer, Donald M., 1957, *Assistant Professor of Psychology*  
A.B., 1950, Ph.D., 1957, Chicago
- Bijou, Sidney William, 1948 (1951), *Professor of Psychology; Director of the Bailey and Babette Gatzert Institute of Child Development*  
B.S., 1933, Florida; M.A., 1936, Columbia; Ph.D., 1941, Iowa
- Culbert, Sidney Spence, 1947 (1950), *Assistant Professor of Psychology*  
B.A., 1943, Ph.D., 1950, Washington
- Edwards, Allen L., 1944 (1948), *Professor of Psychology*  
B.A., 1937, Central College (Chicago); M.A., 1938, Ohio State; Ph.D., 1940, Northwestern
- Esper, Erwin Allen, 1927 (1934), *Professor of Psychology*  
B.A., 1917, M.A., 1920, Ph.D., 1923, Ohio State
- Fields, Paul Eldon, 1955, *Professor of Psychology*  
A.B., 1926, A.M., 1927, Ohio Wesleyan; Ph.D., 1930, Ohio State
- Heathers, Louise Bussard, 1945, *Assistant Professor of Psychology; Senior Clinical Psychologist in the Counseling Center*  
B.A., 1933, Washington; Ph.D., 1940, Yale
- Hermans, Thomas Gerald, 1929 (1940), *Assistant Professor of Psychology*  
B.S., 1923, M.A., 1927, Washington
- Horst, A. Paul, 1947, *Professor of Psychology; Executive Director of Division of Counseling and Testing*  
A.B., 1927, California; Ph.D., 1931, Chicago
- Horton, George Plant, 1934 (1946), *Associate Professor of Psychology; Acting Executive Officer of the Department of Psychology*  
B.S., 1926, M.A., 1930, Ph.D., 1932, Princeton
- Loucks, Roger Brown, 1936 (1948), *Professor of Psychology*  
B.S. in C.E., 1927, Ph.D., 1930, Minnesota
- McKeever, Benjamin Butler, 1949, *Associate Professor of Psychology*  
A.B., 1930, M.A., 1931, Harvard; Ph.D., 1940, Iowa
- Sarason, Irwin Gerald, 1956 (1959), *Associate Professor of Psychology*  
B.A., 1961, Rutgers; M.A., 1953, Iowa; Ph.D., 1955, Indiana
- Smith, Moncrieff Hynson, Jr., 1949 (1959), *Professor of Psychology*  
A.B., 1940, M.A., 1941, Missouri; Ph.D., 1947, Stanford

Stotland, Ezra, 1957, *Assistant Professor of Psychology*

B.S. in Soc. Sci., 1948, City College of New York; M.A., 1949, Ph.D., 1953, Michigan

Strother, Charles Riddell, 1947, *Professor of Psychology; Professor of Clinical Psychology in the School of Medicine*

B.A., 1929, M.A., 1932, Washington; Ph.D., 1935, Iowa

Wilson, William Ronald, 1929, *Professor of Psychology*

B.A., 1917, M.S., 1920, Ph.D., 1925, Washington

Woodburne, Lloyd Stuart, 1950, *Professor of Psychology; Dean of the College of Arts and Sciences*

A.B., 1929, M.A., 1930, Ph.D., 1932, Michigan

#### PSYCHOLOGY—BAILEY AND BABETTE GATZERT INSTITUTE OF CHILD DEVELOPMENT

Bijou, Sidney William, 1948 (1951), *Professor of Psychology; Director of the Bailey and Babette Gatzert Institute of Child Development*

B.S., 1933, Florida; M.A., 1936, Columbia; Ph.D., 1941, Iowa

Evans, Eleanor, 1944 (1946), *Assistant Professor and Director of the Nursery School*

B.S., 1934, Illinois; M.E., 1940, Winnetka Teachers College

Harris, Florence R., 1950 (1951), *Lecturer in the Nursery School*

B.A., 1931, Washington

#### DEPARTMENT OF ROMANCE LANGUAGES AND LITERATURE

Alcalá, Hugo R., 1958, *Associate Professor of Romance Languages and Literature*

Bachelor, 1936, LL.D., 1943, Asunción (Paraguay); M.F.L., 1950, Washington State;

Ph.D., 1953, Wisconsin

Ayllón Cándido, 1956 (1957), *Assistant Professor of Spanish*

B.A., 1951, Brooklyn College; M.A., 1952, Ph.D., 1956, Wisconsin

Budel, Oscar, 1956, *Assistant Professor of Italian Language and Literature*

Abitur, 1942, Dr. Phil., 1950, University of Würzburg (Germany)

Chessex, Jean-Charles, 1928 (1948), *Professor of French*

B.A., 1920, Gymnase Classique (Lausanne, Switzerland); B.D., 1922, M.A., 1925, Lausanne (Switzerland)

Creore, Alvin Emerson, 1940 (1953), *Associate Professor of Romance Languages and Literature*

A.B., 1934, M.A., 1936, Rochester; Ph.D., 1939, Johns Hopkins

David, Jean Ferdinand, 1936 (1957), *Associate Professor of Romance Languages and Literature*

Bacc., 1923, Collège Grandchamp (Versailles, France); A.B., 1929, M.A., 1932,

Saskatchewan; Ph.D., 1936, Johns Hopkins

Dorfman, Eugene, 1955, *Assistant Professor of Romance Linguistics*

A.B., 1938, New Jersey State Teachers College; A.M., 1947, Ph.D., 1950, Columbia

Garcia-Prada, Carlos, 1925 (1957), *Professor Emeritus of Spanish*

Ph.B., 1918, Colegio Del Rosario (Bogota, Columbia); M.A., 1924, Michigan; Ph.D., 1929, Universidad Nacional (Bogota, Columbia)

Goggio, Charles, 1920 (1956), *Professor Emeritus of Romance Languages*

A.B., 1910, Harvard; A.M., 1914, Ph.D., 1919, Wisconsin

Hanzeli, Victor Egon, 1957 (1959), *Acting Assistant Professor of Romance Languages and Literature*

LL.B., 1947, Pazmany Peter University (Budapest); M.A., 1955, Indiana

Keller, Abraham C., 1948 (1952), *Associate Professor of Romance Languages and Literature*

B.A., 1936, M.A., 1937, Ohio State; Ph.D., 1946, California

McDonald, Edgar Cordel, 1955, *Instructor in Romance Languages and Literature*

B.A., 1947, Western Reserve; M.A., 1948, Chicago

Nostrand, Howard Lee, 1939, *Professor of Romance Languages and Literature;*

*Executive Officer of the Department of Romance Languages and Literature*

B.A., 1932, Amherst College; M.A., 1933, Harvard; Docteur, 1934, Université de Paris

Simpson, Lurline Violet, 1924 (1944), *Associate Professor of Romance Languages and Literature*

B.A., 1920, M.A., 1924, Ph.D., 1928, Washington

Sousa, Thomas Frederic, Jr., 1957, *Instructor in Spanish*

B.A., 1950; M.A., 1951, Wisconsin

Vargas-Baron, Anibal, 1949, *Associate Professor of Spanish*

B.A., 1926, Asbury College; M.A., 1929, Ph.D., 1943, Washington

Weiner, Seymour S., 1953 (1959), *Associate Professor of Romance Languages and Literature*

B.A., 1940, City College of New York; M.A., 1941, California; M.S. in L.S., Ph.D., 1952, Columbia

Wilson, Clotilde Marconnier, 1929 (1937), *Assistant Professor of Romance Languages*

B.A., 1926, M.A., 1927, Ph.D., 1931, Washington

Wilson, William Charles Eade, 1926 (1947), *Professor of Romance Languages*

A.B., 1922, Montana; M.A., 1925, Ph.D., 1928, Washington

#### DEPARTMENT OF SCANDINAVIAN LANGUAGES AND LITERATURE

Arestad, Sverre, 1937 (1958), *Professor of Scandinavian Languages; Executive Officer of the Department of Scandinavian Languages and Literature*

B.A., 1929, Ph.D., 1938, Washington

Johnson, Walter Gilbert, 1948 (1956), *Professor of Scandinavian Languages*

B.A., 1927, Augsburg College; M.A., 1929, Minnesota; Ph.D., 1935, Illinois

#### DEPARTMENT OF SOCIOLOGY

Barth, Ernest A. T., 1955 (1959), *Assistant Professor of Sociology*

A.B., Rochester, 1950; M.A., 1953, Ph.D., 1956, North Carolina

Catton, William Robert, Jr., 1957, *Assistant Professor of Sociology*

A.B., 1950, Oberlin College; M.A., 1952, Ph.D., 1954, Washington

Cohen, Joseph, 1932 (1941), *Assistant Professor of Sociology*

B.A., 1925, M.A., 1927, Washington; Ph.D., 1935, Michigan

Costner, Herbert Lee, 1959, *Acting Assistant Professor of Sociology*

A.B., 1953, Oklahoma; M.A., 1956, Indiana

Dodd, Stuart Carter, 1947, *Professor of Sociology; Director of the Washington Public Opinion Laboratory*

B.S., 1922, M.A., 1924, Ph.D., 1926, Princeton

Faris, Robert E. Lee, 1948, *Professor of Sociology; Executive Officer of the Department of Sociology*

Ph.B., 1928, M.A., 1930, Ph.D., 1931, Chicago

Hayes, Donald Pearce, 1956 (1958), *Instructor in Sociology*

A.B., 1952, Pomona; M.A., 1956, Ph.D., 1959, Washington

Hayner, Norman Sylvester, 1925 (1937), *Professor of Sociology*

B.A., 1920, Washington; M.A., 1921, Ph.D., 1923, Chicago

Jackson, Joan Katherine, 1958, *Lecturer in Sociology; Research Assistant Professor of Psychiatry*

A.B., 1945, M.A., 1947, McGill; Ph.D., 1955, Washington

Larsen, Otto Nyholm, 1949 (1958), *Associate Professor of Sociology*

B.A., 1947, M.A., 1949, Ph.D., 1955, Washington

Larson, William R., 1958, *Acting Instructor in Sociology*

B.A., 1955, M.A., 1958, Washington

Leik, Robert Kendric, 1959, *Acting Assistant Professor of Sociology*

B.S., 1953, Oregon; M.S., 1957, Wisconsin

Lundberg, George Andrew, 1945, *Professor of Sociology*

B.A., 1920, North Dakota; M.A., 1923, Wisconsin; Ph.D., 1925, Minnesota

Meile, Richard L., 1958, *Acting Instructor in Sociology*

B.S., 1954, Illinois State Normal University; M.A., 1956, Nebraska

Miyamoto, Shotaro Frank, 1945 (1956), *Associate Professor of Sociology*

B.A., 1936, M.A., 1938, Washington; Ph.D., 1950, Chicago

- Rogers, Joseph W., Jr., 1958, *Acting Instructor in Sociology*  
A.B., 1949, San Diego State College
- Schmid, Calvin Fisher, 1937 (1941), *Professor of Sociology; Director of the Office of Population Research*  
B.A., 1925, Washington; Ph.D., 1930, Pittsburgh
- Schrag, Clarence Clyde, 1944 (1957), *Associate Professor of Sociology*  
B.A., 1930, Washington State; M.A., 1945, Ph.D., 1950, Washington
- Taylor, James Bentley, 1958, *Research Assistant Professor, Washington Public Opinion Laboratory*  
A.B., 1952, Reed College; M.S., 1956, Ph.D., 1958, Washington
- Wager, Leonard Wesley, 1954 (1957), *Assistant Professor of Sociology*  
B.A., 1949, M.A., 1952, Washington; Ph.D., 1959, Chicago
- Watson, Walter Bingham, 1958, *Assistant Professor of Sociology*  
A.B., 1953, Southern Methodist; M.S., 1954, Ph.D., 1959, Wisconsin
- Woolston, Howard Brown, 1919 (1947), *Professor Emeritus of Sociology; Research Consultant*  
A.B., 1898, Yale; S.T.B., 1901, Chicago; M.A., 1902, Harvard; Ph.D., 1909, Columbia

## DEPARTMENT OF SPEECH

- Baker, Margaret, 1955, *Acting Instructor in Speech*  
A.B., 1929, Boston University; M.A., 1935, Washington
- Baskerville, Barnet, 1948 (1954), *Associate Professor of Speech*  
B.A., 1940, M.A., 1944, Washington; Ph.D., 1948, Northwestern
- Bird, Winfred Wylam, 1928 (1946), *Associate Professor of Speech*  
A.B., 1926, Lawrence College (Wisconsin); Ph.D., 1938, Iowa
- Carrell, James Aubrey, 1939 (1947), *Professor of Speech*  
A.B., 1927, Nebraska Wesleyan; M.A., 1929, Ph.D., 1936, Northwestern
- Crowell, Laura Irene, 1949 (1955), *Associate Professor of Speech*  
B.A., 1929, South Dakota; M.A., 1940, Ph.D., 1948, Iowa
- Franzke, Albert Leonard, 1936 (1939), *Associate Professor of Speech*  
B.A., 1916, M.A., 1923, Lawrence College (Wisconsin)
- Grimes, Wilma Horrell, 1953 (1955), *Assistant Professor of Speech*  
B.A., 1928, Wisconsin; M.A., 1947, Northwestern; Ph.D., 1953, Illinois
- Hanley, Clair Norton, 1952 (1956), *Associate Professor of Speech*  
B.A., 1947, M.A., 1950, Ph.D., 1952, Iowa
- Hogan, Michael, 1949 (1957), *Lecturer in Speech*  
B.A., 1938, M.A., 1950, Washington
- LaRusso, Dominic Anthony, 1951 (1956), *Assistant Professor of Speech*  
B.A., 1950, M.A., 1952, Washington; Ph.D., 1956, Northwestern
- Nelson, Oliver Wendell, 1945 (1952), *Associate Professor of Speech*  
B.A., 1933, M.A., 1939, Ph.D., 1949, Washington
- Nilsen, Thomas Robert, 1946 (1954), *Assistant Professor of Speech*  
B.A., 1940, M.A., 1948, Washington; Ph.D., 1953, Northwestern
- Orr, Frederick Wesley, 1925 (1948), *Professor Emeritus of Speech; Research Consultant*  
B.L., 1901, Drury College; G.C.D., 1905, Boston School of Expression; M.A., 1925, Lawrence College (Wisconsin)
- Palmer, John Milton, 1952 (1954), *Assistant Professor of Speech*  
B.A., 1946, M.A., 1950, Washington; Ph.D., 1952, Michigan
- Pence, Orville Leon, 1941 (1954), *Associate Professor of Speech*  
B.A., 1935, M.A., 1939, Washington; Ph.D., 1946, Iowa
- Rahskopf, Horace G., 1928 (1944), *Professor of Speech; Executive Officer of the Department of Speech*  
A.B., 1920, Willamette; M.A., 1927, Ph.D., 1935, Iowa
- Scheidel, Thomas Maynard, 1955 (1959), *Assistant Professor of Speech*  
B.A., 1953, Willamette; M.A., 1955, Ph.D., 1958, Washington
- Stevens, Walter W., 1959, *Assistant Professor of Speech*  
B.A., 1951, M.A., 1953, Wayne; Ph.D., 1959, Michigan

Strother, David Boyd, 1958, *Assistant Professor*

A.B., 1950, Georgetown College; M.A., 1951, Northwestern; Ph.D., 1958, Illinois

Sugarman, Alfred, 1957, *Instructor in Speech*

B.A., 1949, M.A., 1951, Washington

Tiffany, William Robert, 1947 (1956), *Associate Professor of Speech*

B.A., 1946, M.A., 1947, Washington; Ph.D., 1951, Iowa

Wingate, Marcel E., 1957, *Assistant Professor of Speech*

B.A., 1948, Grinnell; M.S., 1952, Ph.D., 1956, Washington

Witkin, Belle Ruth, 1950 (1959), *Lecturer in Speech*

B.A., 1939, College of Puget Sound; M.A., 1951, Washington

#### DEPARTMENT OF ZOOLOGY

Edmondson, Walles Thomas, 1949 (1957), *Professor of Zoology*

B.S., 1938, Ph.D., 1942, Yale

Fernald, Robert Leslie, 1946 (1959), *Associate Professor of Zoology; Acting Director of Friday Harbor Laboratories*

A.B., 1937, Monmouth College; Ph.D., 1941, California

Florey, Ernst, 1956, *Assistant Professor of Zoology*

Ph.D., 1953, University of Graz (Austria)

Hatch, Melville Harrison, 1927 (1941), *Professor of Zoology*

B.A., 1919, M.A., 1921, Ph.D., 1925, Michigan

Hsu, Wellington Siang, 1944 (1950), *Associate Professor of Zoology*

B.S., 1922, Illinois; M.S., 1924, D.Sc., 1928, Harvard

Illg, Paul Louis, 1952 (1959), *Professor of Zoology*

A.B., 1936, M.A., 1941, California; Ph.D., 1952, George Washington

Kincaid, Trevor, 1899 (1947), *Professor Emeritus of Zoology; Research Consultant*

B.S., 1899, Washington; D.Sc., 1940, College of Puget Sound

Martin, Arthur Wesley, Jr., 1937 (1950), *Professor of Physiology; Executive Officer of the Department of Zoology*

B.S., 1931, College of Puget Sound; Ph.D., 1936, Stanford

Osterud, Kenneth Leland, 1949, *Assistant Professor of Zoology*

B.A., 1935, Randolph-Macon College; Ph.D., 1941, New York

Ray, Dixy Lee, 1945 (1957), *Associate Professor of Zoology*

B.A., 1937, M.A., 1938, Mills College; Ph.D., 1945, Stanford

Richardson, Frank, 1956 (1959), *Associate Professor of Zoology; Curator in Zoology, Washington State Museum*

B.A., 1934, Pomona; Ph.D., 1939, California

Snyder, Richard Craine, 1949 (1957), *Associate Professor of Zoology*

A.B., 1940, Bucknell; A.M., 1941, Ph.D., 1948, Cornell

Svihla, Arthur, 1938 (1959), *Professor Emeritus of Zoology*

A.B., 1925, Illinois; M.S., 1928, Ph.D., 1931, Michigan

Whiteley, Arthur Henry, 1947 (1959), *Professor of Zoology*

B.A., 1938, Kalamazoo College; M.A., 1939, Wisconsin; Ph.D., 1945, Princeton

#### COOPERATING FACULTY

(Health Sciences Faculty Members Who Teach Courses Leading to Bachelor's Degrees in Food Technology, Medical Technology, Microbiology, and Public Health and Preventive Medicine)

Bennett, Blair Miller, 1950 (1953), *Assistant Professor of Public Health and Preventive Medicine*

A.B., 1938, Georgetown; M.A., 1940, Columbia; Ph.D., 1950, California

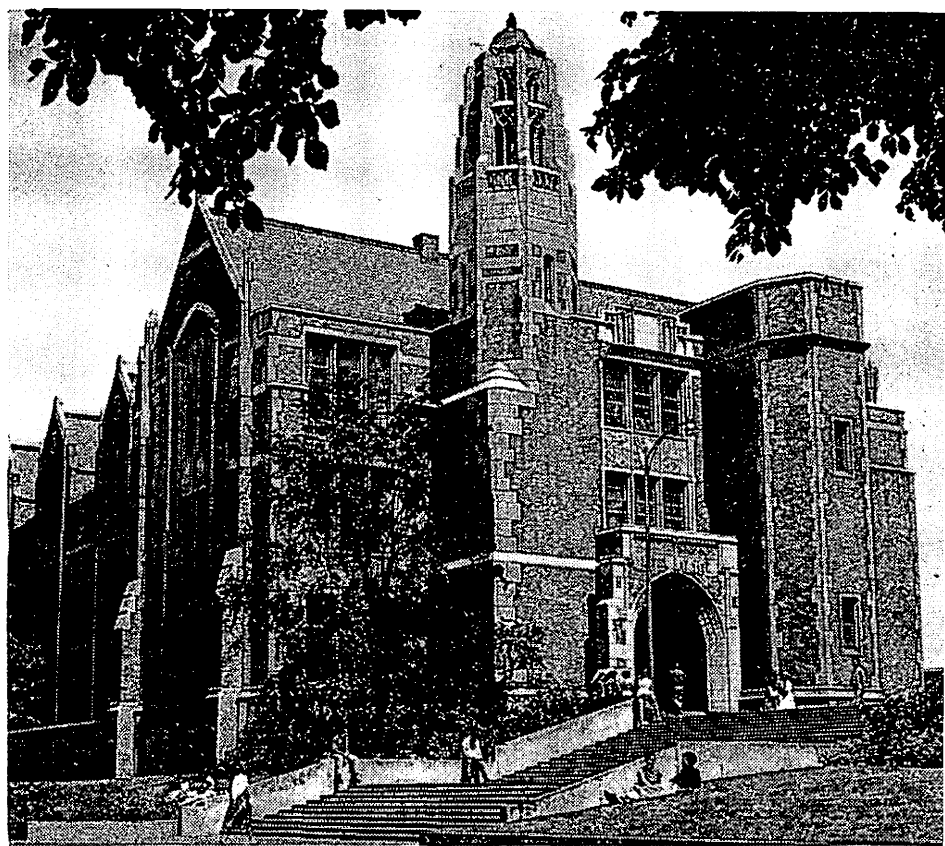
Douglas, Howard Clark, 1941 (1958), *Professor of Microbiology*

A.B., 1936, Ph.D., 1949, California

Duchow, Esther Alwine, 1940 (1954), *Instructor in Microbiology*

B.S., 1934, M.S., 1952, Washington

- Ellerbrook, Lester D., 1946 (1949), *Associate Professor of Pathology*  
A.B., 1932, Hope College; Ph.D., 1936, New York
- Evans, Charles Albert, 1946, *Professor of Microbiology; Executive Officer of the Department of Microbiology*  
B.S., 1935, B.M., 1936, M.D., 1937, Ph.D., 1942, Minnesota
- Groman, Neal Benjamin, 1950 (1958), *Associate Professor of Microbiology*  
S.B., 1947, Ph.D., 1950, Chicago
- Hain, Raymond F., 1951 (1959), *Associate Professor of Pathology*  
B.S., 1942, Albright; M.D., 1945, Jefferson Medical College
- Hatlen, Jack Bernard, 1952 (1958), *Instructor in Public Health and Preventive Medicine*  
B.S., 1949, M.S., 1958, Washington
- Henry, Bernard Stauffer, 1931 (1941), *Professor of Microbiology*  
B.S., 1925, M.A., 1926, Ph.D., 1931, California
- Kusian, Ross N., 1952 (1953), *Director, Environmental Research Laboratory; Clinical Assistant Professor of Public Health and Preventive Medicine*  
B.S. in M.E., 1949, Washington; M.S. in M.E., 1952, Utah
- Mills, Caswell Albert, 1942 (1955), *Lecturer in Physical Education and Public Health and Preventive Medicine*  
B.A., 1935, North Dakota State Teachers College; M.A., 1943, Washington
- Ordal, Erling J., 1937 (1957), *Professor of Microbiology*  
A.B., 1927, Luther College; Ph.D., 1936, Minnesota
- Reeves, George Spencer, 1935 (1948), *Associate Professor of Physical Education and Public Health and Preventive Medicine*  
B.S., 1933, Oregon State; M.S., 1937, Oregon; M.P.H., 1951, California (Berkeley)
- Reynolds, William E., 1955, *Professor of Public Health and Preventive Medicine; Executive Officer of the Department of Public Health and Preventive Medicine; University Health Officer*  
B.S., 1940, College of Puget Sound; M.D., 1943, Chicago; M.P.H., 1949, Harvard
- Rickenberg, Howard Vincent, 1956 (1958), *Assistant Professor of Microbiology*  
B.S., 1950, Cornell; Ph.D., 1954, Yale
- Ricker, Walter A., 1946 (1954), *Clinical Associate Professor of Pathology*  
M.D., 1939, Marquette
- Sherris, John Charles, 1959, *Associate Professor of Microbiology*  
M.R.C.S., L.R.C.T., 1944, M.B., B.S., 1948, M.D., 1950, University of London
- Standish, Seymour Myles, Jr., 1956, *Lecturer in Public Health and Preventive Medicine*  
B.A., 1942, Washington
- Vavra, Catherine Elizabeth, 1950 (1956), *Lecturer in Public Health and Preventive Medicine*  
R.N., 1930, St. Mary's Hospital, Minneapolis; B.S., 1935, M.P.H., 1946, Minnesota
- Weiser, Russell Shivley, 1934 (1949), *Professor of Microbiology*  
B.S., 1930, M.S., 1931, North Dakota State; Ph.D., 1934, Washington



## GENERAL INFORMATION



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# GENERAL INFORMATION

**T**HE FIRST COURSES offered by the University when it opened November 4, 1861, were courses in fields now included in the College of Arts and Sciences. The Laws of 1863 provided that the University should consist of at least four departments: (1) a department of literatures, science, and arts, (2) a department of law, (3) a department of medicine, and (4) a military department. As the University grew, the department of literatures, science, and arts developed four distinct programs: classical, scientific, normal, and commercial.

In 1898, the College of Liberal Arts was organized, and by 1909 it offered courses of study in the classics, domestic economy, journalism, philosophy, science, mathematics, and physics. In 1913, the College of Liberal Arts became the College of Arts and Sciences and added preprofessional programs in law and medicine to its curricula.

During the next few years, as a result of the University's rapid growth, several departments developed into separate schools and colleges, but in 1931 a College of Arts and Sciences was established to embrace the fields of liberal arts, science, business administration, fine arts, education, and journalism. This rather unsatisfactory administrative unit was soon dissolved and University College, since renamed the College of Arts and Sciences, was formed to include all departments that provided a broad liberal education in the arts and sciences.

The College of Arts and Sciences is now the largest and most diversified of all the divisions of the University. Its central objective is to provide broad intellectual experience in the fields of the humanities, the physical sciences, and the social sciences. Its program, expanded over the years to meet the needs of society, is directed toward giving its students an opportunity to prepare themselves for useful and satisfying lives in whatever careers they choose.

The demands on the College are diverse and changing and its organization reflects these conditions. In outline, the College of Arts and Sciences includes:

1. The semiprofessional schools within the College (Art, Communications, Drama, Home Economics, Music, and Physical and Health Education), which combine professional training with general college work.

2. The subject-matter departments (such as History and Physics) offering courses and curricula in liberal arts and pure science.

3. The preprofessional curricula (in dental hygiene, dentistry, law, librarianship, medicine, occupational therapy, physical therapy, and social work), which prepare students for entrance to professional schools.

4. Special programs (including General Education, General Studies, and Pre-major).

5. Programs offered in conjunction with the School of Medicine (in food technology, medical technology, microbiology, and public health and preventive medicine).

There is, in addition, the Far Eastern and Russian Institute, which offers courses for students in the College.

This complex of academic units and interdepartmental relationships, providing both strength and flexibility, is able to satisfy the student's need for specialized training or for general experience. The College may offer a total experience within itself or it may provide the base from which the student moves into his chosen professional or advanced work.

## COLLEGE FACILITIES AND SERVICES

The College of Arts and Sciences offers a number of study, research, and cultural facilities which, while associated with one or more of the units of the College, have even wider significance as elements of the University itself.

The University libraries contain over a million books and acquire 40,000 more each year. They currently receive 7,000 periodicals. The Henry M. Suzzallo Library, opened in December, 1926, houses the main collection, the general catalog, the reference division and documents section, current periodicals, the science room, and the reserve book room; in addition, the Pacific Northwest Bibliographical Center maintains a union catalog for libraries in Washington, Oregon, Idaho, Montana, and British Columbia. Twenty-seven branch libraries for special academic subjects are located in other buildings. Particularly notable among the library holdings are the books and manuscripts in the Pacific Northwest collection; works on oceanography, fisheries, and forestry; documents as a depository of the United States government; and materials in Russian, Japanese, and especially Chinese.

The Washington State Museum contains natural history and anthropological collections of the Pacific Northwest, Oceania, and the Far East. Three University theatres, the Showboat, the Penthouse, and the Playhouse, are used throughout the year in the School of Drama program. Radio Station KUOW, an FM station operated by the School of Communications, and television station KCTS, a community-sponsored project with studios located at the University, are used both for student training and for public service in communications. The Henry Art Gallery offers a program of frequently changing exhibitions of recent work in painting, sculpture, printmaking, photography, and the craft media, film programs, musicales, and other special events.

Service-research organizations include the Bailey and Babette Gatzert Institute of Child Development, of the Psychology Department, which provides clinical training for graduate students, conducts research, and offers consultative service, and the University Nursery School, maintained for nursery school teacher training, observations, and demonstrations. The Speech and Hearing Clinic, of the Department of Speech, offers remedial service to students and others with speech or hearing defects. The Department of Political Science has three bureaus conducting research in government and international relations. These agencies are the Bureau of Governmental Research and Services, the Institute of Public Affairs, and the Institute of International Affairs.

Through the Language Laboratory, operated jointly by the language departments and the Film Center, it is possible for students to practice hearing and speaking a foreign language at their own pace, in addition to class hours which are thus freed for explanation and discussion.

The Washington Public Opinion Laboratory and the Office of Population

Research are maintained by the Department of Sociology. The cyclotron and the Cosmic Ray Laboratory are research agencies of the Department of Physics.

The Research Computer Laboratory of the Graduate School has a magnetic drum-type, high-speed computing machine which is used for research computations of all departments and research groups on campus as well as for laboratory work related to the undergraduate courses in numerical analysis and data processing.

The Friday Harbor Laboratories (under the administrative jurisdiction of the Graduate School) on San Juan Island, about eighty miles north of Seattle, provide unique opportunities for teaching and research in the marine sciences. During the summer, courses in algology, marine zoology, oceanography, meteorology, and fisheries are offered for advanced undergraduate and graduate students. A field training course in geography is also provided.

Near the campus is the University Arboretum, maintained for the propagation of plants and shrubs from all over the world. This 267-acre park is of particular interest to students of botany and zoology.

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## Revised Admission Requirements for 1961

Effective Autumn Quarter, 1961, and thereafter the College admission requirements will be as follows:

### SUBJECT REQUIREMENTS

The College requirement is 16 high school units with grades certifiable for university entrance. The 16 units must include at least 11 units in academic subjects. Requirements for admission to the College are as follows:

- |  |  |
|--|--|
| A. English   | 3 units of composition and literature  |
| B. Mathematics   | 2 units (elementary algebra and plane geometry)  |
| C. Foreign language  | 2 units in one language  |
| D. Social science  | 1 unit   |
| E. Science   | 1 unit of one laboratory science to be selected from the following: biology, botany, chemistry, geology, physics, zoology              |
| F. Additional required courses:  |  |
| 1. 1 unit of literature, composition, art, drama, journalism, music, speech, or 1 additional unit of the foreign language, or 2 units of a second foreign language. 2 half units among these subjects will be acceptable as making up the 1 unit, with the exception that a half unit in foreign language may not be included to satisfy this requirement. |  |
| 2. 1 unit of laboratory science or mathematics (advanced algebra, solid geometry, trigonometry, mathematical analysis). Half units are acceptable in specific mathematics subjects, or the required unit may be made up of a half unit of laboratory science as defined in E above and a half unit of mathematics.   |  |
| G. Electives   | 5 units to be chosen from the above subjects or other subjects accepted by an accredited high school toward its diploma of graduation. |

### SCHOLARSHIP REQUIREMENTS

The College scholarship admission requirement is an average of 2.00 (C) in all high school subjects presented for admission and an average of 2.00 (C) in the required subjects A through F above.

Applicants with diplomas of graduation from accredited high schools who have a deficiency in not more than one of the subjects required for entrance (A through F, page 41) may apply to the Dean of the College for permission to enter, provided that they meet the scholarship requirement. A student admitted with a subject deficiency will have provisional standing; he must, unless he has received permission from the Dean, begin to make up the deficiency upon entrance and continue toward that end each quarter until it is made up; he will not in any case be permitted to register beyond the sixth quarter unless the deficiency has been made up. A student of sophomore standing transferring from another college of the University or from another institution will not be permitted to register beyond four quarters unless his deficiency has been made up; a student of junior or senior standing with a deficiency will not be admitted to the College by transfer. Deficiencies may be made up by successful completion of appropriate courses in the College or in the Department of Extension Classes. Two such courses of 3 or more quarter credits each will be considered the equivalent of 1 unit; 15 quarter credits of a foreign language will be considered the equivalent of 2 units. Graduation credit will not be allowed for foreign language make-up courses and such courses will not be applied toward satisfaction of the College group requirement. However, the Board of Admissions may make exceptions in the pattern of required units for students from small high schools which cannot adjust immediately to the new requirements.

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## CURRENT ADMISSION REQUIREMENTS

### GENERAL ADMISSION REGULATIONS

Regulations pertaining to admission to the University are administered by the Board of Admissions, an administrative board appointed by the President. First preference is given to qualified residents of Washington and all sons and daughters of University of Washington alumni. The College of Arts and Sciences, like most colleges in the University, admits qualified out-of-state students and encourages those who meet the nonresident scholarship requirements to apply. See scholarship requirements, pages 43-46.

Applications for Admission must be submitted by prescribed deadlines and must be substantiated by certain credentials and reports submitted in accordance with University rules and practices. It is important that the student's application be submitted by the proper time, for the University *will assume no responsibility for applicants who come to the campus before their credentials have been forwarded or before they have been notified of acceptance.*

Correspondence regarding requirements for admission to and graduation from any college or school of the University should be addressed to the Registrar.

It is the student's responsibility to make sure that complete credentials covering all his previous secondary and college education are submitted to the University. To be official they must be forwarded by the principal or registrar of the last school attended, direct to the Registrar of the University. These records become part of the official file and cannot be returned to the student nor duplicated for any purpose whatsoever, as the University does not issue or certify copies of transcripts from other institutions. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University.

To be assured of admission in Autumn Quarter, it is imperative that complete required credentials are forwarded after high school graduation and no later than July 15. The July 15 deadline also applies to all applicants desiring to transfer from other colleges and universities. Applications, with complete credentials, post-marked between July 15 and August 31 will be accepted in order of receipt only as long as additional new students can be accommodated. No applications post-marked after August 31 will be considered. For admission in the other quarters, applications and credentials should be submitted by published deadlines. (For

specific dates see Calendar, pages 4-10.) This applies to *all* new students seeking admission as graduates or undergraduates. *It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.* Telegraphed or airmailed messages or requests will *not* be given precedence over other material already received by regular mail.

#### ADMISSION FROM ACCREDITED HIGH SCHOOLS

Graduates who earn diplomas of graduation from accredited high schools and who meet the University unit and scholarship requirements for entrance are eligible for admission as freshmen with regular standing.

No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

Each entering freshman is required to submit from an accredited high school an official Application for Admission blank (obtainable from any high school principal or from the Registrar of the University), which includes all credits and grades and a statement that the student has completed his high school course with a diploma of graduation. A high school diploma cannot be substituted for the official blank. Accredited high schools in Washington are those accredited by the State Department of Public Instruction; in Alaska, by the Northwest Association of Secondary and Higher Schools; in other states, by the state university of the state or a regional accrediting association.

A high school senior may submit, after the end of the seventh semester, an official Application for Admission blank which includes all credits and grades through the seventh semester, a list of eighth-semester courses, and the expected date of graduation. Those who are found qualified will be notified they have been granted conditional admission; final admission will be contingent upon submission of a supplementary transcript after high school graduation, which includes the eighth-semester subjects with satisfactory grades and a statement that the high school course has been completed with a diploma of graduation. *Final admission to the University will continue to be based on complete records through the eighth semester and a statement that a diploma of high school graduation has been awarded.*

#### SCHOLARSHIP REQUIREMENT FOR APPLICANTS ENTERING DIRECTLY FROM HIGH SCHOOL

See page 45 for applicants who have had college work.

#### Legal Residents of the State of Washington and All Sons and Daughters of University of Washington Alumni

The University scholarship requirement is a high school grade-point average of 2.00 (equivalent to a C average on the state of Washington grading system).

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his high school records.

The student who is admitted on probation may continue his attendance at the University at the discretion of the dean of his college but may not (1) be pledged to or initiated into a fraternity or sorority, or engage in those other student activities in which his right to participate is restricted by the regulations of the Committee on Student Welfare; (2) engage in those athletic activities in which his right to participate is restricted by the regulations of the Intercollegiate Athletics Committee. He will be removed from probation when he has earned a minimum of 12 credits, exclusive of those in lower-division physical education activity and Army, Air Force, and Navy ROTC courses, with a 2.00 grade average; however, if he carries less than 12 credits in one quarter, he may not be removed from probation unless he has earned at least a 2.00 average for the current quarter, as

well as a minimum cumulative average of 2.00 for his total quarters in attendance. A student removed from probation under these provisions is then subject to the regular scholarship rules.

**Nonresidents or Students Residing in States and Countries  
Other Than the State of Washington**

The University scholarship requirement for nonresidents\* or students residing outside the state of Washington who apply for admission directly from high school is a grade-point average of 3.00 (equivalent to a B average on the state of Washington grading system) or placement in the upper 25 per cent of their graduating class. No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state (see Admission From Accredited High Schools, third paragraph, page 43).

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in the preceding section. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students from high schools in other states which use different grading systems will find their scholarship averages adjusted to the state of Washington four-point system.

A nonresident applicant who cannot meet the 3.00 (B) scholarship requirement, if he believes that there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the college of his choice, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

**UNIT REQUIREMENT FOR ALL APPLICANTS**

The minimum requirement of the University is 16 high school units<sup>1</sup> (or 15 units exclusive of activity credit in physical education, debate, etc.) with grades certifiable for university entrance. The 16 units should include at least 9 units in academic subjects (a unit equals 2 semester credits, or one full year of high school study). No unit which received lower than the lowest passing grade as defined by the high school itself may be included in the required total. Requirements for admission to the College of Arts and Sciences are as follows:

English	3 units	Social science	1 unit
One foreign language*	2 units	One laboratory science (Acceptable laboratory sciences are: biology, botany, chemistry, geol- ogy, physics, zoology)	1 unit
Mathematics (elementary algebra and plane geometry)**	2 units	Electives (minimum)	7 units

\* Less than 1 unit in a foreign language is not counted.

\*\*  $\frac{1}{2}$  unit each of advanced algebra and trigonometry are required for students majoring in physics or mathematics. Physics is the required laboratory science for majors in physics.

Some schools and departments in the College maintain additional unit requirements for students who expect to enter their major curricula. These requirements are described in the announcements of the departments.

<sup>1</sup> To count as a unit, a subject must be taught five times a week, in periods of not less than forty-five minutes, for a high school year of thirty-six weeks. The maximum allowance toward University entrance for junior high school study is 4 units.

**SUBJECT MATTER DEFICIENCIES FOR ALL APPLICANTS**

Applicants with diplomas of graduation from accredited high schools who meet the scholarship requirement and have at least 3 units in English and 6 in other academic subjects, including either 1 unit of algebra or 1 unit of plane geometry, may petition the Dean of the College for permission to enter. (Typical academic subjects are English, foreign languages, mathematics, science, history, and economics. Some nonacademic courses are those in commerce, industrial arts, home economics, and band.) Students who are permitted to enter with provisional standing must register each quarter for make-up courses in the one or more subjects they lack until the entrance deficiency is removed. *Those who are deficient in first-year algebra or plane geometry and who have a grade-point average of below 2.30 (nonresidents, 2.70 or 3.00) will be expected to remove their deficiencies prior to entering the University.* Provisional standing continues until the student has satisfied the entrance requirements of the college in which he is enrolled. *No application for a degree may be accepted until all entrance deficiencies have been removed.*

Deficiencies may be made up with university credit if college courses covering the high school material are available; 6 to 10 college credits are considered the equivalent of 1 high school unit, except that for foreign languages 15 quarter credits of college work are considered the equivalent of 2 units (4 semesters) of high school credit. No student may receive credit for repetition of work at the same or at a more elementary level, if credit has been granted in the earlier course. This rule applies whether the earlier course was taken in high school or in college, and whether, in the latter case, course numbers are duplicated or not. First-year algebra and plane geometry are offered by the Department of Extension Classes (fee \$24.00 per course) and do not carry University credit.

**GRADUATES FROM UNACCREDITED HIGH SCHOOLS**

A graduate of an *unaccredited* high school in Washington, if he has the recommendation of his principal, may petition the Board of Admissions for permission to enter if he meets other entrance requirements. Before granting such permission, the Board may require these students to pass certain examinations.

**NON-HIGH SCHOOL GRADUATES**

In general, the Board of Admissions considers that College Entrance Board Examinations may be used to supplement unaccredited or incomplete preparatory study but may not be used as the sole basis to supply entrance credits. Applications of this kind must be reviewed by the Board of Admissions.

Information regarding College Entrance Board Examinations may be obtained by writing to the Educational Testing Service, P.O. Box 592, Princeton, New Jersey, or Box 27896, Los Feliz Station, Los Angeles 27, California.

**ADMISSION WITH ADVANCED UNDERGRADUATE STANDING**

Students in other institutions who plan to transfer to the College of Arts and Sciences are urged to pattern their schedules after the curricula of this College, so that they may transfer as many credits as possible.

Applicants are admitted to the University and to the College of Arts and Sciences by transfer from accredited colleges, universities, and junior colleges under these conditions:

1. Complete transcripts and letters of honorable dismissal must be sent directly to the University Registrar by the registrar of the former school. In general, the University will not accept a student who is in scholastic or disciplinary difficulty at his former school. Failure to present full transcripts will be considered a serious breach of honor and may result in permanent dismissal from the University.

2. *Applicants who are legal residents of the state of Washington and all those who are sons or daughters of University of Washington alumni* and who have less than a year of college work must have a 2.00 (C) grade-point average in both their college and high school records. Those who have completed a year or more

of college work must have a 2.00 (C) average in both their college records and in the last term of attendance. The applicant must present an admission and scholastic record equivalent to that required of students in attendance at the University.

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his school records.

3. *Applicants who are not legal residents\* of the state of Washington, applying with fewer than 45 acceptable college credits*, must have a 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also have a 3.00 (B) average in their standard college courses.

4. *Applicants who are not legal residents\* of the state of Washington and who have completed 45 or more standard college credits* must have a 2.70 (B-) average in their standard college courses.

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in paragraph 2 above. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students transferring from colleges or universities that employ a three-point or five-point system of passing grades will find their admission grade points adjusted to the four-point system of the University of Washington.

A nonresident applicant who cannot meet the 3.00 (B) or 2.70 (B-) scholarship requirement, whichever applies in his case, if he believes that there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the college of his choice, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS

The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted.

1. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined until the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or senior standing. Transfer credit will not be allowed in the senior year.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution.

3. Transfer credits from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits, exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training school credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the senior year.

6. A maximum of 45 credits earned in extension and correspondence courses at



other institutions may be transferred, but none of the credits can apply in the senior year. Extension and correspondence credits from schools that are not members of the National University Extension Association are accepted only after examination.

7. Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Department of Extension Classes and Department of Correspondence Study. All credits earned by advanced-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum. Up to 10 extension or correspondence credits from this University can apply toward the work of the senior year.

8. For work done in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advanced-credit examinations must be filed during the first quarter in residence.

9. No credit will be granted for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

#### **ADMISSION OF FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD**

Students educated entirely or partially in foreign countries must meet the same general requirements as those educated in American schools and must demonstrate a satisfactory command of the English language. A student who has graduated from a high school system that provides less than twelve years of instruction may be required to take additional school work.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in university attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students must meet the scholarship requirements for nonresident students. See pages 44 and 46.

In some background subjects, a student, with formal training below the university level but more than is usually given in American high schools, may be registered for a more advanced course.

#### **ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Persons twenty-one or older who are legal residents of Washington and are not eligible for admission as regular students may apply to the Board of Admissions for admission with special standing. With their applications they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the Dean of the College permits but may not participate in student activities or receive degrees. By fulfilling requirements for admission to the College, special students may change their status to that of regular students and may receive degrees.

Persons twenty-one or older may register as auditors in nonlaboratory courses or the lecture parts of laboratory courses by obtaining the consent of the Dean of the College and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter. Students who have been dropped for low scholarship or new applicants who do not qualify for admission may not register as auditors until they have been reinstated or accepted in some college of the University.

### ADMISSION TO THE GRADUATE SCHOOL

Prospective graduate students must apply for admission to the Graduate School. Entrance requirements are described in the *Graduate School Bulletin*, which may be obtained from the Registrar.

### KOREAN VETERANS

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. Veterans Administration regulations specify that the veteran's ultimate goal must be stated on his application for a certificate. Only one change of course is allowed on the Korean Bill. If the veteran has any questions regarding application for a certificate, he should contact the Veterans Division, 1B Administration Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

### KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented along with his Program of Studies to the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

There are restrictions for veterans returning to training following an interruption in excess of twelve months. Korean veterans should consult with the Veterans Division, 1B Administration, or the nearest Veterans Administration office to see if they are eligible for further benefits.

### QUARTERLY CREDIT REQUIREMENTS (P.L. 500)

14 credits .....	Full subsistence
10 to 13 credits .....	Three-fourths subsistence
7 to 9 credits .....	One-half subsistence
6 credits or less .....	Established tuition and fees
or credits $\div$ 14 $\times$ \$110, whichever is the lesser	

### GRADUATE CREDIT REQUIREMENTS (500-level Courses or Above)

9 credits .....	Full subsistence
7 to 8 credits .....	Three-fourths subsistence
5 to 6 credits .....	One-half subsistence
4 credits or less .....	Established tuition and fees
or credits $\div$ 14 $\times$ \$110, whichever is the lesser	

If a graduate is combining 400-level courses with 500-level courses he should check with the Veterans Division, 1B Administration, to determine his scale of pay.

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

## DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

## CHILDREN OF DECEASED VETERANS

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented along with the Program of Studies to the Veterans Division, 1B Administration Building, on the date of registration.

## WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 54).

## REQUIRED TESTS AND EXAMINATIONS

### WASHINGTON PRE-COLLEGE DIFFERENTIAL GUIDANCE TEST

New students of freshman standing (including transfer students with less than 45 quarter college credits, exclusive of credits in physical education activity and Army, Air Force, and Navy ROTC subjects) are required to take college aptitude tests at a time to be announced each quarter.

These tests have been selected on the basis of their proven value for the prediction of grades most likely to be earned by each student. The achieved scores are often used by members of staff in counseling students. In addition, a student's score on three parts of the battery (spelling, usage, and vocabulary) is used to assign him to the appropriate section in freshman English; a student who scores in the lower fifth on these three tests must take the remedial, noncredit course, English N50 (Basic Grammar), offered in Evening Classes, for which an additional fee is charged. Little can be gained by preliminary study for these tests. Sample copies are not available. Special, foreign, and blind students and auditors are exempted.

Foreign students who have markedly inadequate previous training in the use of English are required to take a special examination under the supervision of the English Department. *Since the aptitude tests are a prerequisite to English 101 (Composition) and Humanities-Social Studies 265 (Techniques of Communication) any student otherwise exempted must take these tests if he wishes to register for either of these courses.*

### MATHEMATICS QUALIFYING AND EXEMPTION TESTS

Students who have taken third-semester algebra in high school, or the equivalent course in any other college, and who plan to take Mathematics 104 (Plane Trigonometry) and/or 105 (College Algebra) are required to take a qualifying test before they are permitted to register for these University courses. Those who fail the qualifying test and who wish to study trigonometry at the University must choose one of the following alternative plans:

1. Pass Mathematics 101 (without credit for such students) and then take 104.
2. Take Mathematics 103 which meets five hours per week, but carries only 3 credits.

Those who fail the qualifying test and who wish to study college algebra must first pass either Mathematics 101 or 103.

Students who have taken trigonometry and/or college algebra in high school and whose University courses of study require these subjects may obtain exemption from Mathematics 104 and/or 105 by taking an exemption test. Particularly high scores on both of these tests will qualify students to be placed in special sections of Mathematics 153. Directions for taking these tests are included in *Registration Information for New Students* which is enclosed with the Official Notice of Admission blank. Students are advised to review their high school work before taking these tests.

### **MEDICAL EXAMINATION**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the University Health Center a form containing his health history and a report of a physical examination by a physician. The form will be sent to the student by the Office of Admissions. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the University Health Center without charge.

With the exception of Canadian students, who will follow the above instructions, foreign students must take the required physical examination at the University Health Center when they arrive on the campus.

## **REGISTRATION**

### **REGULAR STUDENTS**

A regular student is a student who fulfills the following requirements: (1) he has been granted regular admission to a school or college of the University; (2) his current schedule for credit is satisfactory to the dean of his school or college; (3) he has completed registration, including paying tuition and fees.

### **PROCEDURE**

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration procedures, dates, and deadlines which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to, calling at, or telephoning the Registrar's Office at the time specified in the Calendar but in no case later than the stated deadline (see pages 4-10).

### **ADVISING**

After notification of admission, and before registration, new students should visit or write to the College for assistance in planning their course programs. The College provides a central advisory office, in 121 Miller Hall, which is designed especially to advise premajor students, those in the General Education program, and those taking preprofessional curricula for dental hygiene, dentistry, education, law, librarianship, medicine, occupational therapy, and physical therapy.

### **REGISTERED CREDITS ALLOWED EACH QUARTER**

Except with the consent of his dean, no student may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent) or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no case may a student be registered for, or receive credit for more than 20 credits

(or the equivalent) of work, exclusive of physical education activity courses and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove entrance deficiencies, or concurrently in extension classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

#### **CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the Dean of the College. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean and the instructor whose class the student wishes to enter.

#### **WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

#### **WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the dean of his school or college the Request for Withdrawal From the University form. The same system of grading applies as that described under Withdrawal From a Course.

#### **SCHOLARSHIP AND MINIMUM CREDITS**

Freshman students in their first three quarters, and transfer students in their first quarter, must maintain a grade-point average of at least 1.80. All other students must maintain an average of 2.00 (C), and a cumulative average of 2.00 (C) is required for graduation. Some schools and departments require a higher grade-point average for graduation through their curricula; these requirements are described in the departmental announcements on the following pages.

Grade points per credit are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; D, 1 point. The grade of E signifies failure and the grade point is 0. The grade-point average is computed by multiplying the grade point received in a course by the total number of credits the course carries, totaling these values for all courses, and dividing by the total number of credits for which the student registered.

The University credit requirement for graduation is 180 academic credits (including Health Education 110 or 175) and the required quarters of military training and physical education activity. The College of Arts and Sciences requires that 9 credits or the equivalent in English 101, 102, and 103 (English Composition) be included in the total. At least 60 of the 180 credits must be in upper-

division courses, those numbered 300 and above. Advanced ROTC courses do not count as upper-division credit, and no more than 18 credits in advanced ROTC courses may be counted toward graduation.

Students who transfer from other institutions are normally required to earn at least 10 credits in their major subject in this College.

Grades earned at other institutions cannot be used to raise the grade-point average at the University of Washington. Any college may make additional requirements for graduation.

### **SENIOR-YEAR RESIDENCE**

Senior standing is attained when 135 credits and the required credits in military, naval, or air science and physical education have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in a minimum of three quarters of residence. The remaining 10 credits may be earned either in residence or in this University's extension or correspondence courses.

### **MILITARY TRAINING**

Male students who enter the University as freshmen or sophomores are required to complete six quarters of military training. Students should meet this requirement during the first two years they are in residence (registered in regular University classes).

The requirement may be met with courses in one of three University departments: Air Science, Military Science and Tactics, or Naval Science. The Departments of Air Science and Military Science offer six-quarter (two-year) basic programs of classwork and drill which fulfill University requirements, and two years of advanced ROTC training which selected students may enter after completing the basic program. Information about these programs may be obtained from the Professor of Air Science and the Professor of Military Science and Tactics at the University. The Department of Naval Science offers four-year programs only, and prospective students who are interested in Naval ROTC should write to the Professor of Naval Science. See also Reserve Officers Training Programs section.

Students with junior or senior standing in the Naval ROTC, and those who enter advanced Air Force or Army ROTC, must complete the program as a condition of graduation unless excused or dismissed by authority of the Secretary of the service concerned.

Exemptions from the requirement are granted to:

1. Students who are twenty-three years of age or over at the time of original entry into the University.
2. Students who enter as juniors or seniors.
3. Special students.
4. Students registered for 6 credits or less.
5. Students who are not citizens of the United States.
6. Students who, because of physical condition, are exempted by the University Health Officer.
7. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.
8. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.
9. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.
10. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.

11. Students who seek exemption on grounds other than specified above, and whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the Dean of the College after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 5 or 11 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

#### PHYSICAL AND HEALTH EDUCATION

**Activity Courses.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

*Men* students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

*Women* students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

The following students are exempt from the requirement of activity courses:

1. Students who have attained the age of twenty-five. A student who attains the age of twenty-five during a quarter in which he is registered for a required physical education activity course shall be held for the completion of that course. This rule shall not be retroactive in its application to students who entered prior to Spring Quarter, 1951, and were exempted from required physical education courses under previous rules.

2. Students who enter as sophomores, juniors, or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who, because of physical condition, are exempted by the Graduation Committee upon the recommendation of the Dean of the College. Such action will be taken only when the Dean has received a joint recommendation for exemption from the University Health Officer and the Executive Officer of the Department of Physical Education for Men or for Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfit to join regular classes will be assigned by the Executive Officer of the Department of Physical Education for Men or for Women to special programs adapted to their needs.

6. Students who are veterans of military service. Complete exemption is granted for one year or more of active duty. This exemption does not grant credit. Veterans with less than one year of service receive no exemption.

7. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**Health Courses.** All men students who enter the University as freshmen are required to take Health Education 175, a course in personal health, within the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption also does not grant credit.

*Women* students who enter the University as freshmen are required to take Health Education 110 within the first three quarters of residence. *Women* entering the University for the first time may satisfy this requirement by passing a health-knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement, but does not grant credit for Health Education 110.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

### *Tuition*

Resident students, per quarter \$35.00  
A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter 105.00  
Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter 12.00

### Veterans of World War I and II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one half the nonresident tuition. This exemption is not granted to Summer Quarter students.

### *Incidental Fee, per quarter*

Full-time resident students 27.50

Part-time resident students (registered for 6 credits or less, exclusive of ROTC) 10.00

Full-time nonresident students 52.50

Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC) 35.00

Auditors do not pay an incidental fee; there are no other exemptions.

### *ASUW Fees*

Membership, per quarter 8.50

Optional for auditors and part-time students.

Athletic admission ticket (optional for ASUW members) 3.50-6.50

Autumn, Winter, and Spring Quarters, \$6.50; Winter and Spring Quarters, \$3.50; Spring Quarter, \$3.50.

*Military Uniform Deposit* 25.00

Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.

*Breakage Ticket Deposit* 3.00

Required in some laboratory courses; ticket is returnable for full or partial refund.

*Locker Fee, per quarter* 1.50

Required of men students taking physical education activities.

*Grade Sheet Fee* .25

One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.

*Transcript Fee* .50

One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.

*Graduation Fee* 10.00



**SPECIAL FEES**

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Appointments or Permits to register by In-Person Registration. A late registration fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. The fee for a special examination is \$1.00 and for removal of an Incomplete, \$2.00. A fee of \$5.00 is charged each student, entering with less than 45 credits, who has not previously taken the Washington Pre-college Differential Guidance (Grade Prediction) Test.

**MUSIC FEES**, per quarter are: Private lessons, one-half hour a week (2 credits), \$25.00. Private lessons, one hour a week (3 credits), \$37.50. Group lessons, \$5.00. Piano practice, \$3.00, one hour a day; \$5.00, two hours a day; \$6.00, three hours a day. Organ practice, \$6.00, one hour a day; \$10.00, two hours a day; \$12.00, three hours a day. Practice rooms are available only to students taking music courses.

**PHYSICAL EDUCATION ACTIVITY FEES**, per quarter are: bowling, \$5.00; canoeing, \$2.50; golf instruction, \$1.50.

**REFUND OF FEES**

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

**ESTIMATE OF YEARLY EXPENSES**

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

***Tuition, Incidental, and ASUW Membership Fees***

Full-time resident student	\$213.00
Full-time nonresident student	498.00

***Athletic Admission Ticket (optional)*** 3.50-6.50

***Accident and Sickness Insurance (optional)*** 12.90

***Special Fees and Deposits*** 38.50

Military uniform deposit, breakage ticket, and locker fees.

***Books and Supplies*** 90.00

***Board and Room***

Room and meals in Men's Residence Halls	630.00
Room and meals in Women's Residence Halls	540.00-660.00
Room and meals in fraternity or sorority house	660.00-700.00
Initial cost of joining is not included; this information may be obtained from the Interfraternity Council or Panhellenic Council.	

***Personal Expenses*** 200.00

## STUDENT ACTIVITIES AND SERVICES

### ASSOCIATED STUDENTS

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

### FINANCIAL AIDS

A considerable number of scholarships are awarded annually on a competitive basis. Applications are available through the Office of the Dean of Students during Winter Quarter, and awards are made late in the spring for the following academic year. The University bulletin *Handbook of Scholarships* describes the various awards.

Short- and long-term loan funds, including the National Defense Student Loan fund, are administered by the Office of the Dean of Students. Full-time students who are making normal and satisfactory progress are eligible to apply.

### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and similar problems.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, and employment should be referred to this Adviser. Students who are interested in study abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

### COUNSELING CENTER

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors, and psychologists, works closely with other student services and supplements the academic advisory program.

### HOUSING

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time sub-faculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

#### HEALTH SERVICES

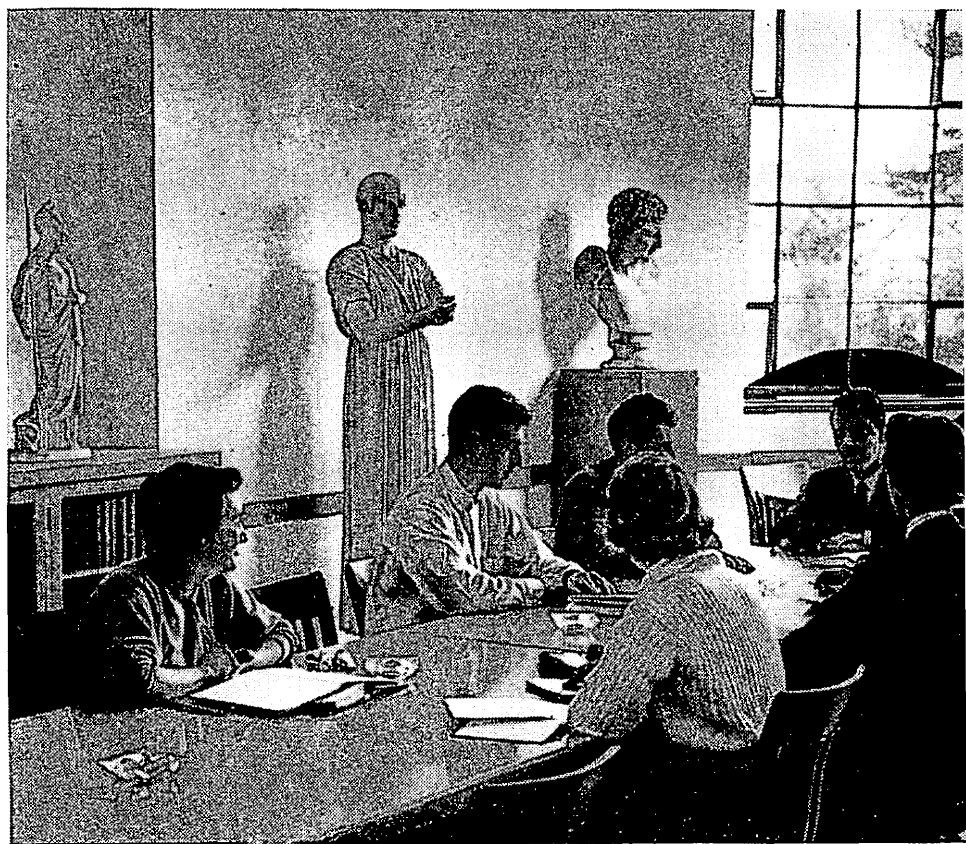
The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

Accident and sickness insurance for students is available at the time of registration.

#### WORK PLACEMENT

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence in Seattle has been established. Placement in jobs on campus is handled by the Personnel Department and the ASUW Personnel Office.



## THE DEPARTMENTAL PROGRAMS

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# THE DEPARTMENTAL PROGRAMS

**T**HE COLLEGE OF ARTS AND SCIENCES, through its departments, schools, and interdepartmental programs, offers curricula leading to the degrees of Bachelor of Arts and Bachelor of Science, as well as graduate study leading to the degrees of Master of Arts, Master of Science, and Doctor of Philosophy.

## UNDERGRADUATE CURRICULA

Undergraduate curricula in the College are in five classifications: prescribed, elective, interdepartmental, nondepartmental, and preprofessional.

**PRESCRIBED DEPARTMENTAL CURRICULA.** Courses of study in these curricula are offered by some departments and schools which definitely prescribe the work the student must complete for the bachelor's degree. Students within these curricula *must fulfill* the College group requirements unless they are included in the prescribed program.

**ELECTIVE DEPARTMENTAL CURRICULA.** These are more flexible than prescribed curricula. Students must complete 36 credits in their major subject (or more, if required by the major department) and, during their first two years, complete the College group requirements.

**INTERDEPARTMENTAL CURRICULA.** Given by the Division of General Studies, these curricula meet the individual needs of students whose major field of interest extends beyond the limits of a single department or college. General Studies students are required to complete the College group requirements.

**NONDEPARTMENTAL CURRICULA.** These curricula are for premajor students and those enrolled in the General Education program. Students who have not selected a major field of interest may, with the help of their advisers, plan individual pre-major programs which will introduce them to a variety of subjects and will help them to meet the general University and College requirements. Premajor students must select a major field before the beginning of their third year. The General Education program offers a unified two-year sequence of introductory courses in the humanities, social sciences, and physical and biological sciences. Any or all of the General Education courses may be taken by premajor students and by others who want a broad range of learning without specialization.

**PREPROFESSIONAL CURRICULA.** Offered for students who plan to enter the fields of dental hygiene, dentistry, education, law, librarianship, medicine, occupational therapy, and physical therapy, these curricula provide educational preparation for entrance to professional schools. The curricula vary in length from one to four years.

**PREMAJOR CURRICULA.** Information on these is given on page 197.

## BACHELOR'S DEGREES

Students working toward bachelor's degrees in the College of Arts and Sciences must meet certain general requirements of the University and the College group requirements as well as the particular requirements of their major department. Course requirements for each degree are described in the departmental announcements. General requirements for all bachelor's degrees include military training, physical education, scholarship and minimum credits, group requirements, and senior-year residence.

Students should apply for bachelor's degrees during the first quarter of the senior year. A student may choose to graduate under the graduation requirements of the appropriate school or college bulletin published most recently before the date of his entry into the college in which he is to graduate, provided that not more than ten years have elapsed since that date. As an alternative he may choose to fulfill the graduation requirements as outlined in the appropriate school or college bulletin published most recently before the date of his graduation. All responsibility for fulfilling graduation requirements will rest with the student concerned. No student whose standing is provisional because he has not removed his entrance deficiencies can have an application for degree accepted until the deficiency is cleared. A student graduating from another college of the University who wishes to receive a degree simultaneously from the College of Arts and Sciences must receive approval from the Assistant Dean of the College of Arts and Sciences at least three quarters before completing the requirements for the degree from this College. No student may graduate from the College of Arts and Sciences without a minimum of three quarters of attendance in that College.

## GROUP REQUIREMENTS

The subject material available to students in the College is divided into three broad fields of knowledge. The subjects included in these fields are:

<i>I. Humanities</i>	<i>II. Social Sciences</i>	<i>III. Sciences</i>
Art	Anthropology	Anatomy 301
Classics	Economics	Astronomy
Communications	Far Eastern Institute	Biochemistry
Drama	courses	Biology
English	Geography	Botany
Far Eastern languages and	History	Chemistry
literature	Home economics	Conjoint 317-318
General and comparative	Philosophy	Genetics
literature	Physical and health education	Geology
Germanic languages and	Political science	Mathematics
literature	Psychology	Meteorology and
Humanities 101, 102, 103,	Social Science 101, 102, 103,	climatology
201, 202, 203	201, 202, 203	Microbiology
Journalism	Sociology	Oceanography 101
Liberal arts		Pharmacy 115
Librarianship		Physical Science 101
Music		Physics
Radio-Television		Zoology
Romance languages and		
literature		
Scandinavian languages and		
literature		
Slavic languages and literature		
Speech		

Students in elective and interdepartmental curricula must have a minimum of 30 credits in one group (usually the major field), 20 credits in another, and 10 credits in the third. Health Education 110 or 175, English 101, 102, and 103, and courses taken to remove entrance deficiencies may not be used to fulfill group requirements.

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. The choice of bulletin (see page 62) does not apply to advanced degrees in the Graduate School. Graduate students must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.

Graduate programs leading to the master's degree are available in the fields of anthropology, art, botany, chemistry, classics, communications (journalism and radio-television), drama, economics, English (including general and comparative literature), Far Eastern and Slavic languages and literature, geography, geology, Germanic languages and literature, history, home economics, linguistics, mathematics, meteorology and climatology, music, oceanography, philosophy, physical education, physics, political science (including public administration), psychology, Romance languages and literature, Scandinavian languages and literature, sociology, speech, and zoology.

Graduate programs leading to the degree of Doctor of Philosophy are available in the fields of anthropology, botany, chemistry, economics, English (including general and comparative literature), Far Eastern and Slavic languages and literature, geography, geology, Germanic languages and literature, history, linguistics, mathematics, meteorology and climatology, music, oceanography, philosophy, physics, physiological psychology, political science, psychology, Romance languages and literature, sociology, speech, and zoology.

## COURSE-NUMBERING SYSTEM

Courses numbered from 100 through 299 are lower-division courses, for freshmen and sophomores; those numbered from 300 through 499 are upper-division, for juniors and seniors.

Courses numbered 500 and above are intended for and restricted to graduate students. Some courses numbered in the 300's and 400's are open both to graduates and to upper-division undergraduates. Such courses, when acceptable to the major department and the Graduate School, may be part of the graduate program. The Graduate School accepts credit in approved 300-level courses for the minor or supporting fields only; approved 400-level courses are accepted as part of the major. For a listing of approved 300- and 400-numbered courses, consult the *Graduate School Bulletin*.

Undergraduate students of senior standing who wish to register for a 500-level course must obtain permission from both the instructor of the class and the Dean of the Graduate School.

The number in parenthesis following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed. Courses to which the letter J is appended are joint courses in two or more departments and as such grant credit in one of the departments.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## ANTHROPOLOGY

**Executive Officer: JAMES B. WATSON, 345 Savery Hall**

The Department of Anthropology offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. An undergraduate curriculum in the anthropology of Latin America is given through the Division of General Studies (see page 121).

### BACHELOR OF ARTS

In this elective curriculum, at least 40 credits in anthropology are required, including the following courses: 201, 202, 203; two area courses from 210, 211, 213, 214, 215, and 311 or 315; one archaeology course from 272, 274; one physical anthropology course from 480, 481, 482; the general linguistics course, 450; two social anthropology courses from 432, 435 or 436, 437.

A 2.50 grade-point average in anthropology is required.

If graduate work is contemplated, electives should include two foreign languages.

### ADVANCED DEGREES

The Department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy. Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

Requirements for both advanced degrees include demonstration of competence in the field of ethnology and two other fields selected from the following: archaeology, linguistics, physical anthropology, and social anthropology. The thesis will always be in one of the three fields. Part of the graduate work may, in addition, be devoted to a minor in a related field, such as psychology, sociology, geography, history, or Far Eastern studies. Students whose previous work in anthropology is inadequate may be required to complete indicated undergraduate courses before being admitted to graduate courses.

**MASTER OF ARTS.** Candidates must complete an approved program in advanced anthropology courses.

Students from other departments wishing to minor in anthropology should consult the Anthropology Department.

**DOCTOR OF PHILOSOPHY.** A candidate may work directly toward the doctorate without taking a master's degree only with the express permission of the Department. The language requirements must be satisfied at least three quarters before the general examination. Field work is normally required of all candidates.

The requirements for a minor in anthropology for a doctor's degree should be determined in consultation with the Anthropology Department.

### COURSES FOR UNDERGRADUATES

- |            |   |              |
|------------|---|--------------|
| <b>100</b> | <b>Introduction to the Study of Man (5)</b><br>Survey of the fields of anthropology. Problems and principles in the study of man's racial, linguistic, and cultural variation. Physical anthropology, linguistics, cultural anthropology, archaeology. Not open to students who have taken 390. | <b>Staff</b> |
| <b>201</b> | <b>Physical Anthropology: Man in Nature (5)</b><br>An introduction to physical anthropology. The basic principles of human genetics, the evidence for human evolution, and the study of race. Prerequisite, 100 or sophomore standing.  | <b>Staff</b> |
| <b>202</b> | <b>Cultural Anthropology: Comparison and Analysis (5)</b><br>Selected anthropological analyses and comparisons of human communities around the world which illustrate diversity and universality in human cultures. Prerequisite, 100 or sophomore standing.                                    | <b>Staff</b> |



- 203 Archaeology: The Dawn of Tradition (5)** **Greengo**  
An introduction to the prehistory of man. The beginnings of human culture in the Old World to the early Iron Age in Western Europe. Prerequisite, 100 or sophomore standing.
- 210 North American Indians (3)** **Gearing**  
Historic Indian cultures and their modern representatives.
- 211 Oceania (3)** **Read, Watson**  
Ethnographic analysis of the islands of the Pacific, including the effects of modern contacts.
- 213 Africa (3)** **Ottenberg**  
Discussion of the basic cultures of Africa.
- 214 Eurasia (3)** **Anderson**  
The cultures of peoples of Europe and Asia.
- 215 Native Peoples of South America (3)** **Staff**  
Indigenous cultures of Mexico and Central and South America. Indian elements in modern Latin America.
- 250 The Nature of Culture (2)** **Staff**  
Orientation to cultural anthropology; introduction to primitive and modern societies and their present day relationships. Not open to students who have had 100, 202, or 390.
- 270 Field Course in Archaeology (12)** **Greengo, Staff**  
Archaeological methods and techniques as demonstrated through field experience. (Offered Summer Quarter only.) Prerequisite, 5 credits in anthropology.
- 272 Prehistoric Cultures of North America (3)** **Greengo**  
Archaeology of North America from the earliest evidence to the coming of Europeans.
- 274 Prehistoric Cultures of South America (3)** **Greengo**  
Prehistory of South America from earliest evidence of man to the period of conquest by the Spanish. Adaptations in various environments in terms of Early Lithic, Archaic, Classic, and Post-Classic stages.
- 280 Theories of Race (2)** **Staff**  
Survey of human heredity; racial history; race differences. Not open to students who have had 100, 201, or 390.
- 311 Indian Cultures of the Pacific Northwest (3)** **Garfield**  
Comparative analysis of material culture and social, religious, and political institutions.
- 314J Peoples of Central and Northern Asia (3)** **Posch**  
An ethnological survey of Tibet, Mongolia, Turkestan, and Siberia. Offered jointly with the Far Eastern and Russian Institute. Prerequisite, major standing in anthropology or Far Eastern, or permission.
- 315 Peoples of the Far North (3)** **Garfield**  
Arctic and Sub-Arctic peoples of Asia and North America. Nonliterate peoples of Old and New World and cultural history of the Far North.
- 317 Ethnology of Southeast Asia (3)** **Staff**  
A survey and analysis of the cultural diversity and unity of the peoples of Burma, Thailand, Indo-China, Malaya, Indonesia, and the Philippines. Prerequisites, major standing in anthropology or Far Eastern, or permission.
- 320 Primitive Technology (5)** **Greengo, Gunther**  
Study of the material culture of primitive peoples with analysis of techniques of manufacture. Museum material is used for laboratory work.
- 332 The Religions of Primitive Peoples (3)** **Ray, Read, Spiro**  
A survey of the religious beliefs and practices of primitive peoples designed to provide a world ethnographic sample of the materials. Prerequisite, upper-division standing.
- 350 Basis of Civilization (3)** **Watson, Staff**  
Basic inventions, discoveries, and technological achievements of the ancient and primitive worlds; the beginnings of science; the impact of civilization.
- 370 Methods and Problems of Archaeology (5)** **Greengo**  
Field experience in this locality is included. Prerequisite, 203.
- 371 Analysis of Archaeological Data (3)** **Greengo**
- 380 Primate and Human Evolution (3)** **Staff**  
Development and relationships of primates, including man, traced from comparative and paleontological data.
- 390 Introduction to Anthropology (5)** **Staff**  
A survey of anthropology. For nonmajors. Not open to students who have taken 100, 201, 202, or 203. Prerequisite, upper-division standing.
- 415 The Character of Eskimo Life (3)** **Ray**  
An analysis of the nature of Eskimo cultures, aboriginal and contemporary, in terms of the shaping of lives of individuals.
- 417 Middle American Civilization (2)** **Greengo, Staff**  
The high cultures of Mexico, Guatemala, and Northern Central America. Prerequisite, 215.
- 418 Ethnology of Meso-America (3)** **Staff**  
Indian and peasant cultures from Mexico through Nicaragua. Cultural and social types, acculturation, and relations to national cultures. Prerequisite, major standing in anthropology, Latin-American studies, sociology, or permission.

- 425 Applied Anthropology (3)** **Ottenberg**  
The application of anthropology to social, economic, and political problems. Prerequisite, 202 or 390, or permission.
- 431 Primitive Literature (3)** **Garfield**  
Mythology and folk tales of nonliterate peoples. Theories of interpretation of oral literature as they apply to theories of culture growth and diffusion.
- 432 Magic, Religion, and Philosophy (3)** **Read, Spiro, Ray**  
Comparative religious systems, magical beliefs, and philosophical concepts of nonliterate peoples.
- 433 Primitive Art (3)** **Gunther**  
Aesthetic theories and artistic achievements of preliterate peoples. Museum material is used for illustration. Prerequisite, 10 credits in anthropology or art.
- 434 Comparative Morals and Value Systems (3)** **Read**  
Comparative treatment of the sociological functions of morality in simple societies.
- 435, 436 Primitive and Peasant Economic Systems (3,3)** **Staff**  
435: description and analysis of chief conceptual and empirical features of nonmonetary and simple monetary economies.  
436: the impact of monetary economy and industrial technology on nonwestern societies.
- 437 Primitive Political Institutions (3)** **Gearing, Ray, Read**  
Comparative analysis of selected nonliterate societies. Prerequisite, 202.
- 438 The Analysis of Kinship Systems (3)** **Read**  
An analysis of kinship organization and types of kinship structures among Western and non-Western peoples. Prerequisites, 202, 390, or permission.
- 441 Culture and Personality (5)** **Spiro, Jacobs**  
The structure of personality; processes and factors in its development in differing types of culture. Prerequisites, 201, 202, or 390, Psychology 100, and junior standing.
- 442 Childhood and Society (3)** **Spiro**  
An examination of the relationship between child training and the functioning of social systems. Cross-cultural materials are examined. Prerequisite, 202 or 390, or 15 credits in social sciences.
- 450J Introduction to General Linguistics (5)** **Jacobs, Reed**  
Descriptive and historical techniques in the analysis of languages. Offered jointly with the Department of Germanic Languages and Literature.
- 451 American Indian Languages (3)** **Jacobs**  
Methods of field research and training in phonetic recording. Prerequisite, 450J.
- 452 Phonetics and Phonemics (5)** **Elson, Mayer, Staff**  
Introduction to analysis of sound systems of languages the world over, with stress on non-European languages. Native informants will be employed in laboratory hours. (Offered Summer Quarter only.) Prerequisite, permission.
- 453 Morphology and Syntax (5)** **Elson, Mayer, Staff**  
Introduction to analysis of structures of languages the world over, with stress on non-European languages. Native informants will be employed in laboratory hours. (Offered Summer Quarter only.) Prerequisite, permission.
- 460 History of Anthropological Theory (3)** **Jacobs, Staff**  
Systematic discussion of the development of the science and the personalities behind its theoretical structure. Prerequisite, 15 credits in anthropology.
- 480 Physical Anthropology: Anatomy (3)** **Staff**  
Prerequisites, 201, 202, and 203 or Biology 101J-102J.
- 481 Physical Anthropology: Anthropometry (3)** **Staff**  
Prerequisites, 201, 202, and 203 or Biology 101J-102J.
- 482 Physical Anthropology: Genetics (3)** **Staff**  
Prerequisites, 201, 202, and 203 or Biology 101J-102J.
- 499 Undergraduate Research (\*, maximum 12)** **Staff**  
Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 500, 501, 502 Preceptorial Reading (3,3,3)** **Staff**  
Guided, selected reading from the prepared departmental list with weekly discussion and papers.
- 505 Field Techniques in Ethnography (3)** **Gunther, Ray**
- 510 Seminar in Areal Ethnology (3, maximum 9)** **Staff**  
A systematic and intensive investigation of (a) the spatial distribution and (b) the temporal depth of the cultural, linguistic, and racial phenomena of a defined cultural province. Prerequisite, graduate standing in anthropology or permission.
- 511 Cultural Problems of the Northwest Coast (3, maximum 6)** **Garfield**
- 519J Seminar on Asia (3, maximum 6)** **Wilhelm, Staff**  
The large cultural regions of the continent are studied in succession with special reference to anthropological problems. (Offered jointly, in alternate years, with the Far Eastern and Russian Institute; offered 1960-61.)

<b>N520 Departmental Seminar (0)</b>	<b>Staff</b>
Departmental seminar required of all candidates for advanced degrees.	
<b>521 Native American Culture History (4)</b>	<b>Ray</b>
An historical interpretation of the geographical distribution of critical aspects of North and South American Indian cultures.	
<b>522 Cultural Problems of Western America (3)</b>	<b>Staff</b>
<b>523 Colloquium on Arid America (5)</b>	<b>Ray</b>
<b>524 Seminar in Cultural Problems of Arctic and Sub-Arctic (3, maximum 6)</b>	<b>Garfield</b>
Problems of cultural relationships across the North Pacific, from Asia to the New World and vice versa.	
<b>525 Seminar in Culture Processes (3, maximum 6)</b>	<b>Watson, Staff</b>
<b>527 Acculturation (3)</b>	<b>Watson</b>
<b>531 Analysis of Oral Literature (3, maximum 6)</b>	<b>Garfield</b>
<b>541 Seminar in Psychological Aspects of Culture (3)</b>	<b>Spiro</b>
<b>542J Personality Patterns in Japanese Culture (3)</b>	<b>Passin</b>
Offered jointly with the Far Eastern and Russian Institute.	
<b>551 Field Techniques in Linguistics (3)</b>	<b>Jacobs</b>
<b>553J Analysis of Linguistic Structures (3)</b>	<b>Jacobs, Li</b>
Offered jointly with the Far Eastern and Russian Institute.	
<b>561 Seminar in Methods and Theories (3, maximum 9)</b>	<b>Staff</b>
<b>565-566-567 History of Anthropological Sciences (3-3-3)</b>	<b>Staff</b>
Chronological and topical coverage of the development of anthropology through the early part of the twentieth century, with emphasis upon naturalism, comparativism, holism, and relativism.	
<b>570 Seminar in Archaeology (3)</b>	<b>Greengo</b>
<b>571 Field Course in Archaeology (5)</b>	<b>Greengo</b>
Study of prehistoric cultures through archaeological excavation and analysis. Work will be largely in the state of Washington, but other areas may be included. Prerequisites, 203 and/or 270.	
<b>580 Anthropology in Contemporary Problems (3)</b>	<b>Gunther</b>
<b>581 Anthropological Migration and Population Study (3)</b>	<b>Staff</b>
<b>582 Seminar in Race and Genetics (3)</b>	<b>Staff</b>
<b>600 Research (*)</b>	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

## ARCHITECTURE

*See College of Architecture and Urban Planning Bulletin.*

## ART

**Director: BOYER GONZALES, 102 Art Building**

The School of Art offers courses leading to the degrees of Bachelor of Arts and Master of Fine Arts.

For undergraduate students, the School provides four-year curricula in general art, art education, commercial design, industrial design, interior design, painting, sculpture, ceramic art, and printmaking, which lead to bachelor's degrees. The School also offers a basic academic field for students in the College of Education.

Advanced standing in the School of Art is granted only on presentation of credentials from and/or samples of work done in art schools or university art departments whose standards are recognized by this school.

The School reserves the right to retain student work for temporary or permanent exhibition.

## BACHELOR OF ARTS

Students may substitute courses in the humanities (except art) or the social sciences for the modern foreign language.

### First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 105 Drawing .....	3	Art 106 Drawing .....	3	Art 107 Drawing .....	3
Art 109 Design .....	3	Art 110 Design .....	3	Art 111 Design .....	3
Engl. 101 Composition .....	3	Engl. 102 Composition .....	3	Engl. 103 Composition .....	3
Modern foreign language .....	5	Modern foreign language .....	5	Modern foreign language .....	5
Health Educ. 110 or 175 .....	2	Phys. Educ. activity .....	1	Approved electives .....	2
Health .....	2	ROTC .....	2-3	Phys. Educ. activity .....	1
Phys. Educ. activity .....	1			ROTC .....	2-3
ROTC .....	2-3		15-18		17-20
	17-20				

**CURRICULUM FOR THE GENERAL MAJOR.** Students who are interested in costume design should elect as many as possible of the following courses: Art 369, 370, 371, 479, 480, and 481; and Home Economics 125 (Textiles), 134 (Clothing Construction and Selection), 231 (Clothing Selection), 234 and 334 (Costume Design and Construction), and 433 (History of Costume and Textiles).

### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 212 History of West. Art .....	2	Art 213 History of West. Art .....	2	Art 214 History of West. Art .....	2
Art 253 Design & Mater. ....	3	Art 254 Design & Mater. ....	3	Art 255 Design & Mater. ....	3
Art 256 Painting .....	3	Art 257 Painting .....	3	Art 258 Water Color .....	3
Approved electives .....	4	Art 272 Sculpture .....	3	Art 261 Elem. Int. Des. ....	2
ROTC .....	2-3	Approved electives .....	6	Approved electives .....	5
	12-15	ROTC .....	2-3	ROTC .....	2-3
			17-20		15-18

### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 201 Ceramic Art .....	3	Art 202 Ceramic Art .....	3	Art 362 Life .....	3
Art 360 Life .....	3	Art 361 Life .....	3	Approved design .....	3
Arch. 100 Appreciation .....	2	Arch. 101 Appreciation .....	2	Lab. science .....	5
Econ., pol. sci. or sociol. ....	5	Lab. science .....	5	Approved electives .....	4
Approved electives .....	2	Approved electives .....	2		15
	15		15		

### Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 350 Printmaking or 410 Illustration .....	3-5	Art 326 History .....	2	Art 320 History .....	2
Art 463 Composition .....	3	Art 464 Composition .....	3	Approved electives .....	13
Approved electives .....	7-9	Approved electives .....	10		15
	13-15		15		

**CURRICULUM IN ART EDUCATION.** Students who wish to emphasize high school teaching will follow the curriculum prescribed below. This curriculum includes courses for both first and second teaching areas and meets academic requirements for the provisional general certificate, which is granted through the College of Education. Other requirements for certification are described in the *College of Education Bulletin*.

### First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 105 Drawing .....	3	Art 106 Drawing .....	3	Art 107 Drawing .....	3
Art 109 Design .....	3	Art 110 Design .....	3	Art 111 Design .....	3
Engl. 101 Composition .....	3	Engl. 102 Composition .....	3	Art 129 Apprec. of Design. 2	2
Speech 100 Basic Speech Improvement .....	5	Humanities 102 The Arts. ....	5	Engl. 103 Composition .....	3
Health Educ. 110 or 175 .....	2	Phys. Educ. activity .....	1	Lab. science .....	5
Health .....	2	ROTC .....	2-3	Phys. Educ. activity .....	1
Phys. Educ. activity .....	1		15-18	ROTC .....	2-3
ROTC .....	2-3				17-20
	17-20				

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 201 Ceramic Art . . . . .	3	Art 213 History of West. Art . . . . .	2	Art 214 History of West. Art . . . . .	2
Art 212 History of West. Art . . . . .	2	Art 254 Design & Mater. . . . .	3	Art 255 Design & Mater. . . . .	3
Art 253 Design & Mater. . . . .	3	Art 272 Sculpture . . . . .	3	Art 258 Water Color . . . . .	3
Art 256 Painting . . . . .	3	Psychol. 306 Child . . . . .	5	Educ. 209 Educ. Psychol. . . . .	3
Psychol. 100 General . . . . .	5	Music electives . . . . .	2	Lab. science . . . . .	5
ROTC . . . . .	2-3	ROTC . . . . .	2-3	ROTC . . . . .	2-3
	16-19		15-18		16-19

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 205 Lettering . . . . .	3	Art 291 Art Educ. (Craft) . . . . .	2	Art 292 Art Educ. (Craft) . . . . .	2
Art 261 Elem. Int. Design . . . . .	2	Art 300 Design in Leather . . . . .	2	Art 302 Bookbinding . . . . .	2
Art 290 Art Educ. (Craft) . . . . .	2	Educ. 370E Elem. School Methods . . . . .	5	Art 362 Life . . . . .	3
Art 357 Metal Design or 358 Jewelry Design . . . . .	3	Art Hist. elective . . . . .	2	Pub. Health 461 School & Comm. Health . . . . .	5
Educ. 370 Intro. to Teaching . . . . .	5	Approved electives . . . . .	4	Educ. 372E Prof. Lab. Experiences . . . . .	3
	15		15		15

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 463 Composition . . . . .	3	Art 367 Commer. Design . . . . .	3	Educ. 360 Principles . . . . .	3
Educ. 320 Teachers' Course in Art . . . . .	3	Educ. 319 Super. of Elem. Art . . . . .	2	Educ. 373 State Manual . . . . .	2
Educ. 374 Reading Instruction . . . . .	5	Educ. 371X or S Directed Teaching . . . . .	8	Hist. 464 Wash. and the Pacific Northwest . . . . .	5
Educ. 390 Evaluation in Educ. . . . .	3	Approved electives . . . . .	2	Approved electives . . . . .	5
	14		15		15

The following courses are suggested for the thirteenth quarter; they may be taken either before or after teaching experience. Art 262, 273, 320, 340, 357, 358, 359, 450, 451, 464, and 467.

## CURRICULUM IN COMMERCIAL DESIGN

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 212 Hist. of West. Art . . . . .	2	Art 213 Hist. of West. Art . . . . .	2	Art 205 Lettering . . . . .	3
Art 253 Design & Mater. . . . .	3	Art 254 Design & Mater. . . . .	3	Art 214 Hist. of West. Art . . . . .	2
Art 256 Painting . . . . .	3	Art 257 Painting . . . . .	3	Art 255 Design & Mater. . . . .	3
Art 272 Sculpture . . . . .	3	Adver. 226 Intro. to Advertising . . . . .	3	Art 258 Water Color . . . . .	3
Lab. science . . . . .	5	Lab. science . . . . .	5	Psychol. 100 General . . . . .	5
ROTC . . . . .	2-3	ROTC . . . . .	2-3	ROTC . . . . .	2-3
	16-19		16-19		16-19

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 265 Draw. & Paint. . . . .	3	Art 266 Draw. & Paint. . . . .	3	Art 309 Portrait . . . . .	3
Art 360 Life . . . . .	3	Art 361 Life . . . . .	3	Art 362 Life . . . . .	3
Art 366 Commer. Design . . . . .	3	Art 367 Commer. Design . . . . .	3	Art 368 Commer. Design . . . . .	3
Arch. 100 Appreciation . . . . .	2	Arch. 101 Appreciation . . . . .	2	Econ. 200 Introduction . . . . .	5
Approved electives . . . . .	3	Approved electives . . . . .	3		14
	14		14		

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 410 Illustration . . . . .	5	Art Hist. elective . . . . .	2	Art 468 Commer. Design . . . . .	5
Art 466 Commer. Design . . . . .	5	Art 467 Commer. Design . . . . .	5	Art 481 Fashion Illus. . . . .	2
Art 479 Fashion Illus. . . . .	2	Art 480 Fashion Illus. . . . .	2	Mktg. 391 Advertising . . . . .	5
Approved electives . . . . .	3	Adver. 340 Advertising Procedures . . . . .	5	Art Hist. elective . . . . .	2
	15	Approved electives . . . . .	2		14
			16		

**CURRICULUM IN INDUSTRIAL DESIGN.** In the third year, electives may be substituted for the chemistry requirement if the student has had one year of high school chemistry; Art 280 or 281 may be substituted for Art 282 in that year.

## First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 105 Drawing	3	Art 106 Drawing	3	Art 107 Drawing	3
Art 109 Design	3	Art 110 Design	3	Art 111 Design	3
Arch. 100 Appreciation	2	Arch. 101 Appreciation	2	Art 129 Apprec. of Design	2
Engl. 101 Composition	3	Engl. 102 Composition	3	Engl. 103 Composition	3
Health Educ. 110 or 175	1	Math. 101 Intermed. Alg.	5	Math. 104 Plane Trig.	3
Health	2	Phys. Educ. activity	1	Phys. Educ. activity	1
Phys. Educ. activity	1	ROTC	2-3	ROTC	2-3
ROTC	2-3		17-20		15-18
	14-17				

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 253 Design & Mater.	3	Art 254 Design & Mater.	3	Art 255 Design & Mater.	3
Arch. 314 Drawing	4	Arch. 315 Drawing	4	Arch. 316 Drawing	4
Mech. Engr. 201	1	Gen. Engr. 101 Engr.	3	Mech. Engr. 203 Metal	1
Metal Casting	1	Draw.	3	Machining	4
Physics 101 General	4	Mech. Engr. 202 Welding	1	Physics 103 General	1
Physics 107 Lab.	1	Physics 102 General	4	Physics 109 Lab.	1
Approved electives	2	Physics 108 Lab.	1	ROTC	2-3
ROTC	2-3	ROTC	2-3		13-16
	15-18		16-19		

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 212 Hist. of West. Art	2	Art 205 Lettering	3	Art 214 Hist. of West. Art	2
Art 316 Design for	3	Art 213 Hist. of West. Art	2	Art 282 Furn. Design	3
Industry	3	Art 317 Design for	3	Art 318 Des. for Industry	3
Chemistry or elective	5	Industry	3	Bus. Law 307 Business Law	3
Econ. 200 Introduction	5	Chemistry or elective	5	Mech. Engr. 342 Indus.	3
	15	Mktg. 301 Principles	5	Materials & Processes	3
			18	Mech. Engr. 410 Engr.	3
				Admin.	3
					17

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 201 Ceramic Art	3	Art 326 History	2	Art 272 Sculpture	3
Art 445 Adv. Indus. Des.	5	Art 357 Metal Design	3	Art 320 History of Mod.	2
Adver. 226 Intro to Adv.	3	Art 446 Adv. Industrial	5	Sculp.	5
Psych. 100 General	5	Design	5	Art 447 Adv. Indus. Des.	2
	16	Adver. 340 Advertising	5	Gen. Engr. 351 Inventions	1
		Procedures	5	and Patents	1
			15	Speech 327 Extempore	3
				Speaking	3
					14

## CURRICULUM IN INTERIOR DESIGN

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 280 Furn. Design	3	Art 281 Furn. Design	3	Art 262 Essentials of	2
Art 283 History	2	Arch. 101 Appreciation	2	Int. Design	2
Arch. 100 Appreciation	2	Arch. 125 Design, Gr. I	6	Art 282 Furn. Design	3
Arch. 124 Design, Gr. I	6	Approved electives	5	Arch. 105 The House	2
ROTC	2-3	ROTC	2-3	Arch. 126 Design, Gr. I	6
	13-16		16-19	Approved electives	2
				ROTC	2-3
					15-18

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 212 Hist. of West. Art	2	Art 213 Hist. of West. Art	2	Art 214 Hist. of West. Art	2
Art 310 Int. Design	5	Art 311 Int. Design	5	Art 312 Int. Design	5
Lab. science	5	Lab. science	5	Econ., pol. sci., or sociol.	5
Approved electives	3	Approved electives	3	Approved electives	3
	15		15		15

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 472 Adv. Int. Design	5	Art 326 History	2	Art 320 History	2
Approved electives	10	Art 473 Adv. Int. Design	5	Mod. Sculp.	2
	15	Home Ec. 125 Textiles	3	Art 474 Adv. Int. Design	5
		Approved electives	5	Home Ec. 329 Hand	2
			15	Weaving	2
				Approved electives	6
					15

## CURRICULUM IN PAINTING

## Second Year

FIRST QUARTER	CREDITS
Art 212 Hist. of West. Art	2
Art 256 Painting	3
Art 265 Draw. & Paint.	3
Arch. 100 Appreciation	2
Approved electives	5
ROTC	2-3
	<hr/> 15-18

SECOND QUARTER	CREDITS
Art 213 Hist. of West. Art	2
Art 257 Painting	3
Art 266 Draw. & Paint.	3
Art 272 Sculpture	3
Arch. 101 Appreciation	2
Approved electives	2
ROTC	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Art 214 Hist. of West. Art	2
Art 258 Water Color	3
Art 267 Draw. & Paint.	3
Lab. science	5
Approved electives	2
ROTC	2-3
	<hr/> 15-18

## Third Year

FIRST QUARTER	CREDITS
Art 360 Life	3
Art 375 Adv. Painting	3
Lab. science	5
Approved electives	3
	<hr/> 14

SECOND QUARTER	CREDITS
Art 326 History	2
Art 361 Life	3
Art 376 Adv. Painting	3
Econ., pol. sci., or sociol.	5
Approved electives	2
	<hr/> 15

THIRD QUARTER	CREDITS
Art 362 Life	3
Art 377 Adv. Painting	3
Approved design	6
Advanced sculpture	3
	<hr/> 15

## Fourth Year

FIRST QUARTER	CREDITS
Art 307 Portrait Painting	3
Art 463 Composition	3
Approved electives	9
	<hr/> 15

SECOND QUARTER	CREDITS
Art 308 Portrait Painting	3
Art 464 Composition	3
Approved electives	9
	<hr/> 15

THIRD QUARTER	CREDITS
Art 309 Portrait Painting	3
Art 320 History Sculpt.	2
Art 465 Composition	3
Approved electives	7
	<hr/> 15

## CURRICULUM IN SCULPTURE

## Second Year

FIRST QUARTER	CREDITS
Art 212 Hist. of West. Art	2
Art 256 Painting	3
Art 272 Sculpture	3
Arch. 100 Appreciation	2
Approved electives	5
ROTC	2-3
	<hr/> 15-18

SECOND QUARTER	CREDITS
Art 213 Hist. of West. Art	2
Art 257 Painting	3
Art 273 Sculpture	3
Arch. 101 Appreciation	2
Lab. science	5
ROTC	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Art 214 Hist. of West. Art	2
Art 253 Design & Mater.	3
Art 274 Sculpture	3
Art 320 History	2
Mod. Sculpt.	2
Lab. science	5
ROTC	2-3
	<hr/> 15-18

## Third Year

FIRST QUARTER	CREDITS
Art 201 Ceramic Art	3
Art 322 Sculpture	3
Art 332 Adv. Sculpture	3
Art 360 Life	3
Approved electives	3
	<hr/> 15

SECOND QUARTER	CREDITS
Art 202 Ceramic Art	3
Art 323 Sculpture	3
Art 326 History	2
Art 333 Adv. Sculpture	3
Art 361 Life	3
	<hr/> 14

THIRD QUARTER	CREDITS
Art 324 Sculpture	3
Art 334 Adv. Sculpture	3
Art 362 Life	3
Econ., pol. sci., or sociol.	5
Approved electives	1
	<hr/> 15

## Fourth Year

FIRST QUARTER	CREDITS
Art 436 Sculpture	5
Advanced sculpture	3
Approved electives	7
	<hr/> 15

SECOND QUARTER	CREDITS
Art 437 Sculpture	5
Approved electives	10
	<hr/> 15

THIRD QUARTER	CREDITS
Art 438 Sculpture	5
Approved electives	10
	<hr/> 15

## CURRICULUM IN CERAMIC ART

## First Year

FIRST QUARTER	CREDITS
Art 105 Drawing	3
Art 109 Design	3
Phys. sci. or lab. sci.	5
Engl. 101 Composition	3
Health Educ. 110 or	
175 Health	2
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 17-20

SECOND QUARTER	CREDITS
Art 106 Drawing	3
Art 110 Design	3
Lab. science	5
Engl. 102 Composition	3
Phys. Educ. activity	1
Approved electives	2
ROTC	2-3
	<hr/> 17-20

THIRD QUARTER	CREDITS
Art 107 Drawing	3
Art 111 Design	3
Lab. science	5
Engl. 103 Composition	3
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 15-18

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 201 Ceramic Art . . . . .	3	Art 202 Ceramic Art . . . . .	3	Art 203 Ceramic Art . . . . .	3
Art 212 Hist. of West. Art . . .	2	Art 213 Hist. of West. Art . . .	2	Art 214 Hist. of West. Art . . .	2
Art 253 Design & Mater. . . . .	3	Art 254 Design & Mater. . . . .	3	Art 255 Design & Mater. . . . .	3
Soc. science elective . . . . .	5	Humanities elective . . . . .	2	Soc. sci. elective . . . . .	5
Approved electives . . . . .	2	Approved electives . . . . .	5	Approved electives . . . . .	2
ROTC . . . . .	2-3	ROTC . . . . .	2-3	ROTC . . . . .	2-3
	15-18		15-18		15-18

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 256 Painting . . . . .	3	Art 273 Sculpture . . . . .	3	Art 258 Water Color . . . . .	3
Art 272 Sculpture . . . . .	3	Art 354 Adv. Ceramic Art . . .	3	Art 261 Inter. Design . . . . .	2
Art 353 Adv. Ceramic Art . . .	5	Art history elective . . . . .	2	Art 274 Sculpture . . . . .	3
Art history elective . . . . .	2	Approved electives . . . . .	6	Art 355 Adv. Ceramic Art . . .	4
Approved electives . . . . .	2		15	Art history elective . . . . .	2
	15			Approved electives . . . . .	2
					16

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 357 Metal Design . . . . .	3	Art 358 Jewelry Design . . . . .	3	Art 359 Enameling . . . . .	3
Art 360 Life . . . . .	3	Art 361 Life . . . . .	3	Art 487 Adv. Ceramic Art . . .	5
Art 390 Oriental Ceramic . . .	2	Art 486 Adv. Ceramic Art . . .	5	Approved electives . . . . .	6
Art . . . . .	2	Approved electives . . . . .	5		14
Art 485 Adv. Ceramic Art . . .	5		16		
Approved electives . . . . .	2				
	15				

## CURRICULUM IN PRINTMAKING

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 212 Hist. of West. Art . . .	2	Art 213 Hist. of West. Art . . .	2	Art 214 Hist. of West. Art . . .	2
Art 253 Design & Mater. . . . .	3	Art 254 Design & Mater. . . . .	3	Art 255 Design & Mater. . . . .	3
Art 256 Painting . . . . .	3	Art 257 Painting . . . . .	3	Art 258 Water Color . . . . .	3
Arch. 100 Appreciation . . . . .	2	Arch. 101 Appreciation . . . . .	2	Approved electives . . . . .	7
Lab. science . . . . .	5	Lab. science . . . . .	5	ROTC . . . . .	2-3
ROTC . . . . .	2-3	ROTC . . . . .	2-3		15-18
	15-18		15-18		

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 201 Ceramic Art or . . . . .	3	Art 202 Ceramic Art . . . . .	3	Art 272 Sculpture . . . . .	3
357 Metal Design . . . . .	3	or 358 Jewelry Design . . . . .	3	Art 352 Printmaking—	
Art 327 Hist. of . . . . .	2	351 Printmaking—		Serigraph . . . . .	3
Printmaking . . . . .	2	Etching . . . . .	3	Art 362 Life . . . . .	3
Art 350 Intro. to . . . . .	3	Art 361 Life . . . . .	3	Art history elective . . . . .	2-3
Printmaking . . . . .	3	Art 383 Art of China . . . . .	3	Approved electives . . . . .	3-4
Art 360 Life . . . . .	3	Approved electives . . . . .	3		15
Approved electives . . . . .	3		15		
	14				

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 450 Adv. Printmaking . . . .	5	Art 451 Adv. Printmaking . . . .	5	Art 320 Hist. of Sculpture . . .	2
Art 463 Composition . . . . .	3	Art 464 Composition . . . . .	3	Art 452 Adv. Printmaking . . .	5
Approved electives . . . . .	7	Approved electives . . . . .	7	Art 465 Composition . . . . .	3
	15		15	Philos. 445 Philos. of Art . . .	5
					15

## MASTER OF FINE ARTS

Students who intend to take a master's degree must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. The School of Art requires that applicants for candidacy have a grade average of B in the undergraduate art major.

The thesis is of the nature of a project, such as a series of paintings, prints, sculpture, or ceramic objects, the illustration of a book, design in metal, fabric, or other equivalent project executed with a background of research.



## COURSES FOR UNDERGRADUATES

- 100 Introduction to Art (5)** **Moseley**  
Lecture and studio work. For nonmajors.
- 105, 106, 107 Drawing (3,3,3)** **Staff**  
Perspective, light and shade, composition, pencil and charcoal. Prerequisites, 105 for 106, 106 for 107.
- 109, 110, 111 Design (3,3,3)** **Staff**  
Art structure as the basis for creative work. Problems in organization of line, space, and color. Lectures, discussion, and supplementary reading. Prerequisites, 109 for 110, 110 for 111.
- 115, 116, 117 Laboratory Drawing (3,3,3)** **Curtis**  
Exact representation of objects such as bones, shells, and plants, with emphasis on three-dimensional form. Pencil, pen and ink, carbon pencil, and colored crayon techniques are taught for use in scientific and other work requiring accuracy and detail.
- 129 Appreciation of Design (2)** **Staff**  
Lectures on design fundamentals, illustrated with slides and paintings, pottery, textiles, etc. Reading and reference work.
- 151 Figure Sketching (1)** **Staff**  
Sketching from the posed model. Prerequisite, 3 credits in drawing.
- 201, 202, 203 Ceramic Art (3,3,3)** **Hafermehl, Sperry**  
Pottery design and construction: hand processes, coil, slab, glazing, packing and firing kiln. Prerequisite, sophomore standing in art, or 100.
- 205 Lettering (3)** **Staff**  
Design in letters and the composition of letters. Prerequisite, sophomore standing in art, or 100.
- 212, 213, 214 History of Western Art Through the Renaissance (2,2,2)** **Reed**  
Survey of the main developments in painting and sculpture from prehistoric times through the Renaissance, illustrated with slides and colored reproductions. Prerequisite, sophomore standing.
- 253, 254, 255 Design and Materials (3,3,3)** **Staff**  
Materials as a factor in design. Class experimentation and research. Prerequisites, 107 and 111.
- 256, 257 Painting (3,3)** **Staff**  
Oil painting: still life and landscape. Prerequisites, 107 and 111.
- 258 Water Color (3)** **Hill, Mason, Patterson**  
Prerequisites, 256 and 257 or permission.
- 259 Advanced Water Color (3)** **Hill, Mason, Patterson**  
Prerequisite, 258.
- 261 Elementary Interior Design (2)** **W. Hill**  
Fundamental problems in interior design, including floor and wall plans at scale, furnishings, and color schemes.
- 262 Essentials of Interior Design (2)** **Foote**  
Illustrated lectures.
- 265, 266, 267 Drawing and Painting (3,3,3)** **Staff**  
Drawing and painting in oil or water color, outdoor sketching, and sketching from the model. Prerequisites, 107 and 111.
- 272, 273, 274 Sculpture (3,3,3)** **Du Pen, Tsutakawa**  
Fundamentals of composition in the round and in relief. Creative work is stressed. Prerequisites, 107 and 111.
- 280, 281, 282 Furniture Design (3,3,3)** **Foote**  
Study of materials and construction; execution of working drawings, color plates, and scale models. 280 is taken concurrently with 283. Prerequisites, 107 and 111.
- 283 History of Furniture and Interior Styles (2)** **Foote**  
Illustrated lectures on the historical development of furniture and its architectural backgrounds from the Renaissance to the present.
- 290, 291, 292 Art Education (2,2,2)** **Staff**  
General crafts for those preparing to teach art in the public schools. Emphasis on exploration with a variety of materials suitable for use as educational media. Prerequisite, sophomore standing in art, or 100.
- 300 Design in Leather (2)** **Fuller**  
Creative exploration through design and construction of simple to more complex problems in leather. Prerequisite, junior standing in art, or permission.
- 302 Bookbinding (2)** **Johnson**  
Prerequisite, art major or permission.
- 307, 308, 309 Portrait Painting (3,3,3)** **Staff**  
Prerequisite, 362.
- 310, 311, 312 Interior Design (5,5,5)** **Foote**  
Fundamentals of interior design. Scale drawings of floor and wall plans; perspective; study of color and texture. Prerequisites, 262, Architecture 126.

- 316, 317, 318 Design for Industry (3,3,3)** **Smith**  
Product design, working drawings, models, presentation drawings, product analysis, display, and marketing. Prerequisites, junior standing in industrial design; 316 for 317; 317 for 318.
- 320 History of Modern Sculpture (2)** **Du Pen**  
Sculpture since the Renaissance; lectures and slides. Prerequisite, sophomore standing in art.
- 322, 323, 324 Sculpture (3,3,3)** **Du Pen**  
Prerequisites, 274 or permission.
- 326 History of Painting Since the Renaissance (2)** **Staff**  
Illustrated lectures. Prerequisite, junior standing in art.
- 327 History of Printmaking (2)** **Alps**  
The origins and history of the woodcut, wood and metal engraving, etching, aquatint, intaglio, lithography and serigraphy in Western and Oriental art, contemporary printmaking.
- 332, 333, 334 Advanced Sculpture (3,3,3)** **Du Pen**  
Prerequisite, 324.
- 340 Design for Printed Fabrics (3)** **Penington**  
Hand-block and silk-screen printing; mass-production design. Prerequisite, 255 or permission.
- 341J Greek Archaeology and Art (2)** **Staff**  
A survey of the major Greek art forms from the Mycenaean to the Hellenistic period, with special attention to modern archaeological methods and excavations, illustrated by slides. Offered jointly with the Department of Classics.
- 342J Roman Archaeology and Art (2)** **Staff**  
A survey of the major Roman art forms, with special attention to modern archaeological methods and excavations, illustrated by slides. Offered jointly with the Department of Classics.
- 343J Greek Sculpture (2)** **Staff**  
An intensive study of Greek sculpture from the archaic to the Hellenistic period, illustrated by slides. Offered jointly with the Department of Classics.
- 350 Introduction to Printmaking (3)** **Alps**  
Studio problems in design and composition, exploration and experimentation in media of etching, lithography, serigraphy, and the woodcut. Prerequisite, junior standing in art, or permission.
- 351 Printmaking-Etching (3)** **Alps**  
Design and composition in the various media employed in working on metal plates. Prerequisite, 350.
- 352 Printmaking-Serigraph (3)** **Alps**  
Design and composition in the medium of the silk screen. Prerequisite, 350.
- 353, 354, 355 Advanced Ceramic Art (5,4,4)** **Sperry**  
Pottery design and construction with emphasis on design, shaping, decorating, and glazing. Prerequisite, 203.
- 357 Metal Design (3)** **Penington**  
Metal design and construction. Hand processes of raising, soldering, forging in copper, brass, pewter, silver. Lectures and research on historic and contemporary examples. Prerequisite, junior standing in art, or permission.
- 358 Jewelry Design (3)** **Penington**  
Jewelry design and construction, including stone setting and forging in silver and gold. Lectures and research on historic and contemporary examples. Prerequisite, junior standing in art, or permission.
- 359 Enameling (3)** **Penington**  
Enamel design for metal work or jewelry, champlevé, Plique-à-jour, Limoges, Cloisonné on copper, silver, or gold. Prerequisite, 357 or 358.
- 360, 361, 362 Life (3,3,3)** **Staff**  
Drawing and painting from the model. Prerequisites, 256, 257, and 258.
- 366, 367, 368 Commercial Design (3,3,3)**  **Erickson**  
366: advanced lettering; 367: poster design; 368: display design. Prerequisites, 205 for 366; 366 for 367; 367 for 368.
- 369, 370, 371 Costume Design (2,2,2)** **Rand**  
Design of clothing with emphasis on line, color, materials, use. Prerequisites, 107, 111, Home Economics, 234.
- 375, 376, 377 Advanced Painting (3,3,3)** **Staff**  
Prerequisites, 265, 266, and 267.
- 382 Art of India (3)** **Rogers**  
Survey of the art of India. (Offered alternate years; offered 1960-61.)
- 383 Art of China (3)** **Rogers**  
Survey of the art of China. (Offered alternate years; offered 1960-61.)
- 384 Art of Japan and Korea (3)** **Rogers**  
Survey of the art of Japan and Korea. (Offered alternate years; offered 1960-61.)

- 386 Art of the Ancient Near East (3)** Rogers  
(Offered alternate years; offered 1959-60.)
- 387 Islamic Art (3)** Rogers  
(Offered alternate years; offered 1959-60.)
- 388 Medieval Art (3)** Rogers  
(Offered alternate years; offered 1959-60.)
- 390 Oriental Ceramic Art (2)** Rogers  
Chinese, Korean, and Japanese ceramics from neolithic times to the present. (Offered alternate years; offered 1959-60.)
- 391 The Origins of Modern Art (2)** Rogers  
(Offered alternate years; offered 1959-60.)
- 392 Art Since Cezanne (2)** Rogers  
(Offered alternate years; offered 1959-60.)
- 410 Illustration (5)** Staff  
Book and magazine illustration. Composition and history. Prerequisite, senior standing in art.
- 423, 424, 425 Art History and Criticism (2,2,2)** Rogers  
A critical discussion of significant art criticism and history from the Renaissance through the most recent publications, with emphasis on the direct understanding of specific periods and works of art. (Offered alternate years; offered 1960-61.)
- 436, 437, 438 Sculpture Composition (5,5,5)** Du Pen  
Imaginative design; problems met in professional practice. Prerequisites, 332, 333, and 334.
- 445, 446, 447 Advanced Industrial Design (5,5,5)** Del Giudice  
Market analysis and selected professional problems in industrial design. Consultation techniques; psychological, sociological, and economic factors involved in designing for consumer acceptance. Prerequisites, 318 for 445; 445 for 446; 446 for 447.
- 450, 451, 452 Advanced Printmaking (5,5,5)** Alps  
Lithography, etching, serigraph, linoleum block, woodcut, and wood-engraving. Prerequisite, 352 or permission.
- 457, 458, 459 Advanced Metal and Jewelry (3,3,3)** Penington  
Prerequisites, 357, 358, 359. Individual problems in metal design and construction.
- 463, 464, 465 Composition (3,3,3)** Brazeau, Hixson  
Development of individuality in painting through creative exercises. Prerequisite, 3 credits from 360, 361, or 362.
- 466, 467, 468 Commercial Design (5,5,5)** Wolman  
Composition in advertising art; expression of ideas in terms of design. Variety of mediums and reproduction processes. Prerequisite, 368.
- 472, 473, 474 Advanced Interior Design (5,5,5)** Foote  
Problems related to contemporary needs; research in period styles. For interior design students. Prerequisite, 312.
- 479, 480, 481 Fashion Illustration (2,2,2)** Rand  
Prerequisite, junior standing in art, or permission.
- 485, 486, 487 Advanced Ceramic Art (5,5,5)** Sperry  
Pottery design and construction; stone ware; clay bodies; glazes. Prerequisite, 355.
- 490 Art Education in the Schools (3)** Staff  
Planned especially for administrators and teachers needing help in problems relating to the teaching of art in the schools. Working in materials will be integrated with lectures and discussions. No previous art experience necessary.
- 498 Individual Projects (3 or 5, maximum 15)** Staff  
Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 500, 501, 502 Seminar in Art Education (3 or 5), (3 or 5), (3 or 5)** Johnson  
Special problems in the teaching and supervision of art in the public schools. Prerequisite, graduate standing in art education.
- 507, 508, 509 Advanced Portrait Painting (3,3,3)** Staff
- 510 Advanced Illustration (3 or 5)** Staff  
Prerequisite, graduate standing.
- 522, 523, 524 Advanced Sculpture (3 or 5, 3 or 5, 3 or 5)** Staff
- 530, 531, 532 Advanced Design (3 or 5, 3 or 5, 3 or 5)** Staff  
Prerequisite, graduate standing.
- 550, 551, 522 Advanced Printmaking (3 or 5, 3 or 5, 3 or 5)** Alps
- 553, 554, 555 Advanced Ceramic Art (3 or 5, 3 or 5, 3 or 5)** Staff
- 560, 561, 562 Advanced Life Painting (3 or 5, 3 or 5, 3 or 5)** Staff
- 563, 564, 565 Composition (3 or 5, 3 or 5, 3 or 5)** Staff
- 600 Research (\*)** Staff
- 700 Thesis (\*)** Staff

## ASTRONOMY

**Professor: THEODOR S. JACOBSEN, Observatory**

There is no curriculum leading to a degree in astronomy. Courses in astronomy are given as general interest courses for students in all fields.

### COURSES FOR UNDERGRADUATES

- |  |                 |
|--|-----------------|
| <b>101 Astronomy (5)</b><br>Celestial sphere, solar system, sidereal universe.   | <b>Jacobsen</b> |
| <b>401 Stellar Astronomy (3)</b><br>Stellar spectra; motions, types of stars. Prerequisites, 101 or equivalent, calculus, physics, permission.           | <b>Jacobsen</b> |
| <b>411 Spherical and Practical Astronomy (3)</b><br>Spherical triangles, precession, aberration. Prerequisites, 101 or equivalent, calculus, permission. | <b>Jacobsen</b> |
| <b>421 Solar System and Dynamical Astronomy (3)</b><br>Planetary motion, special subjects. Prerequisites, 101 or equivalent, calculus, permission.       | <b>Jacobsen</b> |
| <b>499 Undergraduate Research (*, maximum 15)</b><br>Current or special astronomical problems. Prerequisite, permission.                                 | <b>Jacobsen</b> |

## BASIC MEDICAL SCIENCE

**Adviser, 121 Miller Hall**

The program in basic medical science is designed to provide the bachelor's degree for students who enter the School of Medicine or of Dentistry at the University of Washington after three years of preprofessional work and wish to apply their first year's work in the professional school toward a degree from the College of Arts and Sciences.

### BACHELOR OF SCIENCE IN BASIC MEDICAL SCIENCE

To qualify for this degree, the student must have taken his preprofessional course at the University of Washington. He must also present a grade-point average of 2.50 or above.

Applicants for the degree must have completed the following undergraduate requirements: 13-14 credits in general chemistry; 10 credits in a complete sequence of organic chemistry; Zoology 111 and 112 (General Zoology), and 456 (Vertebrate Embryology); 15 credits in a complete sequence of physics; 5-8 credits in mathematics, including trigonometry (if not taken in high school), and college algebra; 15 credits in one foreign language; 30 credits in upper-division courses, of which at least 15 must be in one of the major fields offered in the College of Arts and Sciences; and the required quarters of physical education activity and military training. In addition, students must fulfill the group requirements of the College.

For the fourth-year requirements, credit in subjects taught in the first-year curriculum at the University of Washington School of Medicine or of Dentistry may be applied toward the degree. Some upper-division courses in anatomy, physiology, microbiology, and biochemistry may be duplicated in first-year professional study, and in such cases, credit toward the degree is granted only for the course taken in the School of Medicine or of Dentistry. Students should work closely with their advisers on this matter.

The following curriculum is suggested for premedical and predental students:

**First Year**

FIRST QUARTER	CREDITS
Chem. 100 or 110 General	3-4
Engl. 101 Composition	3
Health Educ. 110 or 175	3
Health	2
Physics 101 and 107, or	
121 General	3-5
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 12-18

SECOND QUARTER	CREDITS
Chem. 150 General	4
Engl. 102 Composition	3
Physics 102 and 108, or	
122 General	3-5
Approved electives	2-3
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 17-19

THIRD QUARTER	CREDITS
Chem. 160 and 170 General	
& Qual. Anal.	6
Engl. 103 Composition	3
Physics 103 and 109, or	
123 General	3-5
Approved electives	2-3
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 19-21

**Second Year**

FIRST QUARTER	CREDITS
Chem. 231 or 335 Organic	3
Chem. 241 or 345 Organic	
Lab.	2-1
Zool. 111 General	5
Approved electives	5
ROTC	2-3
	<hr/> 14-18

SECOND QUARTER	CREDITS
Chem. 232 or 336 Organic	3
Chem. 242 or 346 Organic	
Lab.	2-1
Zool. 112 General	5
Approved electives	5
ROTC	2-3
	<hr/> 14-18

THIRD QUARTER	CREDITS
Chem. 337 Organic	3
Zool. 456 Vert. Embryol.	5
Approved electives	7-10
ROTC	2-3
	<hr/> 18-21

All electives should be chosen while considering the major, which is to be selected at the end of the second year. If the student takes Chemistry 231 and 232 (Organic Chemistry), 241 and 242 (Organic Chemistry Laboratory), he may substitute an elective for Chemistry 337 (Organic Chemistry) in the third quarter of the second year.

**BIOLOGY**

Courses in biology are administered jointly by the Departments of Botany, Genetics, and Zoology (below and pages 122 and 224). There is no biology curriculum leading to a degree, but students may use biology courses to satisfy some of the requirements for a major in either botany or zoology. The Departments of Botany and Zoology jointly offer a first teaching area in biology as well as a basic academic field for students in the College of Education.

**BOTANY**

**Executive Officer: C. L. HITCHCOCK, 342 Johnson Hall**

The Department of Botany offers courses leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy. In conjunction with the Department of Zoology, a first teaching area in biology is offered for students in the College of Education, in addition to a second teaching area in botany.

For students who do not expect to take more than 5 credits in this subject, Botany 111 or 113 is recommended. For those who expect to take 10 credits, one of these sequences is recommended: Botany 111 and 112, or 111 and 113, or 111, 201 (or 202 or 203), and 331. Since Botany 111 and 114 are beginning courses covering some of the same materials, only one of them may be taken for credit.

All biology courses may be used for botany credit.

**BACHELOR OF SCIENCE**

In this elective curriculum, 40 credits in botany are required. Courses must include Botany 111, 112, 113; 371 or 472; Biology 451 (Genetics); and a minimum of 10 credits of college chemistry. Organic chemistry is recommended but not required.

**ADVANCED DEGREES**

Students who intend to work toward the degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in

the *Graduate School Bulletin*. Organic chemistry is a requirement for an advanced degree in the Department of Botany.

## COURSES FOR UNDERGRADUATES

### BIOLOGY

- 101J-102J General Biology (5-5)** **Staff**  
Principles of biology applying to all living forms, illustrated by representatives of major plant and animal groups and introducing man's place in nature. Offered jointly with the Department of Zoology. Recommended for education students and for those not majoring in the biological sciences.
- 351 Human Genetics (3)** **Stadler**  
For premedical students and those majoring in anthropology, psychology, and related fields dealing with human variation. Prerequisites, Botany 111, Zoology 111, or equivalent, and junior standing.
- 401 Cytology (3)** **Hsu**  
Structure and function of the cell. Prerequisite, 451 or permission.
- 401L Cytology Laboratory (2)** **Hsu**  
Must be accompanied by 401.
- 451 Genetics (3 or 5)** **Roman**  
Prerequisite, 10 credits in biological science.
- 452 Cytogenetics (3 or 5)** **Roman**  
Chromosomal behavior in relation to genetics. Prerequisite, 451 or permission.
- 453 Topics in Genetics (2, maximum 6)** **Roman, Stadler**  
Current problems and research methods. Prerequisites, 451, organic chemistry, or permission.
- 454 Evolutionary Mechanisms (3)** **Kruckeberg**  
Mutation, isolation, and natural selection as determinants of evolutionary change; emphasis on plants. Prerequisite, 451. (Offered alternate years; offered 1959-60.)
- 472 Principles of Ecology (3)** **Edmondson**  
Population biology, competition, predation, symbiosis, sociality, and relationship of community to environment. Prerequisites, Botany or Zoology 112, or permission, and upper-division standing.
- 472L Ecology Laboratory (2)** **Edmondson**  
Must be accompanied by 472. Prerequisite, permission.
- 473 Limnology (5)** **Edmondson**  
Biological, physical, and chemical features of lakes. Prerequisites, Botany or Zoology 112, one year of college chemistry, and upper-division standing.

### BOTANY

- 105 Practical Botany (5)** **Blaser, Walker**  
General theory and practice of botany as applied to selection and cultivation of ornamental plants. Not open to those who have had 111. Offered Summer Quarter only.
- 111 Elementary Botany (5)** **Meeuse, Walker**  
Structure, physiology, and reproduction of plants, with emphasis on seed producing groups. Open to those who have had 105 only by permission of instructor.
- 112 Elementary Botany (5)** **Blaser**  
Structure and relationships of the major plant groups. Prerequisite, 111, one year of high school botany, Biology 101J-102J, or Zoology 111 and 112.
- 113 Elementary Botany (5)** **Hitchcock**  
An introduction to plant classification with emphasis on the local flora.
- 114, 115 Forestry Botany (3,3)** **Blaser, Hitchcock**  
114: structure of seed plants. 115: morphology of the plant kingdom.
- 201, 202, 203 Plant Propagation (2,2,2)** **Muhlick**  
201: propagation by seeds, cuttings, grafts, etc. 202: identification and culture of garden plants. 203: care and treatment of seeds and seedlings. Prerequisite for each course, 111, 114, or Biology 101J-102J, or permission.
- 216 Physiology of Seed Plants (4)** **Walker**  
This course intended for majors in Forestry. Prerequisites, 114 and Chemistry 150; 10 credits in chemistry recommended.
- 331 Ornamental Plants (3)** **Kruckeberg**  
Identification and use of trees and shrubs; plant exploration and origin of ornamentals. Prerequisite, 5 credits in biological science.
- 332 Taxonomy Field Trip (\*, maximum 27)** **Staff**  
(Offered alternate Summer Quarters; offered 1961.)
- 361 Forest Pathology (5)** **Stuntz**  
Common wood-destroying fungi and diseases of forest trees. Prerequisite, 115 or equivalent.

- 371 Elementary Plant Physiology (5)** **Meeuse, Walker**  
For nonmajors. Not open to those who have had 216. Prerequisites, 111 and 10 credits in college chemistry.
- 431, 432 Taxonomy (5,5)** **Hitchcock**  
The flowering plants. (Offered alternate years; offered 1959-60.) Prerequisite, 113 or equivalent.
- 441, 442, 443 Morphology (5,5,5)** **Blaser**  
441 and 442: vascular plants. 443: Algae and Bryophytes. (Offered alternate years; offered 1960-61.) Prerequisite for each course, 112 or equivalent.
- 444 Plant Anatomy (5)** **Blaser**  
Tissues; origin and development of the stele. (Offered alternate years; offered 1959-60.) Prerequisite, 111.
- 445 Algology (6)** **Staff**  
(Offered at Friday Harbor Summer Quarter only.) Prerequisites, 112 and staff permission.
- 461 Yeasts and Molds (5)** **Stuntz**  
Classification, recognition, cultivation, and relationship to industries and man. Prerequisite, 15 credits in botany, microbiology, or zoology.
- 462, 463 Mycology (5,5)** **Stuntz**  
462: structure and classification of Basidiomycetes and Ascomycetes. Prerequisites, 111 and 112, or equivalent, as determined by instructor. 463: structure and classification of Phycomycetes and Fungi Imperfecti. Prerequisites, 111 and 112, or 462, or equivalent, as determined by instructor.
- 471 Mineral Nutrition (5)** **Walker**  
The soil and culture solution as nutrient media for the growth of plants. Prerequisites, 111 or 216, and 10 credits in chemistry. (Offered alternate years; offered 1960-61.)
- 472 Plant Physiology (5)** **Meeuse, Walker**  
Recommended for biology majors. Not open to those who have taken 371. Prerequisites, 111 or 216, and completion of or concurrent registration in Chemistry 232 and 242.
- 473 Plant Physiology (5)** **Meeuse**  
Metabolism of organic compounds with emphasis on photosynthesis and cellular respiration. (Offered alternate years; offered 1960-61.) Prerequisites, 472 or 371, Chemistry 232 and 242, or permission.
- 474 Plant Physiology (5)** **Walker**  
Permeability, mineral nutrition, water relations, and growth. (Offered alternate years; offered 1959-60.) Prerequisites, 472 or either 216 or 371, and permission.
- 475 Problems in Algal Physiology (6)** **Meeuse**  
Metabolic activity of the algae. (Offered at Friday Harbor Summer Quarter only.) Prerequisites, 472 or 371, Chemistry 232 and 242, and permission.
- 498 Special Problems in Botany (1-15)** **Staff**  
Prerequisite, permission of instructor.

## COURSES FOR GRADUATES ONLY

### BIOLOGY

- 501 Advanced Cytology (5)** **Hsu**  
(Offered alternate years; offered 1959-60.)
- 508 Cellular Physiology (3)** **Whiteley**  
The cell membrane and permeability, cytoplasmic physiology, intracellular energetics and biosynthesis, physiology of cell division, cell movement. Prerequisite, Zoology 400 or permission.
- 508L Cellular Physiology Laboratory (2)** **Whiteley**  
Prerequisite, concurrent registration in Biology 508 or 509, and permission.
- 509 Cellular Physiology (3)** **Whiteley**  
Chemistry and physiology of the interkinetic and dividing nucleus, nucleocytoplasmic interactions, physiology of differentiated cells. Prerequisite, Zoology 400 or permission. (Biology 508 and 509 may be elected separately, or in either sequence.)
- 551 Genetics of Microorganisms (3)** **Stadler**  
Prerequisite, 451 or permission.
- 552 Genetics of Microorganisms Laboratory (3)** **Stadler**  
Methods of studying inheritance in fungi, bacteria, and viruses. Prerequisite, Biology 551 or permission.
- 573 Topics in Limnology (2)** **Edmondson**  
May be repeated for credit.

### BOTANY

- 520 Seminar (1)** **Staff**  
Prerequisite, permission.
- 521 Seminar in Plant Physiology (1, maximum 5)** **Meeuse, Walker**  
Modern methods and trends in plant physiology. Prerequisite, 371 or 472, or permission.

- 522 Seminar in Morphology and Taxonomy (\*, maximum 5)** **Staff**  
Current research and trends in morphology and taxonomy of higher plants. Comparison of classical with modern approaches and concepts. Prerequisite, permission.
- 600 Research (\*)** **Staff**  
Original investigations of special problems in genetics, morphology, mycology, taxonomy, or plant physiology.
- 700 Thesis (\*)** **Staff**

## CHEMISTRY

**Executive Officer: PAUL C. CROSS, 101 Bagley Hall**

The Department of Chemistry offers courses leading to the degrees of Bachelor of Science, Bachelor of Arts, Master of Science, and Doctor of Philosophy.

For undergraduate students, the Department provides two curricula leading to bachelor's degrees: a prescribed curriculum which permits an intensive study of chemistry and related sciences in preparation for a professional career or for graduate study, and an elective curriculum which provides a basic introduction to chemical science and allows a wider choice of electives in fields outside the physical sciences. In addition, the Department offers first and second teaching areas for students in the College of Education.

Students planning to major in chemistry are advised to take  $\frac{1}{2}$  unit each of algebra and trigonometry in addition to the requirements for entrance to the College of Arts and Sciences.

Transfer students must complete at least 9 credits in chemistry in this Department to receive a degree.

## BACHELOR OF SCIENCE

Programs constituting the prescribed curriculum and leading to the Bachelor of Science degree are designed to prepare the student for a professional career in such diverse fields as chemical physics, nuclear chemistry, instrumental analysis, industrial chemistry, biochemistry, and the chemistry of medicinals as well as in the field of analytical, inorganic, organic, and physical chemistry.

After the basic courses in general chemistry, physics, and mathematics, the student will take intermediate courses selected appropriately from the following groups: mathematics and physics, physical chemistry, analytical and inorganic chemistry, organic chemistry, and biochemistry (offered in the Department of Biochemistry). He will later be encouraged to enroll in advanced courses (including undergraduate research) related to his intended area of specialization.

Owing to the diversity of options available, it is not feasible to present definite course programs here. Plans for the student's schedule of courses will be initiated in a conference with a departmental adviser who will have available selections of courses appropriate to the direction of interest and degree of experience of the entering student. The program is further developed from time to time, particularly at the beginning of the junior year.

The departmental requirements for the Bachelor of Science degree are: mathematics through 253; one year of college physics; and 65 credits in chemistry, which may include approved advanced electives in biochemistry, physics, and mathematics. For graduation the student must demonstrate a reading knowledge of German or Russian; obtain a grade-point average of at least 2.50 in chemistry courses, with a C or better in each course; and achieve a total grade-point average of 2.50 or higher.

During the first two years the program should include Health Education 110 or 175; English 101, 102, 103; one year of physics (including laboratory); mathematics through 253; Chemistry 100 (or 110), 150, 160, 170; and either the group 335, 336, 337, 345, 346, 347 or the group 221, 355, 356. The program for the junior year should complete the above and include as well Chemistry 357 and 358. Advanced selections usually include Chemistry 395, 415, 416, 418, 419, 425, 426



and 445, though, with approval, additions and substitutions may be made from the following: Chemistry 427, 428, 429, 499; Biochemistry 481 and 482 (Biochemistry), 483 (Biochemistry Laboratory), 499 (Undergraduate Research); Physics 323 (Introduction to Nuclear Physics), 325, 326, 327 (Electricity and Magnetism), 371, 372 (Properties of Matter), 461, 462, 463 (Introduction to Atomic and Nuclear Physics); Mathematics 321, 322 (Differential Equations), 324, 325 (Advanced Calculus I and II), 401 (Linear Algebra), 402 and 403 (Introduction to Modern Algebra), 427, 428, 429 (Topics in Applied Analysis).

## BACHELOR OF ARTS

The program leading to the Bachelor of Arts degree provides the student a broad choice of electives in fields other than science. It is especially adapted to the needs of students in premedicine, education, and of those wishing a liberal education with some concentration in science.

Requirements in the elective curriculum are: Chemistry 100 (or 110), 150, 160, 170, 221, 231, 232, 241, 242, 355, 356, 357, and 358; one year of college physics; mathematics through 251; and 10 credits of German, French, or Russian. A grade of C or better must be obtained in each of the required chemistry courses.

The Department should be notified of intention to enter this curriculum not later than the end of the sophomore year.

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Candidates for advanced degrees are expected to take the qualifying and cumulative examinations. The qualifying, or entrance, examinations are designed to assess the student's knowledge and understanding of the material normally contained in an undergraduate program with a major in chemistry. These examinations are usually given Thursday and Friday preceding the opening of Autumn Quarter and may be repeated during the first week of Winter Quarter and toward the end of Spring Quarter. All parts of this examination should be passed within a year. The cumulative examinations, given six times during each academic year, are general examinations in the student's area of specialization (analytical, inorganic, organic, or physical chemistry) and are designed to stimulate independent study and thought. They attempt to evaluate the breadth of knowledge gained from courses, seminars, and literature and the student's ability to apply this knowledge to diverse problems.

**MASTER OF SCIENCE.** Candidates for this degree usually present German as their foreign language.

**DOCTOR OF PHILOSOPHY.** The cumulative examination requirement for this degree is satisfied when six examinations have been passed. The language requirement may be satisfied by passing examinations in German and in either Russian or French.

## COURSES FOR UNDERGRADUATES

- 100 General Chemistry (4)** **Staff**  
Open only to students without high school chemistry credit. States of matter, atomic and molecular structure, covalence, reactions and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.
- 110 General Chemistry (3)** **Staff**  
For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.
- 120 General and Organic Chemistry (5)** **Staff**  
For students planning only two quarters of chemistry. Weight relations, solutions, acids and bases, compounds of biological importance. Prerequisite, 100 or 110.

- 150 General Chemistry (4)** **Staff**  
For students planning more than two quarters of chemistry. Stoichiometry, gases, aqueous solutions, kinetics, acid and base equilibria, electrochemistry, oxidation and reduction. Prerequisite, 100 or 110, Mathematics 101 or 103, or passing score on Algebra Qualifying Test.
- 160 General Chemistry (3)** **Staff**  
Periodic System, phase equilibria, metals and nonmetals, metallurgy, and nuclear reactions. Prerequisite, 150.
- 170 Qualitative Analysis (3)** **Staff**  
Semi-microqualitative analysis for common cations and anions; separation and identification procedures. Prerequisite, 160, which may be taken concurrently.
- 199 Special Problems (1, maximum 6)** **Staff**  
Problems relating to experimental chemistry. For chemistry majors only. Prerequisite, permission of Chemistry adviser.
- 221 Quantitative Analysis (5)** **Staff**  
Volumetric and gravimetric. Prerequisite, 170.
- 231 Organic Chemistry (3)** **Staff**  
For students planning only two quarters of organic chemistry. Structure, nomenclature, reactions and synthesis of the main types of organic compounds. Prerequisite, 150.
- 232 Organic Chemistry (3)** **Staff**  
Continuation of 231. Prerequisite, 231.
- 241 Organic Chemistry Laboratory (2)** **Staff**  
Usually to accompany 231. Preparation of representative compounds. Prerequisite, 231, which may be taken concurrently.
- 242 Organic Chemistry Laboratory (2)** **Staff**  
Usually to accompany 232. Preparations and qualitative organic analysis. Prerequisites, 232 (which may be taken concurrently) and 241.
- 333 Intermediate Organic Chemistry (3)** **Staff**  
Survey of organic chemistry at intermediate level. Prerequisite, 232.
- 335 Organic Chemistry (3)** **Staff**  
For chemistry and chemical engineering majors and other qualified students planning three or more quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of organic compounds. Theory and mechanism of organic reactions. Prerequisite, 170, which may be taken concurrently.
- 336 Organic Chemistry (3)** **Staff**  
Continuation of 335. Prerequisite, 335.
- 337 Organic Chemistry (3)** **Staff**  
Continuation of 336. Prerequisite, 336.
- 345 Organic Chemistry Laboratory (1)** **Staff**  
Usually to accompany 335. Organic syntheses. Prerequisite, 335, which may be taken concurrently.
- 346 Organic Chemistry Laboratory (1)** **Staff**  
Continuation of 345. Usually to accompany 336. Prerequisites, 336 (which may be taken concurrently) and 345.
- 347 Organic Chemistry Laboratory (2)** **Staff**  
Continuation of 346. Usually to accompany 337. Prerequisites, 337 (which may be taken concurrently) and 346.
- 355 Physical Chemistry (4)** **Staff**  
Structural aspects of physical chemistry; atomic and molecular structure, gases, liquids, solids, solutions, surfaces and colloid chemistry. Prerequisites, 160, Mathematics 153, and college physics.
- 356 Physical Chemistry (3)** **Staff**  
Solutions (electrolytes and non-electrolytes); thermodynamics; homogeneous and heterogeneous equilibria. Prerequisites, 355 and Mathematics 251.
- 357 Physical Chemistry (3)** **Staff**  
Electrochemistry and ionic equilibria; chemical kinetics and photochemistry. Prerequisite, 356.
- 358 Physical Chemistry Laboratory (4)** **Staff**  
Prerequisite, 357 or taken concurrently.
- 395 Radiochemical Techniques and Radioactivity Measurements (3)** **Staff**  
An introductory general service course for students planning further work in nuclear or tracer applications. Safety procedures, detection and measurement of nuclear radiations, radiochemical and tracer techniques. Prerequisites, 160, Mathematics 153, Physics 103, or permission.
- 415 The Chemical Bond (3)** **Staff**  
The nature of the chemical bond, complex compounds. Prerequisite, 357.
- 416 Inorganic Chemistry (3)** **Staff**  
Study of the elements in relation to the Periodic System. Prerequisite, 357.

- 418 Radiochemistry (3)** **Fairhall**  
Natural radioactivity, nuclear systematics, nuclear reactions, radioactive decay processes, decay laws, statistical considerations, applications of radioactivity. Prerequisites, 170 and 356, or permission.
- 419 Radiochemistry Laboratory (2)** **Fairhall**  
Safe handling and quantitative measurement of radioactivity, radiochemical separations, preparation of radioactive tracers, nuclear fission. Prerequisite, 395, 418 (which may be taken concurrently) or permission.
- 425 Quantitative Analysis (3)** **Robinson**  
Special analytical methods. Prerequisite, 221.
- 426 Instrumental Analysis (3)** **Crittenden**  
Introduction to electrical and optical methods of analysis. Prerequisites, 221 and 358.
- 427 Advanced Quantitative Theory (3)** **Crittenden**  
Theoretical principles of analytical chemistry. Prerequisites, 221, 232 or 337, 357, or permission.
- 428 Chemical Microscopy (3)** **Robinson**  
Theory of the polarizing microscope and its application to chemistry. Prerequisite, 357 or permission.
- 429 Microquantitative Analysis (3)** **Robinson**  
Principles and techniques. Prerequisite, 425 or permission.
- 445 Qualitative Organic Analysis (3)** **Staff**  
Identification and characterization of simple organic compounds. Prerequisites, 242 or 347, or permission.
- 446 Advanced Organic Analysis (3)** **Staff**  
Advanced techniques of isolation, identification, and characterization of organic compounds. Prerequisite, 445 or permission.
- 447 Organic Synthesis (3)** **Staff**  
Advanced methods of preparation, separation, and purification of organic compounds. Prerequisite, 445 or permission.
- 499 Undergraduate Research (\*, maximum 12)** **Staff**  
For qualified chemistry majors in the prescribed curriculum, especially those planning graduate work. Prerequisite, permission.

## COURSES IN BIOCHEMISTRY

### (OFFERED BY THE DEPARTMENT OF BIOCHEMISTRY)

- 361 Biochemistry (3)** **Staff**  
Lectures covering the basic principles of biochemistry, including the structure and metabolism of biologically important compounds. For dental students; recommended for home economics, forestry, and fisheries students. Prerequisite, Chemistry 120 or 232.
- 363 Biochemistry Laboratory (2)** **Staff**  
Laboratory exercises in general biochemistry for home economics students and others. Prerequisite, 361, which may be taken concurrently.
- 481, 482 Biochemistry (4,3)** **Staff**  
Structure, metabolism, and function of substances pertinent to animal and plant life. A basic course for graduate or advanced undergraduate students of chemistry, biochemistry, and various biological sciences. Biochemistry 483 is recommended as a concurrent course with 482. Prerequisites, Chemistry 337 for 481; 481 or permission for 482; introductory physical chemistry is recommended.
- 483 Biochemistry Laboratory (3)** **Staff**  
Laboratory exercises and conferences. For students of biochemistry, chemistry, and various biological sciences. Prerequisite, 481, which may be taken concurrently.
- 499 Undergraduate Research (\*)** **Staff**  
Investigative work on enzymes, proteins, lipides, intermediary metabolism, physical biochemistry, and related fields. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 511 Advanced Inorganic Chemistry (2)** **Ritter**  
Acid-base theory; mechanism of certain reactions; compounds of nonmetals of groups 3, 4, and 5. Prerequisite, 416 or permission.
- 512 Advanced Inorganic Chemistry (2)** **Cady**  
Halogens; less familiar metals; chelate, clathrate, interstitial and non-stoichiometric compounds; other selected topics. Prerequisite, 416 or permission.
- 513 Advanced Nuclear Chemistry (2)** **Fairhall**  
Nuclear reactions, fission, complex radioactive decay, absolute counting techniques, radiochemical separations, low-level techniques, geochemistry, cosmochemistry, chemistry of the synthetic elements. Prerequisite, 418 or permission.
- 526 Advanced Instrumental Analysis (3)** **Crittenden**  
Absorption and emission spectroscopy, polarography, potentiometry, and dielectric properties as applied to problems in analytical chemistry. Prerequisite, 426 or permission.

- 530, 531, 532 Advanced Organic Chemistry (3,3,3)** **Staff**  
Consideration of synthetic methods, structure determinations, and reaction mechanisms for acyclic, alicyclic, and aromatic compounds of synthetic and natural origin, with emphasis on modern theory and practice. Prerequisites, 337 and 445, or permission.
- 543 Natural Organic Products (3)** **Anderson**  
Structure determination, properties and synthesis of steroids and other natural organic products of current importance. Prerequisite, 532 or permission.
- 544 Theoretical Organic Chemistry (3)** **Wiberg**  
Application of the theories of chemical bonding and equilibria to the structures and reactions of organic compounds. Prerequisite, 532 or permission.
- 545 Organic Synthetic Methods (3)** **Dauben**  
Consideration of carbon skeleton synthetic methods with emphasis on Diels-Alder, organo-metallic and base-catalyzed condensation reactions. Prerequisite, 532 or permission.
- 546 Organic Radical Reactions (3)** **Dauben**  
Survey of reactions in solution involving radical intermediates. Prerequisite, 532 or permission.
- 547 Organic Heterocycles (3)** **Stout**  
Synthesis and reactions of organic heterocycles, with emphasis on those of natural origin. Prerequisite, 532 or permission.
- 548 Physical Organic Chemistry (3)** **Schubert**  
Interpretation and application of data obtained by combined methods of organic and physical chemistry to the problems of structures of organic compounds and mechanisms of organic compounds and mechanisms of organic reactions. Prerequisite, 532 or permission.
- 550, 551, 552 Advanced Physical Chemistry (3,3,3)** **Staff**  
Thermodynamics and statistical mechanics, atomic and molecular structure, kinetic theory, and chemical kinetics. Prerequisite, 357 or permission.
- 555 Quantum Chemistry (3)** **Staff**  
Calculation of energy levels for simple systems, approximation methods. Prerequisite, 551 or permission.
- 560 Chemical Kinetics (3)** **Rabinovitch**  
Consideration of reaction rate theory and applications, including specialized aspects of topical interest. Prerequisite, 552 or permission.
- 561 Thermodynamics of Solutions (3)** **Gregory**  
The chemical potential and related partial molar thermodynamic properties, activity, thermodynamics of ions, electrochemical phenomena, theories of solutions. Prerequisite, 550 or permission.
- 562 Chemical Crystallography (3)** **Lingafelter**  
Crystal structure of diffraction of X rays, electrons, neutrons; crystal chemistry; spectra of crystals; theory of metals. Prerequisite, 551 or permission.
- 563 Electron Dynamics (3)** **Simpson**  
Chemical binding, dispersion forces, spectroscopy. Prerequisite, 555 or permission.
- 564 Molecular Dynamics (3)** **Eggers**  
Molecular dynamics, force constants, symmetry, selection rules, and polar properties. Prerequisite, 555 or permission.
- 565 Statistical Mechanics (3)** **Halsey**  
Phase integral, quantum statistics, cooperative phenomena. Prerequisite, 555 or permission.
- 581 Topics in Inorganic Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.
- 582 Topics in Analytical Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.
- 583 Topics in Organic Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.
- 585 Topics in Physical Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.
- 590 Seminar in General Chemistry (1-5, maximum 18)** **Staff**
- 591 Seminar in Inorganic Chemistry (1-5, maximum 18)** **Staff**
- 592 Seminar in Analytical Chemistry (1-5, maximum 18)** **Staff**
- 593 Seminar in Organic Chemistry (1-5, maximum 18)** **Staff**
- 595 Seminar in Physical Chemistry (1-5, maximum 18)** **Staff**
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## CLASSICS

**Executive Officer: JOHN B. McDIARMID, 218 Denny Hall**

The Department of Classics offers courses leading to the degrees of Bachelor of Arts and Master of Arts.

For undergraduate students, the Department offers an elective curriculum with a major in Classics, Greek, or Latin. First and second areas of concentration for the Provisional General Teaching Certificate are offered in Latin. Candidates for the certificate may major either in this Department, under the College of Arts and Sciences, or in the College of Education.

The Department offers a group of Classics courses in English, for which a knowledge of Greek or Latin is not necessary. These courses are recommended to students in other departments.

### BACHELOR OF ARTS

**CLASSICS MAJOR.** The requirement is: 18 credits in upper-division Greek courses; and 18 credits in upper-division Latin courses.

**GREEK MAJOR.** The requirement is: 27 credits in upper-division Greek courses; and 9 credits chosen with the consent of the Department from Latin courses, upper-division Greek courses, Classics 430 and 440, History 201-202 (Ancient History), 401 (Greece in the Age of Pericles), 402 (Alexander the Great and the Hellenistic Age), 403 (The Roman Republic), 404 (The Roman Empire), and Philosophy 320 (History of Ancient and Medieval Philosophy).

**LATIN MAJOR.** The requirement is: 27 credits in upper-division Latin courses; and 9 credits chosen with the consent of the Department from Greek courses, upper-division Latin courses, Classics 430 and 440, History 201-202 (Ancient History), 401 (Greece in the Age of Pericles), 402 (Alexander the Great and the Hellenistic Age), 403 (The Roman Republic), 404 (The Roman Empire), and Philosophy 320 (History of Ancient and Medieval Philosophy).

### MASTER OF ARTS

Students who intend to work toward the master's degree must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. The Department requires that applicants for candidacy have a reading knowledge of French or German. Latin and Greek courses to be applied toward this degree must be numbered 400 and above.

### COURSES FOR UNDERGRADUATES

#### GREEK

- |                     |   |                   |
|---------------------|---|-------------------|
| <b>101-102, 103</b> | <b>Elementary Greek (5-5,5)</b>   | <b>McDiarmid</b>  |
|                     | 101-102: an intensive study of grammar, with reading and writing of simple Attic prose; 103: reading of selections from classical Greek literature. |                   |
| <b>201</b>          | <b>Plato: Shorter Dialogues (3)</b>   | <b>Rosenmeyer</b> |
|                     | Selections from the Socratic dialogues. Prerequisite, 103.  |                   |
| <b>202</b>          | <b>Attic Orators (3)</b>  | <b>Rosenmeyer</b> |
|                     | Selections to illustrate the political and social background of Greece in the late fifth and early fourth centuries B.C. Prerequisite, 201.         |                   |
| <b>203</b>          | <b>Homer (3)</b>  | <b>Rosenmeyer</b> |
|                     | Selections from the <i>Iliad</i> or <i>Odyssey</i> . Prerequisite, 202.   |                   |
| <b>207, 208</b>     | <b>Grammar and Composition (2,2)</b>  | <b>Rosenmeyer</b> |
|                     | Systematic review of grammatical principles; exercises in prose composition. To be taken concurrently with 201 and 202.                             |                   |
| <b>309</b>          | <b>Advanced Grammar and Composition (1, maximum 4)</b>  | <b>McDiarmid</b>  |
|                     | Prerequisite, 208.  |                   |
| <b>N391</b>         | <b>Sight Reading (0)</b>  | <b>Staff</b>      |
|                     | Prerequisite, permission.   |                   |

- 413 The Pre-Socratic Philosophers (3)** **McDiarmid**  
(Offered alternate years; offered 1960-61.)
- 414 Plato (3)** **Rosenmeyer**  
(Offered alternate years; offered 1960-61.)
- 415 Aristotle (3)** **McDiarmid**  
(Offered alternate years; offered 1960-61.)
- 420 Greek Epic (3)** **Rosenmeyer**  
(Offered alternate years; offered 1959-60.)
- 422 Herodotus and the Persian Wars (3)** **Staff**  
(Offered alternate years; offered 1959-60.)
- 424 Thucydides and the Peloponnesian War (3)** **Staff**  
(Offered alternate years; offered 1959-60.)
- 442, 443, 444 Greek Drama (3,3,3)** **McDiarmid**  
Euripides, Sophocles, Aeschylus, Aristophanes. (Offered alternate years; offered 1959-60.)
- 451 Lyric Poetry (3)** **Rosenmeyer**  
(Offered alternate years; offered 1960-61.)
- 453 Pindar: The Epinician Odes (3)** **McDiarmid**  
(Offered alternate years; offered 1960-61.)
- 455 Hellenistic Poetry (3)** **Rosenmeyer**  
(Offered alternate years; offered 1960-61.)
- 490 Supervised Study (3-5, maximum 15)** **Staff**  
Special work in literary and philosophical texts for graduates and undergraduates.
- 499 Undergraduate Research (\*, maximum 15)** **Staff**

## LATIN

- 101-102, 103 Elementary Latin (5-5,5)** **Pascal**  
101-102: an intensive study of grammar, with reading and writing of simple Latin prose;  
103: reading of selections from classical Latin literature.
- 201 Roman Letters (3)** **Grummel**  
Reading in the letters of Cicero and Pliny to illustrate important phases of Roman life.  
Prerequisite, two years of high school Latin or 103.
- 202 Roman Elegy (3)** **Grummel**  
Selected elegies of Catullus, Tibullus, Propertius, and Ovid. Prerequisite, 201 or permission.
- 203 Vergil (3)** **Read**  
Selections from the first six books of the *Aeneid*. Prerequisite, 202 or permission.
- 207, 208 Grammar and Composition (2,2)** **Read**  
Systematic review of grammatical principles; exercises in prose composition. Prerequisite,  
two years of high school Latin or 103.
- 300 Latin Language, Accelerated (3)** **Grummel**  
Rapid survey of grammar, with readings in classical and medieval Latin. Prerequisite,  
junior standing and permission.
- 309 Advanced Grammar and Composition (1, maximum 4)** **Grummel**  
Prerequisite, 208.
- N391 Sight Reading (0)** **Staff**  
Prerequisite, permission.
- 401 Medieval Latin (3)** **Staff**  
Prerequisite, permission.
- 404 Comparative Grammar of Latin and Greek (3)** **Grummel**  
Comparative and historical study of Latin and Greek as an introduction to Indo-European  
philology. Prerequisite, permission.
- 412 Lucretius (3)** **Grummel**  
(Offered alternate years; offered 1960-61.)
- 413 Cicero's Philosophical Works (3)** **Grummel**  
(Offered alternate years; offered 1960-61.)
- 414 Seneca (3)** **Grummel**  
(Offered alternate years; offered 1960-61.)
- 422 Livy (3)** **Staff**  
(Offered alternate years; offered 1960-61.)
- 424 Tacitus (3)** **Pascal**  
(Offered alternate years; offered 1960-61.)
- 426 Roman Biography (3)** **Pascal**  
(Offered alternate years; offered 1960-61.)
- 430 Latin Novel (3)** **Grummel**  
(Offered alternate years; offered 1959-60.)
- 442 Roman Drama (3)** **Pascal**  
(Offered alternate years; offered 1959-60.)

- 451 Roman Satire (3)** **Pascal**  
(Offered alternate years; offered 1959-60.)
- 455 Catullus (3)** **Grummel**  
(Offered alternate years; offered 1959-60.)
- 456 Horace (3)** **Pascal**  
(Offered alternate years; offered 1959-60.)
- 458 Roman Epic (3)** **Grummel**  
(Offered alternate years; offered 1959-60.)
- 475LJ Improvement of Teaching: Latin (5)** **Grummel, Pascal**  
Survey of modern teaching techniques, materials, and linguistic theories, supplemented by lectures on the history of the Latin language and literature. Offered jointly with the College of Education. (Offered Summer Quarter only.)
- 475XJ Caesar for High School Teachers (2½)** **Grummel**  
Interpretation of Caesar's works in the light of their historical, political, literary, and geographical background, with special reference to the problems of high school teaching. Offered jointly with the College of Education. (Offered Summer Quarter only.) Prerequisite, teaching experience or permission.
- 490 Supervised Study (3-5, maximum 15)** **Staff**  
Special work in literary and philosophical texts for graduates and undergraduates.
- 499 Undergraduate Research (\*, maximum 15)** **Staff**

## CLASSICS COURSES IN ENGLISH

- 101 Latin and Greek in Current Use (2)** **Staff**  
Designed to improve and increase English vocabulary through a study of the Latin and Greek elements in English, with emphasis on words in current literary and scientific use. No knowledge of Latin or Greek required.
- 210 Greek and Roman Classics in English (5)** **Pascal**  
Introduction to classical literature through the study of some of the major works in translation.
- 341J Greek Archaeology and Art (2)** **Staff**  
A survey of the major Greek art forms from the Mycenaean to the Hellenistic period, with special attention to modern archaeological methods and excavations, illustrated by slides. Offered jointly with the School of Art.
- 342J Roman Archaeology and Art (2)** **Staff**  
A survey of the major Roman art forms, with special attention to modern archaeological methods and excavations, illustrated by slides. Offered jointly with the School of Art.
- 343J Greek Sculpture (2)** **Staff**  
An intensive study of Greek sculpture from the archaic to the Hellenistic period, illustrated by slides. Offered jointly with the School of Art.
- 422 Greek Historians and Philosophers in English (3)** **Rosenmeyer**  
The development of Greek writing from mythical and poetic formulations to logical argument and scientific classification; based on a study of Hesiod, Hippocrates, the Pre-Socratic philosophers, Herodotus, Thucydides, and Plato's *Republic*.
- 426 Greek and Roman Epic in English (3)** **Rosenmeyer**  
A study of the *Iliad*, the *Odyssey*, the *Aeneid*, and selections from other ancient epics.
- 427 Greek and Roman Drama in English (3)** **McDiarmid**  
A study of the origin and development of Greek and Roman drama, with particular emphasis on the philosophical attitudes and structural principles of the major dramatists.
- 430 Greek and Roman Mythology (3)** **Grummel**  
The principal myths found in classical and later literature.
- 440 Greek and Roman Critics in English (3)** **Grummel**  
Problems of literary criticism as considered by Plato, Aristotle, Longinus, and other major classical writers.

## COURSES FOR GRADUATES ONLY

## GREEK

- 520 Seminar (3-5, maximum 15)** **Staff**
- 599 Graduate Reading (3, maximum 18)** **Staff**  
Supervised reading in selected fields.
- 600 Research (3-5, maximum 15)** **Staff**
- 700 Thesis (\*)** **Staff**

## LATIN

- 520 Seminar (3-5, maximum 15)** **Staff**
- 599 Graduate Reading (3, maximum 18)** **Staff**  
Supervised reading in selected fields.
- 600 Research (3-5, maximum 15)** **Staff**
- 700 Thesis (\*)** **Staff**

## COMMUNICATIONS

**Director: HENRY LADD SMITH, 129 Communications Building**

The School of Communications, through its sequences in Advertising, Journalism, and Radio-Television, offers professional training through various curricula in these fields, leading to the degree of Bachelor of Arts. The School also offers courses leading to the degree of Master of Arts in Communications or toward the minor for the doctor's degree in another department. Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

Majors in communications will spend most of their freshman and sophomore academic years in fulfilling basic college group requirements. See page 62. They will complete the required lower-division credits of the School before the Winter Quarter of the junior year.

Transfer students from institutions not recognized as providing the equivalent of courses offered by the School of Communications may be accepted upon satisfactory completion of requirements established by the School.

It is assumed that all students will be able to use the typewriter exclusively in all courses, beginning with Communications 201.

Majors in the School must have completed the following courses in the freshman and sophomore years:

	CREDITS
Advertising 226 Introduction to Advertising .....	3
Communications 201 Communications Today .....	2
Journalism 200 Newswriting .....	3
Radio-TV 270 Elements of Radio Writing (Radio-TV majors) .....	3

Thereafter, a major student in any sequence in the School may obtain the degree by completion of the 180 credits required by the University, including the minimum sequence requirements and the credits in related fields required by the School of Communications.

*No student may apply toward graduation more than 60 required and elective credits within any one sequence, or more than 70 credits within the School of Communications.*

### REQUIRED CREDITS OUTSIDE THE SCHOOL

Minimum requirements outside the School of Communications are as follows:

General Requirements	CREDITS
English Composition 101, 102 .....	6
English or American literature .....	8-9
Group III (science or 10 credits of mathematics) .....	10
Speech (as recommended) .....	4-6

### Requirements in Related Fields

Related fields are those outside the School of Communications which should be of particular value to students of communications. Students in all sequences of the School will be required to earn 25 credits in *introductory* courses in related fields, distributed over at least five different fields. In addition, three advanced courses (9-15 credits) must be taken in any *two* of the related fields elected.

It should be clearly understood that the above figures are minimum credits. Students are urged to elect more courses in both the general and related field programs.

### SUGGESTED RELATED FIELDS

The following related fields should provide most students with courses they need outside the School, in addition to the general requirements: anthropology, economics, geography, history, philosophy, political science, psychology, sociology.



## Advertising

The work of the freshman and sophomore years is essentially the same for all students in the School of Communications (see page 88). Freshman and sophomore students planning to continue in the Advertising sequence should plan to take, in addition, General Business 101 (Introduction to Business); Art 105 (Drawing) or Art 109 (Design); and Marketing 301 (Principles of Marketing). After completing the freshman and sophomore general communications requirements (Communications 201, Journalism 200, Radio-TV 270, and Advertising 226), students in the Advertising sequence will be required to take the following courses as the minimum for a degree in journalism:

	CREDITS
Advertising 341 Advertising Copy .....	3
Advertising 342 Advertising Selling Laboratory .....	6
Advertising 345 Special Copy Applications .....	3
Advertising 440 Advertising Campaigns .....	3
Communications 303 Public Relations .....	3
Journalism 291 Photographic Laboratory .....	3
Journalism 300 Laboratory Work on University Daily .....	5
Journalism 347 Newspaper Operation .....	3
Journalism 381 Graphic Arts and Typography Laboratory .....	3
Radio-TV 352 Radio and Television Advertising .....	5

Of the maximum of 60 credits a student may take within the sequence, or the 70 within the School, one-half of the credits beyond the sequence requirements must be in 400-numbered courses.

## Journalism

The sequence in Journalism offers the curriculum below to majors in this field. In addition, the sequence offers first and second teaching areas for students in the College of Education. (See the *College of Education Bulletin*.)

Students in other fields who wish to obtain journalism training as a supporting field for their major should elect Communications 201 and 303; Journalism 200, 301, and 404; and Advertising 226. Home economics students who wish to take a supporting field in journalism should see the Home Economics section, page 139 of this Bulletin, for recommendations concerning courses. Students in these special areas are required to maintain a 2.50 grade-point average in the above-listed group of courses.

## BACHELOR OF ARTS

The work of the freshman and sophomore years is essentially the same for all students in the School of Communications.

Third- and fourth-year requirements for the Journalism sequence are as follows:

	CREDITS
Communications 303 Public Relations .....	3
Communications 414 History of Journalism .....	3
Journalism 291 Photographic Laboratory .....	3
Journalism 300 Laboratory Work on University Daily .....	5
Journalism 301 Copy Editing .....	3
Journalism 318 Reporting .....	3
Journalism 319 Reporting .....	3
Journalism 320 Legal Aspects of Journalism .....	3
Journalism 347 Newspaper Operation .....	3
Journalism 381 Graphic Arts and Typography Laboratory .....	3
Journalism 413 Editorial Writing, Policies, and Research .....	3
Radio-TV 376 Radio and Television News Writing .....	3

### Two of the following courses:

	CREDITS
Communications 402 Freedom of the Press and Communications Law .....	3
Communications 406 Press and Society .....	3
Communications 411 Introduction to Mass Communications Research .....	3
Communications 415 Comparative Communications .....	3
Communications 480 Propaganda .....	3

Of the maximum of 60 credits a student may take within the sequence, or the 70 within the School, one-half of the credits beyond the sequence requirements must be in 400-numbered courses.

## Radio-Television

### BACHELOR OF ARTS

The sequence in Radio-Television offers the curriculum below to majors in this field.

The work of the freshman and sophomore years is essentially the same for all students in the School of Communications (see page 88). Students majoring in the Radio-Television sequence are required to take the following courses:

#### Two of the following courses:

	CREDITS
Communications 303 Public Relations .....	3
Communications 402 Freedom of the Press and Communications Law .....	3
Communications 411 Introduction to Mass Communications Research .....	3
Communications 414 History of Journalism .....	3
Communications 415 Comparative Communications .....	3
Communications 480 Propaganda .....	3

#### Other requirements:

	CREDITS
Radio-TV 250 Survey of Radio and Television .....	3
Radio-TV 260 Radio Production .....	3
Radio-TV 271 Radio Continuity .....	3
Radio-TV 350 Laboratory Work on KUOW .....	maximum 9, minimum 5
Radio-TV 352 Radio and Television Advertising .....	5
Radio-TV 376 Radio and Television News Writing .....	3
Radio-TV 450 Television Programming .....	3
Radio-TV 475 Station Organization .....	3

Of the maximum of 60 credits a student may take within the sequence, or the 70 within the School, one-half of the credits beyond the sequence requirements must be in 400-numbered courses.

### COURSES FOR UNDERGRADUATES

*Only those courses marked "open to nonmajors" may be included in the registration of students from other departments. Particular attention is called to the fact that some courses are open to nonmajors in specific quarters only.*

#### COMMUNICATIONS COURSES

- 201 Communications Today (2)** **Benson**  
An elementary course in communications theory, including analysis of the communications process and a survey of contributions of the various disciplines as applied to mass media news, advertising, and editorial interpretation. A critical study of language use. (Formerly 100.) Open to lower-division nonmajors.
- 303 Public Relations (3)** **Brier, Christian**  
Principles and practice of public relations in business, industry, government, and social agencies; policy and conduct as fundamentals in good relationships. Open to nonmajors. Prerequisite, upper-division standing or permission.
- 316 Contemporary Affairs (3)** **Staff**  
Background and significance of international, national, and local newsworthy events. Primarily a discussion course.
- 402 Freedom of the Press and Communications Law (3)** **Benson**  
The Anglo-American concept of freedom of communication; its evolution under U.S. federal and state constitutions; present tension areas; judicial decisions; statutes and administrative regulations affecting publishing, broadcasting, etc. Open to nonmajors. Prerequisite, Journalism 320 or permission.
- 403 Problems in Public Relations (3)** **Christian**  
Group application of public relations principles to the field problems of local businesses or agencies; with reports and recommendations. Open to nonmajors. Prerequisite, 303 or permission.
- 406 Press and Society (3)** **Ames**  
An analysis of the role of newspapers, magazines, radio, television, and movies, to determine how well they are fulfilling their functions.
- 411 Introduction to Mass Communications Research (3)** **Edelstein**  
Recent developments in the study of mass communications content and audience, with emphasis on the printed media. Comparative studies. Introduction to research design, methods and techniques; individual projects in content analysis and audience measurement. Open to nonmajors. Prerequisites, Sociology 110 or 310, Sociology 443 or Psychology 345; Sociology 223 recommended.

- 414 History of Journalism (3)** **Ames**  
Growth and development of the press, with emphasis on journalism in the United States, its social, political, and ethical responsibilities. Open to nonmajors. Prerequisite, 5 or more credits of American history or permission.
- 415 Comparative Communications (3)** **Edelstein**  
Analysis of contemporary international, national, and regional media.
- 416 Press and World Affairs (3)** **Staff**  
Problems and projects in the coverage of national and international news; government and pressure group influences. Prerequisite, 316.
- 480 Propaganda (3)** **Edelstein**  
Peacetime, wartime, and cold war programs of the United States and other nations, with emphasis on the period immediately prior to, during, and after World War II. Open to nonmajors. Prerequisites, 10 credits or more in international relations, foreign policy, and area studies; one course in social psychology recommended.
- 498 Problems of Communications (1-5, maximum 10)** **Staff**  
Research and individual study. Prerequisite, permission of director and staff.

## ADVERTISING COURSES

- 226 Introduction to Advertising (3)** **Denis, Warner**  
Economic and social aspects; organizational structure; comparison of major advertising media, and the elements of creating and producing advertising. Open to nonmajors.
- 340 Advertising Procedures (5)** **Denis**  
Fundamentals of copywriting, layout, and mechanical productions in the creation of printed advertising. Prerequisites, 226 or Marketing 391. Open to nonmajors.
- 341 Advertising Copy (3)** **Denis, Warner**  
Principles of copywriting and layout and their interdependence; problems in the preparation of copy and layout, with emphasis on newspapers and direct mail.
- 342 Advertising Selling Laboratory (3, maximum 6)** **Denis**  
Supervised field assignments in the analysis of advertising problems of specific businesses and in the servicing of advertising accounts for the *University Daily*.
- 345 Special Copy Applications (3)** **Denis, Warner**  
Analysis of principles and techniques of national advertising copy; problems in the preparation of trade, industrial, and consumer copy and layouts.
- 440 Advertising Campaigns (3)** **Warner**  
Problems in the planning and execution of national and local advertising campaigns; research, keynote ideas, budgets; media selection, and merchandising. For nonmajors. Prerequisite, permission of instructor.
- 442 Advertising Management Laboratory (3, maximum 6)** **Warner, Staff**  
Special problems in the management of local and national advertising departments; supervised assignments on the *University Daily*.
- 446 Problems of Communication in Advertising (3)** **Warner**  
Individual study, research, and discussion of selected advertising problems of special interest. Offered Spring Quarter only. Open to senior and graduate students. Prerequisite, permission of instructor.

## JOURNALISM COURSES

- 200 News Writing (3)** **Christian, Staff**  
Structure of the news and feature stories. Not open to freshmen. Open to nonmajors by permission. Reasonable proficiency in the use of the typewriter required.
- 291 Photographic Laboratory (3)** **Shaw**  
Elementary news photography, photo processing, and picture editing. Open only to majors in the School of Communications.
- 300 Laboratory Work on University "Daily" (2-5, maximum 7)** **Ames, Irwin**  
Practical work on the editorial staff of the *University of Washington Daily*. Prerequisites, communications major or permission.
- 301 Copy Editing (3)** **Edelstein, Irwin**  
Editing news copy, writing cutlines, captions, and headlines; newspaper makeup. Open to nonmajors. Prerequisite, 200 or permission.
- 317 Reporting Legal Procedures (2)** **Benson**  
An advanced reporting course concerned with pleadings, testimony, and procedural matters in trial and appellate courts. Open to nonmajors by permission.
- 318 Reporting (3)** **Benson, Staff**  
General reporting techniques.
- 319 Reporting (3)** **Christian, Staff**  
Covering the principal news beats for the press; operations of local governing institutions; supplementary city assignments. Prerequisite, 318 or permission.
- 320 Legal Aspects of Journalism (3)** **Benson**  
Legal regulations governing publications.
- 347 Newspaper Operation (3)** **Irwin**  
Problems of the display, classified, circulation, plant, and promotion departments of large and small newspapers; newspaper finance and management trends.

- 375J Teachers' Course in Journalism (3)** **Brier**  
For teachers in high schools and junior colleges, or for education students taking first or second teaching areas in journalism. Offered jointly with the College of Education, usually every other summer and every spring. Prerequisites, 200 and 301.
- 381 Graphic Arts and Typography Laboratory (3)** **Murton**  
Graphic arts principles; printing processes, typography, copyfitting, engraving, paper, and coordination of production.
- 404 Magazine Article Writing (3)** **Brier**  
Nonfiction writing for national magazines and for specialized publications. Open to nonmajors. Prerequisites, upper-division standing and permission.
- 405 Short Story Writing (3)** **Staff**  
Fiction writing for national magazines. Open only to upper-division students, with permission, and limited to 20 students. Open to nonmajors.
- 413 Editorial Writing, Policies, and Research (3)** **Benson**  
Concepts of editorial responsibility; study of outstanding editorial pages; research for practice in preparing editorial page material, including analytical, interpretive, and persuasive writing.

### RADIO-TELEVISION COURSES

- 250 Survey of Radio and Television (3)** **Adams**  
History of the media; organization and regulation of the industry; commercial aspects; educational use; elements of programming. Open to lower-division nonmajors by permission.
- 260 Radio Production (3)** **Hopkins**  
Studio and microphone setups; timing, use of sound effects and incidental music; performance.
- 270 Elements of Radio Writing (3)** **Staff**  
Writing of radio announcements; script forms; principles of writing for listeners.
- 271 Radio Continuity (3)** **Staff**  
Writing radio continuity; responsibilities of station continuity chief. Not open to students who have credit in Drama 445. Prerequisite, 270.
- 350 Laboratory Work on KUOW (1-3, maximum 9)** **Staff**  
Practical work in programming and production with the University's FM radio station. Prerequisites, 260 and 270. Permission required for election in excess of 5 credits.
- 352 Radio and Television Advertising (5)** **Cranston**  
Principles of both media as they apply to advertisers; planning a radio or television campaign; writing commercial copy. For majors only. Prerequisite, Advertising 226.
- 360 Advanced Radio Production (2)** **Hopkins**  
Direction, production, and advanced performance.
- 372 Radio Dramatic Writing (3)** **Staff**  
Principles of writing radio drama and their application. Prerequisites, 271 and permission.
- 373 Television Writing (3)** **Cranston**  
Principles of writing for television. Techniques of writing material for television production. Practice in writing live and film presentations with consideration of camera, direction, and production problems. Prerequisites, one approved university writing course and permission.
- 376 Radio and Television News Writing (3)** **Cranston, Niven, Ryan**  
Gathering, writing, editing, and programming news for the broadcast media, including visual treatment for television and film. Prerequisite, 200.
- 450 Television Programming (3)** **Ryan**  
A study of the basic concepts and problems of programming for television, including principles of program development and visual treatment of ideas.
- 451 Television Performance (2)** **Niven**  
Problems of television performance, including techniques of demonstration and interviewing.
- 455 Television Film Techniques (2 or 3)** **Niven**  
Film camera and editing techniques; film selection and procurement; video recording. Lectures may be taken without laboratory for 2 credits. Prerequisite, permission.
- 456 Television Staging and Graphics (2 or 3)** **Niven**  
The art phases of television production; set building and decoration; preparation of visual aids. Prerequisite, permission.
- 460 Television in the Schools (2½)** **Adams**  
Television programs to supplement classroom work; suitable receiving equipment for schools; the development of the American system of broadcasting; the development and significance of educational television, and the contribution schools can make to broadcasting. (Offered Summer Quarter only.)
- 461 Television Production (3)** **Ryan**  
Familiarization with camera and control equipment; experience in program directing through production of various types of programs. Prerequisite, permission.
- 465 Television Workshop Laboratory (2-4, maximum 8)** **Ryan**  
Laboratory work in the educational television station. Prerequisites, 461 and permission.

- 475 Station Organization (3)** **Adams**  
Functions and relationships of broadcast station departments. For majors only.
- 476 Advanced Radio News Laboratory (2, maximum 6)** **Cranston**  
Writing and editing news for radio under broadcast conditions. Prerequisites, 376 and permission.

## GRADUATE COURSES IN COMMUNICATIONS

- 502 Government and Mass Communications Seminar (3)** **Benson**  
Directed independent research into, and analysis of, legal problems in mass communications, institutional and media operations. Open to nonmajors. Prerequisite, Communications 402 or permission.
- 506 Press and Society Seminar (3)** **Ames**  
Use of current documents and data in examining and evaluating the functions of the press. Open to nonmajors. Prerequisite, Communications 406 or permission.
- 511 Mass Communications Research Seminar (3)** **Edelstein**  
Advanced individual projects in quantitative research design, methods and techniques in the media of mass communications. Reports on new developments in mass communications research. Topics will vary each year. Prerequisites, Communications 411 and a course in statistics, or permission. Open to nonmajors.
- 514 Journalism and History Seminar (3)** **Smith, Ames**  
Aspects of the American press through a study of original source material. Prerequisite, Communications 414 or permission. Open to nonmajors.
- 580 Seminar in Propaganda (3)** **Edelstein**  
Topics for individual study in propaganda. Prerequisite, 480 or permission.
- 598 Selected Readings (1-5, maximum 5)** **Staff**  
Open to qualified graduate students by permission.
- 600 Research (3-5)** **Staff**
- 700 Thesis (\*)** **Staff**

## DENTAL HYGIENE, PREPROFESSIONAL PROGRAM

**Adviser, 121 Miller Hall**

The two-year preidental hygiene program is designed to prepare women students for admission to the major in dental hygiene in the School of Dentistry.

In this program, the applicant must complete 90 quarter credits in the College of Arts and Sciences, together with the required quarters of physical education activity. Courses must include: English 101, 102, 103 (Composition); Biology 101J-102J (General); Chemistry 100 or 110 or 120 (General and Organic); Health Education 110 (Health Education); Physics 170 (Introduction to Health Sciences Physics) or 100 (Survey); Psychology 100 (General); and Speech 120 (Introduction to Public Speaking). Of the remaining 45 elective credits, a minimum of 10 credits must be taken in the humanities and a minimum of 20 credits in the social sciences, which must include Sociology 110 (Survey). The student should choose elective subjects which are of greatest interest and give the broadest educational background.

The two-year General Education program may be used as preparation for dental hygiene. Students who take this program must have Chemistry 100 or 110 and 120 (General and Organic) and Speech 120 (Introduction to Public Speaking) in their curriculum.

A dental hygiene aptitude test is required prior to application for dental hygiene. Information is available from the Department of Dental Hygiene in the School of Dentistry.

The major in dental hygiene is described in the *School of Dentistry Bulletin*.

## DENTISTRY, PREPROFESSIONAL PROGRAM

**Adviser, 121 Miller Hall**

This program is designed for students in the College of Arts and Sciences who plan to enter a dental school when their preprofessional training is completed.

The minimum requirement for admission to most dental schools is two years of

college training (90 academic quarter credits). The two-year course should include one year each of biology, English, inorganic chemistry, and physics; 6 credits in organic chemistry; and the required quarters of physical education activity and military training.

Students who are interested in attending a particular dental school should choose electives to meet the requirements of that school. The adviser should be consulted about the dental aptitude test which is taken prior to filing applications.

Students who do not enter dental school by the end of the second year must select a departmental major. (Also, see Basic Medical Science, page 76.)

## DRAMA

**Director: GLENN HUGHES, 113 Drama-TV Building**

The School of Drama offers courses leading to the degrees of Bachelor of Arts and Master of Arts. In addition, it offers first and second teaching areas and a basic academic field for students in the College of Education.

### BACHELOR OF ARTS

In this elective curriculum, 63 credits are required. Courses must include: Drama 101, 102, 146, 147, 148, 251, 252, 253, 403, 404, 405, 406, 409, 421 (or 423), 422, 427, 428, 429, 451, 452, 453, 481 (or 482 or 483), and 497; and 25 credits in literature, including English 264, 265 (Literary Backgrounds), 370 (Shakespeare), and either 371 or 372 (Shakespeare).

The School requires senior students to take a comprehensive examination in drama.

### MASTER OF ARTS

Candidates for this degree must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Normally a major in drama is supported by a minor in English.

### COURSES FOR UNDERGRADUATES

- |                      |  |                               |
|----------------------|--|-------------------------------|
| <b>101, 102, 103</b> | <b>Introduction to the Theatre (2,2,2)</b>   | <b>Hughes</b>                 |
|                      | Significant aspects of the modern theatre.   |                               |
| <b>146, 147, 148</b> | <b>Theatre Speech (3,3,3)</b>  | <b>Carr, Galstaun, Gray</b>   |
|                      | Prerequisites, 146 for 147; 147 for 148.   |                               |
| <b>251, 252, 253</b> | <b>Acting (3,3,3)</b>  | <b>Carr, Gray, Harrington</b> |
|                      | Theory and practice of pantomime, improvisation, and characterization. Prerequisites, 148 for 251; 251 for 252; 252 for 253.   |                               |
| <b>307, 308, 309</b> | <b>Puppetry (2,2,2)</b>  | <b>Valentinetti</b>           |
|                      | Practical work in constructing and manipulating simple hand and string puppets which may be used in nursery, elementary, or secondary teaching, therapy, recreation, play guidance, and creative dramatics. With permission, may be repeated for credit. |                               |
| <b>403</b>           | <b>Scene Construction (3)</b>  | <b>Lounsbury</b>              |
|                      | Principles and actual construction of stage scenery and properties.  |                               |
| <b>404</b>           | <b>Scene Design (3)</b>  | <b>Conway</b>                 |
|                      | Upper-division students only. Prerequisite, 403.   |                               |
| <b>405</b>           | <b>Historic Costume for the Stage (3)</b>  | <b>Crider</b>                 |
|                      | Survey of historic costume in the Western world beginning with the Egyptians and continuing to the present period.   |                               |
| <b>406</b>           | <b>Make-up (3)</b>   | <b>Davis</b>                  |
| <b>407</b>           | <b>History of Theatrical Costume (2)</b>   | <b>Crider</b>                 |
|                      | Historical survey of theatrical costume beginning with the Attic theatre to the modern. Includes drama, opera, and ballet. Prerequisite, 405 or permission of instructor.  |                               |
| <b>408</b>           | <b>Stage Costume Construction (2)</b>  | <b>Crider</b>                 |
|                      | Practical laboratory course in techniques of costume construction, including fundamentals of pattern making. Prerequisite, 405.  |                               |
| <b>409</b>           | <b>Stage Lighting (3)</b>  | <b>Conway, Lounsbury</b>      |

- 410, 411, 412 Playwriting (3,3,3)** Hughes  
A professional course. Prerequisites, English 328, 329, and permission.
- 413 Advanced Scene Construction (2, maximum 6)** Lounsbury  
Prerequisites, 403 and permission of instructor.
- 414 Applied Scene Design (2, maximum 4)** Conway  
Prerequisites, 404 and permission of instructor.
- 415 Costume Projects (2, maximum 6)** Crider  
Prerequisites, 405 and permission of instructor.
- 416 History of Masks and Mask Making (2)** Davis  
Prerequisite, 405. (Formerly 420.)
- 417 History of Wigs and Wig Making (2)** Crider  
Prerequisite, 405 or permission of instructor. (Formerly 410.)
- 418 Scene Painting (2, maximum 6)** Davis  
Prerequisites, 404 and permission of instructor.
- 419 Advanced Stage Lighting (3)** Lounsbury  
Prerequisites, 409 and permission of instructor. (Formerly 415.)
- 421, 422, 423 Advanced Acting (3,3,3)** Harrington  
Group acting. Styles in acting: tragedy, comedy, period, modern. Prerequisite, 253. With permission, may be repeated for credit.
- 426 High School Play Production (3)** Gray, Harrington  
A practical course for nonmajors.
- 427, 428, 429 History of the Theatre (2,2,2)** Conway  
The Orient, Europe, and America. The physical playhouse, methods of production, great actors, stage machinery, scenery, lighting, costumes, and masks.
- 434, 435, 436 Children's Theatre (3,3,3)** Carr  
Theory and methods. Participation in productions, with emphasis on directing. Prerequisite, 253.
- 437, 438, 439 Creative Dramatics with Children (3,3,3)** Haaga, Siks  
Practical training for work with children's groups. Emphasis on development of the child intellectually, emotionally, physically, and socially, through story and impromptu dramatizations. Lectures, reading, laboratory, and field observation. One hour extra required on Saturdays for observation. Prerequisites, 437 for 438; 438 for 439.
- 451, 452, 453 Representative Plays (3,3,3)** Hughes  
Great playwrights of all important periods. Theories of the drama.
- 461, 462, 463 Musical Comedy Production (3,3,3)** Staff  
Prerequisites, 251, 252, 253, or permission.
- 481, 482, 483 Directing (3,3,3)** Harrington  
Prerequisites, 421 and 422, or 423 and senior standing.
- 497 Theatre Organization and Management (2)** Hughes  
Personnel, box-office methods, advertising, production costs, royalties, and executive policies. Prerequisite, senior standing.
- 499 Undergraduate Research (1-5, maximum 15)** Staff  
Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 504 Advanced Stage Design (3)** Conway  
Prerequisites, 404, 414, and permission of instructor. (Formerly 517.)
- 505 Advanced Stage Costume Construction and Design (3)** Crider  
Prerequisites, 405 and 408, or permission of instructor. (Formerly 509.)
- 509 Scenic Projection (3)** Conway  
Theories and experiments with various methods of scenic projection. Prerequisites, 414, 415, or permission. (Formerly 515.)
- 513 Technical Direction (3, maximum 9)** Lounsbury  
Prerequisites, 403, and either 417, 418 or 419, and permission.
- 519 Lighting Research and Development (3, maximum 9)** Lounsbury  
Prerequisites, 414 and permission.
- 551-552-553 Teaching of Acting (2-2-2)** Harrington  
Prerequisites, 422 and permission of instructor.
- 581 Advanced Directing (3)** Harrington  
Prerequisites, 483 and permission of instructor.
- 601, 602, 603 Research (5,5,5)** Hughes  
Prerequisite, permission.
- 700 Thesis (\*)** Staff

## ECONOMICS

**Executive Officer: J. RICHARD HUBER, 331 Savery Hall**

The Department of Economics offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy.

For undergraduate students, the Department offers two elective curricula leading to a bachelor's degree: a four-year general curriculum for students who want a broad economics background with opportunity to develop interests in other social sciences or in related business fields, and a five-year specialized curriculum for students who plan to enter government service as professional economists.

Within both curricula, the fields of specialization are: economic theory, history of economic thought; money, banking, and cycles; government regulation, and public utilities; labor economics; public finance and taxation; economic history; international trade; national economies; and statistics and econometrics.

In addition, the Department offers first and second teaching areas for students in the College of Education.

### BACHELOR OF ARTS

**GENERAL CURRICULUM.** Requirements in the field of economics are: Economics 200, 201, 301, and 302 plus 25 additional credits. Of the 25 credits, 20 are to be taken in four fields other than theory, and the remaining 5 are to be taken either in one of the four fields so chosen or in the field of theory. Other requirements are: Accounting 150 (Fundamentals of Accounting), 151 (Fundamentals of Accounting), 255 (Basic Accounting Analysis); and Mathematics 281 (Elements of Statistical Method).

**CURRICULUM FOR ECONOMISTS IN GOVERNMENT SERVICE.** The adviser for students in this curriculum is James K. Hall, 318 Savery Hall. In cooperation with the College of Business Administration and the Departments of Political Science, Psychology, and Sociology, the Department of Economics provides this program to meet the growing need for trained men and women in government service.

To remain in the curriculum, students must maintain a 3.00 grade-point average. During the first two years, they complete Economics 200, 201; Accounting 150, 151 (Fundamentals), 255 (Basic Accounting Analysis); History 241 (Survey of the History of the United States); Political Science 201 (Modern Government); Psychology 100 (General); Sociology 110 (Survey) or 310 (General); and Speech 120 (Introduction to Public Speaking).

At the beginning of the third year, each student chooses a field of specialization. In addition to courses in a special field, students must complete during this year Economics 301, 302, 320, 330, 340, 350, 370, 390, and 432; Political Science 376 (State and Local Government and Administration), 460 (Introduction to Constitutional Law), 471 (Administrative Management), and 472 (Introduction to Administrative Law).

When the fourth year of work is completed, the student in this curriculum receives his bachelor's degree.

In the fifth year, the student's program is planned to fit his particular objective and needs. Whenever possible, one quarter is spent in internship with a government agency. A certificate is awarded at the end of the fifth year. Students may apply the work of the fifth year toward a master's degree by fulfilling requirements for the degree.

### ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Requirements for both advanced degrees include work in some of these fields of specialization: economic theory; history of economic thought; money, banking, and cycles;



government regulation, and public utilities; labor economics; public finance; economic history; international trade; national economies; and statistics and econometrics.

**MASTER OF ARTS.** Candidates must complete a program in economic theory and two other fields, one of which must be in economics. Those who choose three fields in economics will be expected to complete a minimum of 15 credits in 500-level courses (9 in economic theory). Those who take a field in a related subject will be expected to take a minimum of 12 credits in economics in 500-level courses (9 in economic theory). All candidates must meet the Graduate School's general requirement of 27 credits in graduate-course work in addition to the thesis and language requirements.

**DOCTOR OF PHILOSOPHY.** Candidates must complete a program in five fields, four of which must be in economics including the field of economic theory. A candidate may offer a minor in another department related to his fields of major interest, or, with permission of his committee, he may offer a program of selected courses outside of economics as the fifth field.

Through the cooperation of the Far Eastern and Russian Institute, a candidate may offer, together with a minor in Far Eastern, a Far Eastern area study program as a substitute for one field. In such a case, the fields offered will include three in economics (one of which must be economic theory), one joint economics and Far Eastern, and the Far Eastern minor. When this option is allowed, the candidate normally chooses a thesis subject related to his Far Eastern specialty, and the thesis is jointly supervised by the Institute and the Department.

Doctoral candidates offering a minor in economics must demonstrate competence in two fields, including economic theory. While normally 25 credits in 400- or 500-level courses will be required, candidates with an adequate background may offer less. In any case, a minimum of 12 credits in 500-level courses must be offered. Normally 9 of these credits will be in economic theory.

## COURSES FOR UNDERGRADUATES

### INTRODUCTORY COURSES

- 160 American Economic History (5)** **Morris, North**  
American economic institutions, their European background and development; the impact of industrialization on the American economy from 1850 to the present.
- 200 Introduction to Economics (5)** **Buschel, Morris, Worcester**  
Organization, operation, and control of the American economy; consideration of problems of inflation, unemployment, taxation, the public debt, monopoly, trade unions, and international trade. American capitalism compared with communism and socialism. Open to freshmen.
- 201 Principles of Economics (5)** **Staff**  
Operation of the American economy, with special emphasis on prices, wages, production, and distribution of income and wealth; problems of the world economy. Prerequisite, 200.
- 211 General Economics (3)** **Gillingham**  
Condensation of 200. Primarily for engineering and forestry students; other students by permission.

### ECONOMIC THEORY

- 301 National Income Analysis (5)** **Cartwright, Crutchfield, Gordon**  
Analysis of the determinants of the aggregate level of employment, output, and income of an economy.
- 302 Intermediate Economics (5)** **Mund, Worcester, McCaffree, Zellner**  
The fundamental concepts and principles of economics. Markets, market price, and the determination of price under monopolistic conditions. The relations of price and cost; income and its functional distribution in capitalistic society. Prerequisite, 201.
- 306 Development of Economic Thought (5)** **Gordon**  
The development of economics from the early modern period to the present with some discussion of its relation to natural science and other social sciences. The main subjects treated will be Adam Smith and the classical school, Karl Marx, and later Marxism, and the transition to J. M. Keynes.
- 312 Current Economic Problems (5)** **Staff**  
Economic principles applied to such problems as booms and depressions, the federal budget and debt, foreign trade policies, farm problems, public versus private power development, government control of "big business," labor-management relations, and social security. Primarily for nonmajors.

- 404 Advanced Price Analysis (5)** **Crutchfield**  
Study of selected market structures. Directed toward developing more precise predictive techniques and more adequate bases for analysis of public policy. Prerequisite, 201.

### **MONEY, BANKING, AND CYCLES**

- 320 Money and Banking (5)** **Crutchfield**  
Nature and functions of money; the banking system, other credit-granting institutions, and the relationship of money and bank deposits to the economy.
- 421 Money, Credit, and the Economy (5)** **Crutchfield**  
Supply and the use of money, bank deposits, and bank reserves. Relationship of Treasury, Federal Reserve, and commercial bank policies, and the value of money. Factors generating flows of money income. Prerequisites, 301 and 320.
- 422 Economic Cycles (5)** **Staff**  
The characteristics of prosperity-depression cycles. Analysis of leading cycle explanations and proposed cycle remedies; discussion of current problems. Prerequisites, 301 and 320.

### **GOVERNMENT REGULATION, PUBLIC UTILITIES**

- 330 Government and Business (5)** **Mund**  
The development in the United States of public policy with regard to regulation of business activity. Federal antitrust legislation and its judicial interpretation. Basing-point and zone-delivered pricing system. The policy of preserving competition as a means of regulating private business. Prerequisite, 200.
- 432, 433 Economics of Public Utilities (5,5)** **Hall**  
432: economic, legislative, and administrative problems in the regulation of public utility rates and service standards. The holding company and its control. Prerequisite, 200.  
433: public utility costs, pricing policies, rates, plant utilization, and competition. Prerequisite, 201.

### **LABOR ECONOMICS**

- 340 Labor in the Economy (5)** **Buechel, Gillingham, Hopkins, McCaffree**  
Employment, unemployment, wages, working conditions, trade-unionism, collective bargaining, labor-management relations, and public policy. 200 or 211 recommended.
- 345 Social Security (5)** **Hopkins**  
Problems arising from economic hazards confronting individuals, including old age, unemployment, illness, and disability. Study of social institutions designed to meet these problems, with emphasis on their economic effects.
- 441 Union-Management Relations (5)** **Gillingham, Hopkins, McCaffree**  
The collective-bargaining process, with special reference to economic implications. Prerequisite, 340 or permission.
- 442 American Labor History (5)** **Gillingham**  
Analysis in historical perspective of the American labor movement, its organizational structure, ideology, policy, and practices.
- 443 Labor Market Analysis (5)** **McCaffree**  
Analysis of factors which determine wage rates and employment levels in the firm, industry, and economy. Special emphasis upon the union in the labor market. Prerequisite, 201. Recommended courses are 301, 302, and 340.

### **PUBLIC FINANCE AND TAXATION**

- 350 Public Finance and Taxation I (5)** **Hall**  
Principles of taxation, tax forms and practices, public expenditure, public credit, and public budgetary policy.
- 451 Public Finance and Taxation II (5)** **Hall**  
Fiscal policy, tax systems, incidence and effects of taxation, and management of the public credit.

### **ECONOMIC HISTORY**

- 460J Economic History of Europe (5)** **Morris**  
Origins of contemporary European economic institutions; emergence of the capitalistic system; problems of nineteenth-century European economic organization; international conflict, the growth of new systems; patterns of European economic organization. Offered jointly with the Department of History.
- 462 Development of American Commercial Capitalism (5)** **North**  
Analysis of the origins and significance of the American economic structure before the Civil War.
- 463 Development of American Industrial Capitalism (5)** **North**  
Structural changes and trends in the American economy since the Civil War.

### **INTERNATIONAL TRADE**

- 370 Economic Principles of Foreign Trade (5)** **Huber**  
Role of trade in world economic development, standards of living, and stability. Principles of trade and foreign exchange. Analysis of tariffs and other commercial policies. International organizations dealing with trade, foreign exchange, and foreign investment. Prerequisite, 200.

- 471 International Economics (5)** **Holzman**  
Income and price theory applied to international trade. Balance of payments, disequilibrium, and adjustment. Capital movements and industrialization of underdeveloped areas. Current international monetary policies, especially United States and Europe. Prerequisite, 370.

- 472 International Economic Problems (5)** **Huber**  
Analysis of international problems related to foreign aid programs, foreign investments, underdeveloped areas, currency blocs, exchange control, international trade and monetary organizations, cartels, commodity agreements, and state trading. Prerequisite, 370.

## NATIONAL ECONOMIES

- 390 Comparative Economic Systems (5)** **Worcester**  
The modern development and operation of the American, English, and Russian economies as a response to fundamental economic and political problems. Some attention is paid to Marxian doctrine and the general problems of economic planning.

- 492 Economic Problems of the Far East (5)** **Staff**  
Analysis of economic development in the Asian area, contrasting the successful industrialization of Japan with the economic problems and objectives of other Asian regions—India, China, and Southeast Asia. Difficulties associated with raising living standards, and the methods by which this task can be approached. Impact of Asian economic development on world economic relations.

- 493 Economic Problems of China (5)** **Staff**  
Transformation of the traditional economic organization of China in the nineteenth and twentieth centuries under the impact of Western influences. Economic problems of twentieth-century China, with special emphasis on the economic objectives and problems of the Communist regime. Discussion of the character of the economic plans, with attention paid to the size and distribution of the national product, resources, and the structure of economic organization.

- 495 The Economy of Soviet Russia (5)** **Holzman**  
Analytical survey of the operating principles, organization, and performance of the Soviet economy with attention to historical and ideological backgrounds, industry, agriculture, labor, resources, trade, transportation, finance, and problems in planning and rapid industrialization. Prerequisite, permission.

## STATISTICS AND ECONOMETRICS

- 481 Economic Statistical Analysis (5)** **Zellner**

## GENERAL

- 499 Undergraduate Research (3, maximum 6)** **Staff**  
Does not carry graduate credit. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

### ECONOMIC THEORY

- 503 Economics of the Firm (3)** **Worcester**  
Analysis of the operation of the economy as affected by the decisions of individual firms and consumers under conditions of pure competition, imperfect competition, oligopoly, and monopoly.

- 505 Value and Distribution Theory (3)** **Mund**  
Systematic review of the theories of value, price, costs, and supply. The capital concept. Income and its functional distribution.

- 506 Income and Employment Theory (3)** **Cartwright**  
Theories of employment, output, and income of the Keynesian and neo-Keynesian groups. Prerequisite, 301 or permission.

- 510 Contemporary Developments in Income and Employment Theory (3)** **Cartwright**  
Review of current literature on income theory with primary emphasis on dynamic income theory. Prerequisite, 506.

- 511 Introduction to the Use of Mathematics in Economic Theory (3)** **Gordon**  
Elementary mathematical analysis used in economics. The course is designed to develop ability to read the literature most relevant to developments in general economic theory for those who already have some grounding in theory.

- 512 Advanced Theory of the Firm (3)** **Worcester**  
Current literature and research in market structure and business motivation. Prerequisite, 503.

- 518 Current Issues in Economic Theory (3)** **Staff**

### HISTORY OF ECONOMIC THOUGHT

- 507 Neo-Classical Economics and Its Critics (3)** **Gordon**  
Prerequisite, permission.

- 515 History of Economic Thought (3)** **Gordon**

**MONEY, BANKING, AND CYCLES**

- 521 Monetary Theory (3)** **Crutchfield**  
Recent developments in monetary theory. Prerequisite, permission.
- 522 Cycle Theory (3)** **Staff**  
Leading theories of economic cycles, with emphasis upon recent developments. Prerequisite, permission.

**GOVERNMENT REGULATION, PUBLIC UTILITIES**

- 530 Public Control of Industry (3)** **Mund**  
Public policy in the United States on industrial combinations, pricing practices, and monopoly control. Recent issues in the public control of business. Prerequisite, permission.
- 532 Public Utilities (3)** **Hall**  
Critical consideration of recent developments in the study of public utilities. Special emphasis on electrical utilities and public power projects of federal and local governments.

**LABOR ECONOMICS**

- 541 Theory of Trade-Unionism (3)** **Gillingham**  
Prerequisite, permission.
- 542 Labor Economics (3)** **Hopkins**  
Prerequisite, permission.
- 543 Labor Law (3)** **Staff**  
Selected problems of governmental regulation of the labor-management relationship. Prerequisite, permission.

**PUBLIC FINANCE AND TAXATION**

- 550 Public Finance (3)** **Hall**  
Fiscal policy instrumentalities and comparative effects on income and employment; limitations of fiscal policy; review of current literature. Prerequisite, permission.
- 551 Public Finance (3)** **Hall**  
Special problems in the fields of taxation and public debt; review of current literature. Prerequisite, permission.

**ECONOMIC HISTORY**

- 561 European Economic History (3)** **Morris**  
Emphasis on the period since 1750. Prerequisite, permission.
- 562 American Economic History (3)** **North**  
Emphasis on the theoretical issues involved in American economic development.

**INTERNATIONAL TRADE**

- 571 International Trade Theory (3)** **Huber**  
Modern developments in national income theory and welfare economics with relation to international trade. Prerequisite, permission.
- 572 International Economic Policies (3)** **Holzman**  
Problems of foreign trade and exchange controls, and international monetary policies. Prerequisite, permission.

**NATIONAL ECONOMIES**

- 595 Soviet Economics (3)** **Holzman**  
Analysis of problems of economic measurement, economic development, optimum resource allocation, national income, and planning in the Soviet Union. Prerequisite, permission.

**STATISTICS AND ECONOMETRICS**

- 580 Econometrics (3)** **Zellner**  
Study of empirical significance of economic theory and related methodological problems.

**GENERAL**

- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

**EDUCATION, PREPROFESSIONAL PROGRAM**

**Adviser, 121 Miller Hall**

Freshman students who expect to teach, and who either have not met all the requirements for admission to the College of Education or have not decided which subjects they intend to teach, may register as pre-education students in the

College of Arts and Sciences. Students in this category should check with an adviser in the College of Education in order to follow the regular course of that college. In the advisory conferences, students are advised on procedures for gaining admission to the College of Education and are given help in selecting courses and suitable combinations of teaching subjects. Detailed requirements of the College of Education are given in the *College of Education Bulletin*.

#### NOTE FUTURE CHANGES

Changes may be made in the basis of certification subsequent to publication of this bulletin. Students are urged to obtain the latest information before registering.

## ENGLISH

**Executive Officer: ROBERT B. HEILMAN, 107 Parrington Hall**

The Department of English offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. It also offers the same degrees in General and Comparative Literature (see page 116). General Literature courses in the Department of English may be taken for credit toward degrees in English.

For undergraduate students, the Department provides two elective curricula leading to the bachelor's degree, one in composition and advanced writing, the other in language and literature. In addition, it provides a first teaching area, two second teaching areas, and a basic academic field for students in the College of Education.

The first-year composition courses, English 101, 102, and 103, are College of Arts and Sciences requirements and may not be counted toward a major in English. English 101 or its equivalent is a prerequisite for all courses except 267, 269, 272, and 273, which are especially recommended for students majoring in other fields.

### BACHELOR OF ARTS

**CURRICULUM IN ADVANCED WRITING.** At least 50 credits in English are required. Courses must include: English 258, 264 or 370; 377 or 374; 448 or 449; one course from 404, 406, 413, 414, 415, and 466; 6 credits from 251, 252, 253, 261, 262, 263, 277, 278, 328, and 329; and 15 credits in advanced writing courses numbered above 300, 10 of these in consecutive courses. The remaining credits may be obtained in courses in advanced writing, literature, and related fields.

**CURRICULUM IN LITERATURE.** At least 50 credits in English are required. Courses must include: English 257 or 258; 351; 370; one course from 344, 345, 367, 368, and 369; one course from 374, 375, 377, 378, and 379; one course from 361, 362, and 363; and 10 credits in courses which continue or are closely related in period or subject matter to two of those already chosen. The remaining credits may be obtained in upper-division courses in literature and advanced writing, and in courses in foreign literature in translation offered by other language departments.

### ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Candidates for advanced degrees in English must have the equivalent of an undergraduate major in English.

**MASTER OF ARTS.** Candidates must complete a program of 45 credits, including 10 credits in one period or type of literature and a maximum of 10 credits for thesis. Not more than 10 credits may be in 400-level courses. Those who wish to take a minor may, with the permission of the Department, include in the total credit requirement a maximum of 10 credits in a related field; these credits

must be at the 400 or 500 level. Courses required for a major in literary history are: English 505, 507, and either 509 or 547; in literary criticism: English 505, 507, 508, and 509; in rhetoric: English 505, 509, 530 or equivalent, and 547; in language: English 505, 530, and 10 credits in Old or Middle English; in advanced writing: English 505 or 507, 509, and 10 credits in advanced writing. Candidates in the fields of literary history, literary criticism, or language may elect a thesis program or a nonthesis program. However, they must register initially for a nonthesis program; they can transfer to a thesis program by having a prospectus for a thesis approved by the Graduate Studies Committee. Candidates in rhetoric must secure permission for the nonthesis program. Candidates in advanced writing must either present a thesis or submit a piece of original writing.

The requirement for a minor in English for a master's degree is 20 credits in undergraduate and graduate work combined, plus 10 credits in graduate courses earned in residence.

**DOCTOR OF PHILOSOPHY.** Candidates must show a reading knowledge of two foreign languages (usually French and German, though upon approval of the Graduate Studies Committee and the Graduate School a substitute for either may be offered). One language requirement must be met before the completion of 45 credits; no student who has completed 60 credits may proceed faster than 5 credits per quarter if both language requirements have not been fulfilled.

A minimum of 90 credits must be completed before the general examination. Not more than 10 credits may be in 400-level courses. A maximum of 20 credits may be taken in courses given by other departments. Courses required for a major in literary history are: English 505, 507, either 508 or 509, 530, and 531; in literary criticism: English 505, 507, 508, 509, 530, and 531; in rhetoric: English 505, 507, 509, 530, 547, and 553; in language: English 505, 530, 531, 532, 10 credits in one field of language study, and 10 credits in linguistics in one language other than English. A Ph.D. in advanced writing is not offered, but Ph.D. candidates in other curricula are allowed 10 credits in advanced writing and may petition for 10 additional credits.

The general examination includes an oral examination and three days (six to eight hours each) of written examinations on (1) Chaucer, Shakespeare, and Milton; (2) one literary genre; and (3) twelve major figures from three of the following fields (four from each of three fields): (a) English literature to 1550, (b) 1550-1660, (c) 1660-1800, (d) 1800-present, (e) American literature.

In the oral examination, questions are based (1) on the written examination and related topics, and (2) on a five-thousand-word critical essay in the candidate's field of specialization, which is to be written and submitted in the first three weeks of the quarter in which he takes the examination. The essay must be a study of an assigned literary work or problem in the candidate's field; any approach or technique, critical or scholarly, may be used, but a reasoned judgment is required. It will be read before the oral examination by all members of the examining committee and will be evaluated for its style and organization as well as its content.

The candidate should not rely entirely on formal course work in preparation for this general examination but should do a considerable amount of preparation in private study. At least six months before the beginning of the quarter in which he will take the examination, the candidate must announce in writing to the Graduate Studies Committee his intention of taking the examination. Candidates are expected to present themselves for the examination within three regular quarters after the completion of their course work, unless they have been granted a postponement by the Graduate Studies Committee. The subject of the dissertation must be approved by the Graduate Studies Committee of the Department before the candidate begins work on it.

The requirement for a minor in English for the doctor's degree is 20 credits in undergraduate and graduate work combined, plus 20 credits in graduate courses. At least half the credits must be in courses numbered 500 or above and at least 10 earned in residence.

Courses leading to the degrees of Master of Arts and Doctor of Philosophy with specialization in general and comparative literature are offered through the General and Comparative Literature program (see page 116).

## COURSES FOR UNDERGRADUATES

- 50 Basic Grammar (0)** **Leggett**  
For students who fail in entrance tests for 101. Refresher training in the fundamentals of correct English usage, spelling, grammar, punctuation, sentence structure, use of words. See *Evening Classes Bulletin*.
- 101, 102, 103 Composition (3,3,3)** **Leggett**  
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form.
- 150 Elementary English for Foreign Students (5)** **Staff**
- 151 Intermediate English for Foreign Students (5)** **Staff**
- 251, 252, 253 Factual Writing (3,3,3)** **Staff**  
251: biographical and informational writing; 252: opinion writing; 253: term papers and reports. Prerequisites, 101, 102, and 103, or equivalent.
- 257 Introduction to Poetry (5)** **Zillman**  
Poetry as an art; its relationship to other arts and to the creative mind. No verse writing required.
- 258 Introduction to Fiction (5)** **Staff**  
Analysis of short stories and novels.
- 261, 262, 263 Verse Writing (5,5,5)** **Roethko**  
Prerequisites, 101, 102, and 103.
- 264, 265, 266 Literary Backgrounds (5,5,5)** **Staff**  
264, 265: content, literary forms, and historical relations of important English classics; 266: backgrounds of the twentieth century.
- 267, 269 Survey of American Literature (3,3)** **Davis, Hilen, Phillips**  
267: ideas in American literature; 269: American fiction.
- 272, 273 Introduction to Modern Literature (3,3)** **Hall**  
Essays, poetry, novels, and plays. No credit to students who have taken 404, 406, or 466.
- 277, 278 Narrative Writing (3,3)** **Staff**  
Prerequisites, 101, 102, and 103, or equivalent.
- 301 The Bible as Literature (5)** **Fowler**
- 303 Advanced English for Foreign Students (3)** **Staff**
- 320 Modern Poetry (5)** **Zillman**  
Backgrounds and tendencies of the period 1900 to 1920.
- 328, 329 Dramatic Composition (3,3)** **Redford**  
Experimental creative work. Prerequisites, 101, 102, and 103, or equivalent.
- 344, 345 Eighteenth-Century Literature (5,5)** **Cornu, Hoover**  
344: Swift, Pope, Defoe, Addison, and Steele; 345: Doctor Johnson and his circle; the preromantics.
- 350 Old English Literature in Translation (5)** **Staff**
- 351 Chaucer and His Contemporaries (5)** **Ethel, Hamilton, Person**
- 352 Romances and Folk Literature (5)** **Fowler**
- 353, 354 English Literature: 1476-1642 (5,5)** **Adams**  
353: the Renaissance; 354: non-Shakespearean Elizabethan drama. (Offered alternate years; offered 1960-61.)
- 361, 362, 363 American Literature (5,5,5)** **Blankenship, H. Burns, Davis, Hilen, Phillips**  
361: Colonial literature and the early Romantics; 362: Emerson, Thoreau, Hawthorne, Melville, and Whitman; 363: Twain, Howells, and James.
- 367, 368, 369 Seventeenth-Century Literature (5,5,5)** **Ethel, Leggett, Stein**  
367: the metaphysical poets (chiefly Donne, Herbert, Marvell); Bacon, Browne, Burton; 368: Milton, the major poems, selected prose; 369: Dryden; other Restoration poetry, drama, prose.
- 370, 371, 372 Shakespeare (5,5,5)** **Adams, Hamilton, Matchett, Pellegrini, Stirling**  
370: introduction; 371: comedies and histories; 372: tragedies and romances. Prerequisite, 370 for 371 and/or 372.
- 374, 375, 376 Late Nineteenth-Century Literature (5,5,5)** **Brown, W. Burns, Korg, Winther**  
374, 375: poetry; 376: prose.
- 377, 378, 379 Early Nineteenth-Century Literature (5,5,5)** **Bostetter, Zillman**
- 380, 381, 382 Old English Language (5,5,5)** **Staff**
- 387 English Grammar (3)** **Emery**

- 388 Current English Usage (3)** Perrin  
Principles for deciding what constitutes good English in an individual's speech and writing.
- 390, 391, 392 Major Conference (3,3,3)** Staff
- 401 The Popular Ballad (5)** Fowler  
Extensive reading of the English and Scottish popular ballads. Study of the origin, transmission, main themes, and music of the ballad form.
- 404 Modern European Literature (5)** Hall
- 406 Modern English Literature (5)** Hall
- 410, 411, 412 Advanced Verse Writing (5,5,5)** Roethke
- 413, 414, 415 Types of Contemporary Poetry (5,5,5)** Roethke
- 417 History of the English Language (5)** Person  
Growth and development of the English language from Anglo-Saxon times to the present. Open to sophomores.
- 424, 425 Types of Dramatic Literature (5,5)** Heilman  
Analysis of dramatic structures. Tragedy and comedy. (Offered alternate years; offered 1960-61.)
- 431, 432 Advanced Factual Writing (5,5)** Harris  
Work in nonfictional forms, including short biography, historical narrative, and opinion writing. Prerequisite, permission.
- 437, 438 Advanced Short Story Writing (5,5)** Gould, Harris, Redford  
Prerequisites, 277, 278, or permission.
- 440, 441 Social Ideas in Literature (5,5)** Adams  
Model commonwealths; literature and society. (Offered alternate years; offered 1959-60.)
- 447, 448, 449 The English Novel (5,5,5)** W. Burns, Hall, Heilman, Winther
- 456, 457, 458 Novel Writing (5,5,5)** Staff  
Prerequisites, 277, 278, or permission.
- 466 Modern American Literature (5)** Blankenship, Davis, Hall, Phillips  
The beginning of realism; tendencies from 1900 to 1915; contemporary fiction and poetry.
- 484, 485 Advanced Writing Conference (3-5,3-5)** Staff  
Revision of manuscripts. Preliminary work on writing projects should be completed before entrance. Prerequisite, permission.
- 489 English Prose Style (5)** Perrin  
Analysis of the traits of language that contribute to the effect of writings in prose.

## COURSES FOR GRADUATES ONLY

- 505 Graduate English Studies (5)** Davis, Stirling, Taylor
- 507, 508 Literary Criticism (5,5)** Brown, H. Burns, Jones, Winther
- 509 Methods of Contemporary Criticism (5)** Bostetter, Hall, Jones, Stein
- 510, 511, 512 The Renaissance and Spenser (5,5,5)** Adams, Hamilton, Stirling
- 513 Shakespeare's Dramatic Contemporaries (5)** Adams
- 515, 516 Chaucer (5,5)** Fowler  
515: poems; 516: *Canterbury Tales*.
- 517, 518, 519 Shakespeare (5,5,5)** Hamilton, Matchett, Stirling  
517: comedies; 518: tragedies; 519: histories.
- 521, 522, 523 Seventeenth-Century Literature (5,5,5)** Stein  
521: studies in poetry or prose; 522: Donne; 523: Milton.
- 524, 525, 526 American Literature (5, maximum 10), (5, maximum 10), (5, maximum 10)** Blankenship, Davis, Eby, Hilen, Phillips
- 527, 528 Studies in Medieval Literature (5,5)** Fowler  
527: poetry; 528: Arthurian romance.
- 530 The English Language (5)** Reed  
A historical and descriptive survey.
- 531 Introductory Reading in Old English (5)** Person
- 532 Advanced Reading in Old English (5)** Person
- 533 Foundations of American English (3)** Reed  
History and present state of American English.
- 534 American English Dialectology (3)** Reed  
Research methods, history, and analysis.
- 538, 539, 540 Early Nineteenth-Century Literature (5,5,5)** Bostetter, Zillman
- 541, 542, 543 Victorian Literature (5, maximum 10), (5, maximum 10), (5, maximum 10)** Brown, W. Burns, Korg, Winther



544, 545, 546 Eighteenth-Century Literature (5,5,5)	Cornu, Hoover
547 Rhetoric (5)	Perrin
548 Twentieth-Century Literature (5)	Hall
553 Current Rhetorical Theory (5)	Perrin
586 Graduate Writing Conference (5)	Harris, Redford
599 Special Studies in Literature (5, maximum 15)	Staff
600 Research (*)	Staff
700 Thesis (*)	Staff

## FAR EASTERN AND RUSSIAN INSTITUTE

Director: GEORGE E. TAYLOR, 406 Thomson Hall

The Far Eastern and Russian Institute integrates graduate and undergraduate instruction and research in Far Eastern and Russian studies, provides special library facilities, and cooperates in research with other institutes in America and abroad.

The Institute offers courses in the field of the social sciences. For undergraduate students specializing in Far Eastern and Russian studies, these courses are part of a degree program offered through the Department of Far Eastern and Slavic Languages and Literature (see page 109). Graduate degree programs in Far Eastern and Russian studies are also available in that department, and graduate degrees in the social sciences (with Far Eastern and Russian emphasis) are sponsored by the Institute in cooperation with the Departments of Anthropology, Economics, Geography, History, Political Science, and others. In the programs leading to these degrees, graduate students receive an education in the methodology and main aspects of their studies, combined with a study of the countries of the Far East and the application of their studies to the Far East. Joint degrees are described in the curricula announcements of the respective departments.

The Far Eastern and Russian Institute established three research projects: a Modern Chinese History project, which analyzes Chinese society in transformation from about 1800 to the present; an Inner Asia project, which studies the societies of Mongolia, Tibet, and Turkestan and the Chinese and Russian impact on these societies; and a Russia in Asia project, which studies the tsarist and Soviet development of Asiatic Russia and the Russian and Soviet impact on the Far East. The last project has terminated its work and at present a faculty Russia seminar is endeavoring to make new plans for future research on Russia and the U.S.S.R.

In each of these projects, faculty members from various disciplines work together in cooperative programs of research. A number of graduate students have the opportunity to participate in the research through special studies of their own and to profit from the advice and criticism of faculty members working on the projects. The Far Eastern and Russian Institute has a limited number of research fellowships which are given to especially qualified graduate students.

## COURSES FOR UNDERGRADUATES

- 110 The Far East in the Modern World (5)** Maki, Michael, Taylor, Williston  
Social, economic, and political problems of China, Japan, Korea, the Philippines, Indonesia, and Southeast Asia. Includes the development of Russia as an Asiatic power as well as the role of the Western powers in the Far East. For freshmen and sophomores; juniors and seniors should take 310 rather than 110, if possible.
- 240 Chinese Civilization (5)** Shih  
China's material civilization, including fine arts, literature, religion, and thought in relation to the general development of Chinese society.
- 242 Korean Civilization (3)** Williston  
Korea's material civilization, including fine arts, literature, religion, and thought in relation to the general development of Korean society.
- 243 Russian Civilization (5)** Spector  
Russia's material civilization, including fine arts, literature, religion, and thought in relation to the general development of Russian society.

- 290 History of China (5)** **Williston**  
Chinese history from earliest times to the present, with emphasis on the development of Chinese society
- 292 History of Korea (5)** **Williston**  
Korean history from earliest times to the present, with emphasis on the modern period.
- 296J History of Japanese Civilization (5)** **Staff**  
A survey of political, economic, social, intellectual, literary, and artistic developments in Japan from earliest times to the present. Offered jointly, in alternate years, with the Department of History; offered 1959-60. Not open to students who have taken 241 or 291.
- 303J Asia (5)** **Earle, Kakiuchi**  
*Geography.* The historical and current patterns and development of human settlement and activities, primarily in Monsoon Asia. Regional frameworks; resources; problems of urban and agrarian development, industrialization, and economic growth. Offered jointly with the Department of Geography.
- 310 The Far East in the Modern World (5)** **Maki, Michael, Taylor, Williston**  
Social, economic, and political problems of China, Japan, Korea, the Philippines, Indonesia, and Southeast Asia. Includes the development of Russia as an Asiatic power as well as the role of the Western powers in the Far East. Juniors and seniors should take this course in place of 110 if possible. Credit cannot be received for both 310 and 110.
- 314J Peoples of Central and Northern Asia (3)** **Posch**  
An ethnological survey of Tibet, Mongolia, Turkestan, and Siberia. Offered jointly with the Department of Anthropology. Prerequisite, major standing in Anthropology or Far Eastern, or permission.
- 316 History of Southeastern Asia (5)** **Williston**  
A study of the impact of India, China, and the West upon native cultures of Burma, Siam, Indo-China, British Malaya, Indonesia, and the Philippines. The evolution of social, political, and economic institutions.
- 329 Russia and the Moslem World (5)** **Spector**  
The land and peoples, religion, culture, customs, and historical background, with special emphasis on the Near East and on Russian relations with the Near East from 1453 to the present.
- 332J Islands of the Pacific (3)** **Earle**  
*Geography.* An analysis of major Pacific islands and island groups with respect to their resources, settlement, population composition; role in modern transportation and communications, current political status. Offered jointly with the Department of Geography.
- 333J The Soviet Union (3)** **Jackson**  
*Geography.* Natural resources with particular reference to current and potential developments in agriculture, other extractive industries, manufacturing, and trade; status and problems of transportation; trends in the distribution of population. Offered jointly with the Department of Geography.
- 335J Japanese Foreign Policy in Asia (3)** **Maki**  
Analysis of modern Japanese expansion in Asia; Japanese political, diplomatic, and economic impact on Asia; the "Greater East Asia Co-Prosperity Sphere." Offered jointly with the Department of Political Science. Prerequisites, Political Science 201, 202, or permission.
- 345J Japanese Government (3)** **Maki**  
Premodern Japanese government; characteristics of Japanese government from 1868 to 1945; governmental changes since 1945. Offered jointly with the Department of Political Science. Prerequisites, Political Science 201, 202, or permission.
- 378 Russia in Asia (3)** **Posch**  
Relations of tsarist Russia and the Soviet Union with eastern Asia. (Offered alternate years; offered 1960-61.)
- 401 Marxism, Leninism, Stalinism, and "Maoism" (3)** **Wittfogel**  
A critical survey of Marxism, Leninism, Stalinism, and "Maoism" as ideologies and guides to action. The historical development and the institutional meaning of Communist thought.
- 410 Far Eastern Workshop (3)** **Staff**  
Far Eastern teaching methods and materials. Offered Summer Quarter only.
- 412J South Asia (5)** **Murphey**  
*Geography.* An analysis of the origins, development, and present outlines of settlement, cultures, resource use, and economic structure in the Indian sub-continent, the Indo-Chinese peninsula, and insular Southeast Asia. Offered jointly with the Department of Geography.
- 413J The Far East (5)** **Kakiuchi, Murphey**  
*Geography.* The nature and geographic setting of Far Eastern civilization with particular reference to the origins, development, and present outlines of settlement, cultures, resource use, and economic structures in China, Japan, and Korea. Offered jointly with the Department of Geography.
- 421J Kievan and Muscovite Russia, 850-1700 (5)** **Treadgold**  
Survey of the development of Russia from the earliest times to the reign of Peter the Great. Offered jointly with the Department of History.
- 422J Imperial Russia, 1700-1905 (5)** **Treadgold**  
Survey of the development of Russia from the reign of Peter the Great to the reign of Nicholas II. Offered jointly with the Department of History.

- 423J Twentieth-Century Russia (5)** **Treadgold**  
Survey of Russia and the U.S.S.R. from the reign of Nicholas II to the present. Offered jointly with the Department of History.
- 424J Russian Revolutionary Movement (5)** **Treadgold**  
Intellectual and political aspects of Russian opposition to tsarism from 1825 to 1917. Offered jointly with the Department of History.
- 429 The Soviet Union and the Moslem World (5)** **Spector**  
Soviet-Moslem relations with emphasis on Turkey, Iran, Afghanistan, Pakistan, and the Arab States.
- 430 Survey of Mongol Culture (3)** **Poppe**  
Mongolian nomadic culture and tribal organization in ancient times; present state and cultural life of Mongolia. (Offered alternate years; offered 1959-60.)
- 431 Tibetan Cultural History (5)** **Wylie**  
A survey of the political, religious, and cultural history of Tibet from earliest times down to the present.
- 433J Problems in the Geography of the Soviet Union (3 or 5)** **Jackson**  
*Geography.* The analysis of geographical aspects of selected agricultural, industrial, and other contemporary developments in the Soviet Union. Lectures, 3 credits; independent study, 2 additional credits, with permission of instructor. Offered jointly with the Department of Geography. Prerequisite, 333J or permission.
- 434J Problems in the Geography of Southeast Asia (5)** **Earle**  
*Geography.* An analysis of regional and political structures; resources, economic activities, and problems of development; overseas and internal relationships. Offered jointly with the Department of Geography.
- 435J Problems in the Geography of China (5)** **Murphey**  
*Geography.* China as a geographic problem; origins and development of Chinese civilization in its geographic base and its areal spread; political China and the Chinese sphere; physical base and resources; problems of agriculture, population, industrialization, urbanization, transportation, and contemporary development; Communist China. Offered jointly with the Department of Geography.
- 437J Problems in the Geography of Japan (5)** **Kakiuchi**  
*Geography.* Regional structure of Japanese urban, industrial, and agricultural geography. An analysis of contemporary geographic patterns considering cultural and physical factors and selected aspects of their historical development. Offered jointly with the Department of Geography.
- 443 Chinese Social Institutions (5)** **Hsiao**  
(Offered alternate years; offered 1959-60.)
- 444 Chinese History: Earliest Times to 221 B.C. (5)** **Wilhelm**  
History of pre-imperial China. (Offered alternate years; offered 1960-61.)
- 445 Chinese History: 221 B.C. to 906 A.D. (5)** **Wilhelm**  
History of the development of the imperial Chinese state. (Offered alternate years; offered 1960-61.)
- 446 Chinese History: 906 A.D. to 1840 A.D. (5)** **Wilhelm**  
History of the Wu Tai, Sung, Yuan, Ming, and early Ch'ing periods. (Offered alternate years; offered 1960-61.)
- 447 Modern Chinese History (5)** **Michael, Taylor**  
Modern Chinese society from 1840 to the present. Prerequisite, 110 or 310.
- 450 Survey of Turkic Culture of Central Asia (3)** **Posch**  
The nomadic culture of the Turks of Central Asia, their history, social organization, present state and cultural life under Soviet Russia's or China's dominance. Prerequisites, 110 or 310, Anthropology 202, or permission.
- 451J History of Chinese-Japanese Relations (3)** **Staff**  
Cultural, political, economic influence in the nineteenth and twentieth centuries. (Offered jointly, in alternate years, with the Department of History; offered 1959-60.)
- 452J Early Japanese History (5)** **Staff**  
Dominant trends in the development of Japan from the earliest times to 1600 A.D. Offered jointly with the Department of History.
- 453J Tokugawa Period (5)** **Staff**  
Political system, economic problems, and intellectual currents in Japan from 1600 to 1868. Offered jointly with the Department of History.
- 454J Modern Japanese History (5)** **Staff**  
The development of Japan from feudal to modern state; effects of war and occupation. Offered jointly with the Department of History.
- 455 Studies in Japanese Buddhism (3)** **Hurvitz**  
Primitive Buddhism and its transmission through China and Korea; the development of the major sects; the Kamakura revival; Zen. (Offered alternate years; offered 1960-61.)
- 490 Undergraduate Seminar on China (3)** **Williston**  
Principal literature of China in Western languages; introduction to the methodology of Chinese studies and historiography. Prerequisite, permission.
- 499 Undergraduate Research (3-5, maximum 15)** **Staff**  
For Far Eastern majors. Prerequisite, permission.

*The following courses may be used for credit toward a Far Eastern major:*

- Anthropology 317** Ethnology of Southeast Asia (3)  
**Art 382** Art of India (3)  
**Art 383** Art of China (3)  
**Art 384** Art of Japan and Korea (3)  
**Art 390** Oriental Ceramic Art (2)  
**Economics 492** Economic Problems of the Far East (5)  
**Economics 493** Economic Problems of China (5)  
**Economics 495** The Economy of Soviet Russia (5)  
**Philosophy 428** Chinese Philosophy (5)  
**Political Science 344** Chinese Government (5)  
**Political Science 414** Oriental Political Thought (5)  
**Political Science 420** Foreign Relations of the Soviet Union (5)  
**Political Science 429** International Relations in the Far East (5)  
**Political Science 432** American Foreign Policy in the Far East (5)  
**Political Science 441** Political Institutions of the Soviet Union (5)

## COURSES FOR GRADUATES ONLY

- 504J Research Seminar: Japan (3, maximum 6)** Kakiuchi  
*Geography.* Offered jointly with the Department of Geography.
- 505J Research Seminar: China and Northeast Asia (3, maximum 6)** Murphey  
*Geography.* Offered jointly with the Department of Geography.
- 506J Research Seminar: Southeast Asia (3, maximum 6)** Earle  
*Geography.* Offered jointly with the Department of Geography.
- 507J Research Seminar: Soviet Union (3, maximum 6)** Jackson  
*Geography.* Offered jointly with the Department of Geography.
- 519J Seminar on Asia (3, maximum 6)** Posch, Wilhelm  
 (Offered jointly, in alternate years, with the Department of Anthropology; offered 1960-61.)
- 520J Seminar on the Foreign Policy of the Soviet Union (3)** Reshetar  
 Offered jointly with the Department of Political Science.
- 521, 522, 523 Seminar on Modern Asian History (3,3,3)** Taylor, Staff
- 525, 526 Seminar on Far Eastern Diplomacy (3,3)** Williston
- 530, 531 Seminar on China (3,3)** Wilhelm  
 Chinese historiography. Prerequisite, permission.
- 533 Seminar on Chinese Society (4)** Wittfogel, Staff  
 Comparative institutional analysis of representative periods and key aspects of Chinese society. (Offered when demand is sufficient.)
- 534J Modern European History: Russia (3-6)** Treadgold  
 Offered jointly with the Department of History.
- 535J-536J-537J Seminar in Russian History (3-6)-(3-6)-(3-6)** Treadgold  
 Seminar in modern Russian history. (Offered jointly, in alternate years, with the Department of History; offered 1960-61.) Prerequisites, reading knowledge of Russian and permission.
- 538 Seminar on Modern China (3)** Michael  
 Studies of problems in Chinese government, politics, ideology, and social and economic issues from 1911 to the present.
- 541J The Soviet Political System (4)** Reshetar  
 Critical appraisal of the principal research methods, theories, and types of literature dealing with the government and politics of the Soviet Union. Offered jointly with the Department of Political Science.
- 542J Personality Patterns in Japanese Culture (3)** Passin  
 The nature and content of Japanese social life as it bears upon Japanese character. Offered jointly with the Department of Anthropology.
- 543 Seminar on Russia in Asia (3)** Posch  
 Selected topics on relations of Russia and the Soviet Union with Asia. (Offered alternate years; offered 1960-61.) Prerequisite, permission.
- 545J Seminar on Japanese Government and Diplomacy (3, maximum 6)** Maki  
 Offered jointly with the Department of Political Science.
- 549J Japanese History (3-6)** Staff  
 Field course in Japanese history. (Offered jointly, in alternate years, with the Department of History; offered 1959-60.)

- 550J-551J-552J Seminar in Japanese History (3-6)-(3-6)-(3-6)** **Staff**  
 (Offered jointly, in alternate years, with the Department of History; offered 1960-61.)  
 Prerequisite, reading knowledge of Japanese.
- 553J Analysis of Linguistic Structures (3)** **Jacobs, Li**  
 Offered jointly with the Department of Anthropology.
- 598 Inner Asia Research Colloquium (5, maximum 15)** **K. Chang, Li, Poppe, Posch, Wilhelm**
- 599 Colloquium on Chinese History Research (5, maximum 15)** **Hsiao, Michael, Shih, Taylor, Wilhelm**  
 Research seminar on the Modern Chinese History project dealing with various aspects of Chinese society of the nineteenth and twentieth centuries. Prerequisite, permission.
- 600 Research (\*)** **Staff**  
 Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

*The following course may be used for credit toward a Far Eastern major:*

**Economics 595 Soviet Economics (3)**

## FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE

**Executive Officer: GEORGE E. TAYLOR, 406 Thomson Hall**

The Department of Far Eastern and Slavic Languages and Literature works closely with the Far Eastern and Russian Institute and the two course programs are supplementary. Courses given by the Department carry credit in the humanities; those given by the Institute carry credit in the social sciences.

The Department offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. For undergraduate students, the Department offers three elective curricula: a general curriculum, sponsored by the Institute, for students interested in a survey of Far Eastern and Slavic subjects; an area curriculum for students who want to specialize in a particular geographical area and language; and a language curriculum for students who are interested in a particular Far Eastern or Slavic language or who plan to enter professional language work or to continue their linguistic studies as graduate students.

First and second areas of concentration for the Provisional General Teaching Certificate are offered in Russian language and literature. A secondary area of concentration in Far Eastern studies is also offered.

### BACHELOR OF ARTS

**GENERAL CURRICULUM.** The requirements are: Far Eastern 110 or 310; 45 credits in Far Eastern subjects excluding language courses; and at least 20 credits in one of the social sciences or humanities.

**AREA CURRICULUM.** The requirements are: Far Eastern 110 or 310; 30 credits in either Chinese, Japanese, Korean, or Russian; 15 credits in other Far Eastern subjects, exclusive of languages; and at least 20 credits in one of the social sciences or humanities.

**LANGUAGE CURRICULUM.** The requirements are: Far Eastern 110 or 310; 45 credits in Chinese, Japanese, or Russian, including Russian 410, 411, and 485 or Slavic 491; and 20 credits in courses dealing with the civilization and history of the people who speak the elected language and of the Far East in general.

Literature courses in English count as Far Eastern and not as language credits.

### ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

Graduate students who are required to take intensive Chinese or Russian (10-credit courses) must obtain the written approval of the head of the Department and the approval of the Graduate School should their program call for more than 15 credits.

**MASTER OF ARTS.** The Department of Far Eastern and Slavic Languages and Literature offers the Master of Arts degree in Far Eastern and Slavic languages and literatures and in Far Eastern and Russian regional studies. For all degrees, 45 credits plus thesis are required.

A candidate for regional studies is usually expected to take course work in five disciplines, with a minimum of 12 credits in seminars. For example, in Russian regional studies, a candidate will take course work in any five of the following disciplines: anthropology, economics, geography, history, language and literature, and political science. The candidate will select one of the five as his principal discipline. A working knowledge of the Russian language is required for Russian regional studies.

**DOCTOR OF PHILOSOPHY.** The Department of Far Eastern and Slavic Languages and Literature offers a program leading to the Doctor of Philosophy degree with a specialization in any of the languages or literatures for which the Department is responsible and for which there are available the staff, curriculum, and library holdings necessary for research on the doctoral level.

Students interested in working for this degree must have, as a minimum requirement for beginning their programs, the equivalent of a strong undergraduate major in any language or literature or in Far Eastern or Russian area studies.

Each candidate must present a program covering four fields of study. The fields may be in a single language and literature for which the Department is responsible or in a combination of such languages and literatures, or in a combination of three fields within the Department plus a field in either linguistics or comparative literature.

All candidates are expected to be familiar with the history, society, and culture of the country in whose language or literature they are specializing. In cases where it would be appropriate, a field may be approved in another discipline dealing with the area involved.

## COURSES FOR UNDERGRADUATES

### CHINESE

- 101 Chinese Language, Intensive A (10)** **K. Chang, Li**  
Introduction to the sounds and structure of modern Chinese (Mandarin) by inductive method. After a certain familiarity with the language is acquired the students are introduced to the Chinese writing.
- 206 Chinese Language, Intensive B (10)** **K. Chang, Li**  
Continuation of 101. Prerequisite, 101.
- 301 Chinese Language, Intensive C (10)** **K. Chang, Li**  
Continuation of 206. Rapid learning of Chinese characters and reading of texts. Students should learn about fifteen hundred characters by the end of the year. Prerequisite, 206.
- 402, 403, 404 Advanced Modern Chinese (5,5,5)** **Yang**  
402: selected readings in modern Chinese literature. 403: selected readings in the fields of philosophy, history, and political science. 404: readings in newspaper Chinese. Prerequisite, 301 or equivalent.
- 405, 406, 407 Classical and Documentary Chinese (5,5,5)** **Reifler**  
Syntactical analysis, translation from literary Chinese into English and vice versa. To be taken in sequence only. Prerequisite, 301 or equivalent.
- 408 Chinese Reference Works and Bibliography (3)** **Wilhelm**  
Introduction to the methodology of Sinology. (Offered alternate years; offered 1960-61.) Prerequisite, 301 or equivalent.
- 430 Readings in Chinese Philosophical Texts (5)** **Shih**  
Prerequisite, permission. (Offered alternate years; offered 1959-60.)
- 455, 456, 457 Chinese Literature (5,5,5)** **Wilhelm**  
455: lectures on Chinese literature from the earliest time to the end of Han. 456: lectures on Chinese literature from the end of Han to the end of T'ang. 457: lectures on Chinese literature since T'ang times. (Offered alternate years; offered 1959-60.) Prerequisite, 301 or equivalent.
- 499 Undergraduate Research (3-5, maximum 15)** **Staff**  
For Far Eastern majors. Prerequisite, permission.

## JAPANESE

- 101-102, 103 First-Year Conversational Japanese (5,5,5)** **Tatsumi**  
Introduction to conversation, pronunciation, oral composition, and grammar; reading of romanized Japanese; conversation, composition, and grammar; introduction to *kana* syllabaries and Chinese characters.
- 210, 211, 212 First-Year Reading Japanese (5,5,5)** **McKinnon**  
Reading and translation of modern Japanese. Prerequisites, 101-102 or permission for 210, or this series may be taken concurrently with 101-102, 103; 210 for 211; 211 for 212.
- 251, 252, 253 Second-Year Conversational Japanese (5,5,5)** **Tatsumi**  
Advanced conversation, grammar, and composition; introduction to literary and epistolary styles; introduction to calligraphy. Prerequisite, 212.
- 301, 302, 303 Second-Year Reading Japanese (5,5,5)** **Hurvitz**  
Reading and translation of primary and secondary source materials in Japanese. Prerequisites, 212 or equivalent for 301; 301 for 302; 302 for 303.
- 401, 402, 403 Advanced Reading Japanese (3,3,3)** **Hurvitz, McKinnon**  
Reading and translation of primary and secondary source materials in Japanese. Prerequisite, 303 or equivalent.
- 460 Readings in Modern Japanese Literature (3-5, maximum 15)** **McKinnon, Staff**  
Readings in nineteenth- and twentieth-century Japanese literature. Prerequisite, permission.
- 499 Undergraduate Research (3-5, maximum 15)** **Staff**  
For Far Eastern majors. Prerequisite, permission.

## KOREAN

- 302-303 Elementary Spoken Korean Language (5-5)** **Suh**
- 304 Intermediate Korean (5)** **Suh**  
Prerequisite, -303 or equivalent.
- 406, 407 Advanced Korean Reading (5,5)** **Suh**  
Korean composition, literature, and advanced reading. Prerequisite, permission.
- 499 Undergraduate Research (3-5, maximum 15)** **Suh**  
For Far Eastern majors. Prerequisite, permission.

## MONGOLIAN

- 302 Introduction to Mongolian (5)** **Poppe**  
(Offered alternate years; offered 1960-61.)
- 303 Modern Mongolian Literary Language (5)** **Poppe**  
Grammar, syntax, and styles of modern Mongolian language based on colloquial. Prerequisite, 302. (Offered alternate years; offered 1960-61.)
- 304 Colloquial Mongolian (5)** **Poppe**  
Grammar of colloquial Mongolian spoken in Outer and Inner Mongolia. Reading of colloquial texts with translation into English; conversation in Mongolian. Prerequisite, 303. (Offered alternate years; offered 1960-61.)
- 305 Classical Mongolian (5)** **Poppe**  
Grammar, syntax, and styles of the Mongolian written language of the seventeenth to twentieth centuries. Prerequisite, 304. (Offered alternate years; offered 1960-61.)
- 499 Undergraduate Research (3-5, maximum 15)** **Poppe**  
For Far Eastern majors. Prerequisite, permission.

## POLISH

- 401, 402 Phonetics, Grammar, and Vocabulary (5-5)** **Micklesen**  
Acquaints the student with the principal morphological and syntactic features of the Polish language through the medium of a basic vocabulary. (Offered alternate years; offered 1960-61.)
- 411 Readings in Polish (5)** **Micklesen**  
Designed to enlarge the student's general vocabulary by the reading of short texts selected from Polish authors of the nineteenth and twentieth centuries. Prerequisite, 402. (Offered alternate years; offered 1960-61.)

## RUSSIAN

- 101 Russian Language, Intensive A (10)** **Gershevsky, Pahn**  
Elementary Russian. Introduction to pronunciation, spelling, graded reading, essentials of grammar, conversation, exercises and drills. Student acquires six hundred-word vocabulary.
- 102-103 Elementary Russian Language (5-5)** **Novikow**  
Introduction to pronunciation, spelling, graded reading, essentials of grammar, exercises. Student acquires six hundred-word vocabulary.
- 104, 105 Russian for Social Scientists (5,5)** **Staff**  
Introduction to written Russian as a research tool for social science majors who will need to use Russian sources. Closed to Russian majors.
- 106 Russian for Science Students (3)** **Staff**  
Introduction to written Russian as a research tool for science students. Readings in chemistry and physics, etc. Closed to Russian majors.

- 107 Scientific Russian, Intensive (10)** **Gershevsky**  
Introduction to written Russian as a research tool for science students only. Readings in chemistry and physics. Closed to Russian majors. Offered Summer Quarter only.
- 204 First-Year Elementary Russian (5)** **Novikow**  
Continuation of 101 or -103. Reading, exercises, grammar. One thousand-word vocabulary. Prerequisite, 101 or -103.
- 206 Russian Language, Intensive B (10)** **Pahn**  
Intermediate Russian. Reading, composition, conversation. Sequel to 101, aimed at increased vocabulary, fluency in conversation and translation. Prerequisite, 101 or -103 or permission.
- 301 Russian Language, Intensive C (10)** **Novikow, Pahn**  
Advanced Russian. Twenty-five hundred-word vocabulary. Conversation, composition, readings in Russian area studies. Prerequisite, 206 or permission.
- 302 Russian Grammar and Composition (5)** **Gershevsky**  
An intensive review and supplementation of students' knowledge of Russian phonetics, intonation, morphology, and syntax. Prerequisite, 301 or permission.
- 303 Advanced Conversation and Composition (5)** **Staff**  
Daily topical conversations and composition, aimed at improving the ability to speak, write, and understand. Prerequisite, 301 or permission.
- 304 Advanced Russian Language (5, maximum 10)** **Gershevsky**  
Scientific Russian. Reading and translation of Russian scientific articles, mainly in the fields of chemistry and physics. Prerequisite, 301 or permission.
- 306 Advanced Conversation and Composition (3)** **Gershevsky, Staff**  
Discussion of themes gathered from reading original Russian material in the field of Russian culture, history, literature, and current events. Prerequisites, 302, 303.
- 307, 308 Russian Reading (5,5)** **Staff**  
Detailed grammatical analysis and close translation of edited texts, plus continuing drill in grammar and pronunciation. Prerequisite, 302 or permission.
- 309 Readings from the Current Soviet Press (5)** **Staff**  
Designed to give intensive training in translating articles from current Soviet publications, with emphasis on political and industrial terminology. Prerequisite, 308 or permission.
- 319 Advanced Russian for Social Scientists (10)** **Staff**  
Advanced readings in social science material, combined with review of grammar and composition. Prerequisite, 30 credits in Russian or equivalent. (Offered Summer Quarter only.)
- 405, 406 Advanced Russian Reading (3,3)** **Staff**  
Grammatical and stylistic analysis of representative samples of Russian imaginative literature and journalism, from the early nineteenth century to the present. Prerequisite, 308 or permission.
- 410, 411 Advanced Russian Grammar and Composition (5,5)** **Erich, Mickleson**  
410: structural description of the Russian noun. 411: structural description of the Russian verb. Prerequisites, 302 and 303.
- 455 Modern Russian Poetry (3)** **Erich**  
A study of Russian poetry in its renaissance, from 1890 to 1925. (Offered alternate years; offered 1959-60.) Prerequisite, 409 or equivalent.
- 458 Contemporary Russian Literary Criticism (3)** **Erich**  
Survey of the recent trends in the Russian study of literature. (Offered alternate years; offered 1960-61.)
- 485 History of Russian Standard Language (5)** **Mickleson**  
An outline of the phonological, morphological, and lexical developments of the Russian literary language from the earliest literary documents to the present time. Prerequisite, 410.
- 499 Undergraduate Research (3-5, maximum 15)** **Staff**  
For Far Eastern majors only. Prerequisite, permission.

#### SERBO-CROATIAN

- 401-402 Phonetics, Grammar, and Vocabulary (5-5)** **Mickleson**  
A comprehensive introduction to both spoken and written literary Serbo-Croatian. (Offered alternate years; offered 1959-60.)
- 411 Reading in Serbo-Croatian (5)** **Mickleson**  
Designed to increase the student's vocabulary and enhance his knowledge of grammar through the reading of short stories in the modern literary idiom. (Offered alternate years; offered 1959-60.) Prerequisites, 401-402.

#### SLAVIC

- 491 Introduction to Slavic Philology (3)** **Mickleson**  
Slavic languages and their geographical and dialectal distribution; Slavic civilization throughout the prehistoric and early historic periods; the principal phonological and morphological features of the Slavic languages as Indo-European languages. Prerequisite, Russian 410.



## TIBETAN

- 302 Introduction to Literary Tibetan (5)** **Wylie**  
Accurate interpretation of Tibetan texts and rapid development of reading ability are emphasized. The reading of an easy popular Tibetan text is accompanied by textual criticism and discussion of grammatical problems. Indic influence on Tibetan language is also discussed.
- 403 Reading in Tibetan Literature (5)** **Wylie**  
Reading of Buddhist Tibetan translations and historical documents. Students should have some knowledge of Chinese and Sanskrit. Prerequisite, 402.
- 404 Tibetan Historical Works (5)** **Wylie**  
Treaties, edicts, annals, and selections from other historical composition will be read and analyzed. Prerequisite, 403.
- 410 Newspaper Tibetan (3)** **Wylie**  
Reading of selections taken from Modern Tibetan newspapers, accompanied by discussion of grammatical and semantical problems. Prerequisite, permission.
- 430 Advanced Literary Tibetan (5)** **Wylie**  
Reading of original Tibetan xylographs, with emphasis on biographical and historical works. Prerequisite, 404 or equivalent.

## TURKIC

- 301, 302, 303 Introduction to Central Asian Turkic (3,3,3)** **Posch**  
Turkic as spoken and written in Central Asia. Recommended to students of the Mongolian, Russian, or Chinese areas. Prerequisite, any foreign language.

## LITERATURE COURSES IN ENGLISH

- Chinese 320 Chinese Literature in English (5)** **Shih**  
A general survey of Chinese literature in English translation with special attention to historical, philosophical, and cultural background; emphasis upon modern literary movements stimulated by China's contact with the West. No knowledge of the Chinese language is required. (Offered alternate years; offered 1960-61.)
- Japanese 420 Classical Japanese Literature in English (3)** **McKinnon**  
Survey of Japanese literature from antiquity to the nineteenth century.
- Japanese 421 Modern Japanese Literature in English (3)** **McKinnon**  
Survey of Japanese literature, chiefly prose fiction, of nineteenth and twentieth centuries.
- Japanese 422 Studies in Japanese Poetry in English (3)** **McKinnon**  
Traditions and techniques of Japanese poetry from earliest times to present. (Offered alternate years; offered 1960-61.)
- Japanese 423 Japanese Drama in English (3)** **McKinnon**  
The principal dramatic forms and techniques of Nō, Kyogen, Joruri and Kabuki. (Offered alternate years; offered 1959-60.)
- Korean 320 Korean Literature in English (5)** **Suh**  
A survey of the historical development of Korean literature. Special consideration will be given to the relationship of Korean literature with Chinese and Japanese literature.
- Mongolian 320 Mongolian Literature in English (5)** **Peppe**  
(Offered alternate years; offered 1959-60.)
- Russian 320 Russian Literature in English (5)** **Spector**  
Introduction to Russian literature from 1782 to the present. Representative prose and poetical works of the foremost Russian and Soviet writers are discussed and analyzed.
- Russian 421 Contemporary Russian Literature in English (5)** **Spector**  
From Gorky to Sholokov.
- Russian 422 Russian Plays in English (5)** **Spector**  
Plays from 1782 to 1948.
- Russian 424 The Russian Symbolists in English (3)** **Erllich**  
Russian poetry and criticism from 1890 to 1910. Open only to majors in a language or literature. (Offered alternate years; offered 1960-61.)
- Russian 425 Dostoevski in English (5)** **Spector**
- Russian 426, 427 The Russian Novel in English (5,5)** **Erllich**  
Discussion of the major works of the nineteenth-century Russian novelists in translation.
- Slavic 320 Polish Literature in English (5)** **Erllich**  
Historical outline of Polish literature from the Middle Ages to our time, in English translation. (Offered alternate years; offered 1960-61.)

## COURSES FOR GRADUATES ONLY

## CHINESE

- 522, 523, 524 Readings in Classical Chinese (5,5,5)** **Reifler**
- 525 Structure of Chinese Characters (5)** **Reifler**

- 526, 527, 528 Studies in Chinese Literature (5,5,5)** **Shih**  
 526: literature of the Chou and Han periods. 527: literature from Wei to T'ang times.  
 528: literature since the end of T'ang. (Offered alternate years; offered 1959-60.)
- 529 Chinese Phonology (3)** **Li**
- 530 Studies in Chinese Prose (5)** **Wilhelm**  
 (Offered alternate years; offered 1959-60.)
- 531 Studies in Chinese Poetry (5)** **Shih**  
 (Offered alternate years; offered 1960-61.)
- 532 Studies in Chinese Drama and Novel (5)** **Shih**  
 (Offered alternate years; offered 1960-61.)
- 535 Chinese Epigraphy (3, maximum 6)** **Reiffler**  
 Introduction to texts in ancient character forms; selected readings of inscriptions on bronzes and oracle bones.
- 536, 537, 538 Readings in Chinese Political Thought and Institutions (5,5,5)** **Hsiao**  
 For students wishing to develop proficiency in using Chinese source material in this subject. Different texts each quarter, selected primarily on basis of students' needs. (Offered alternate years; offered 1960-61.) Prerequisite, 301 or permission.
- 550 Seminar on Chinese Literature (4, maximum 8)** **Shih, Wilhelm**
- 555 Seminar on Chinese Linguistics (3, maximum 9)** **Li**  
 Advanced phonology, problems of archaic Chinese, dialectology; descriptive and historical treatment of Sinitic languages. For advanced students of Chinese or of linguistics. Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

#### JAPANESE

- 522, 523, 524 Readings in Documentary Japanese (5,5,5)** **Hurvitz, McKinnon**  
 Readings in documents of the Tokugawa and Meiji periods in the literary and epistolary styles; introduction to *kambun*. (Offered when demand is sufficient.) Prerequisite, permission.
- 550 Readings in Classical Japanese Literature (3-5, maximum 15)** **Hurvitz, Staff**  
 Readings in prose, poetry, and drama, antiquity to nineteenth century. Prerequisite, permission.
- 570 Seminar in Japanese Literature (3-5, maximum 15)** **McKinnon**  
 Research and writing on problems of literary criterion. Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

#### KOREAN

- 501, 502, 503 Seminar in Korean (3-5,3-5,3-5)** **Suh**

#### MONGOLIAN

- 521 Ancient Mongol: hPhagspa Script (3)** **Poppe**  
 Script and grammar of hPhagspa texts; reading and translation. Prerequisite, 304. (Offered alternate years; offered 1959-60.)
- 522 Mongol Ancient Texts (3)** **Poppe**  
 Grammar and reading of Mongol texts of the fourteenth to seventeenth centuries. Historical texts are emphasized. (Offered alternate years; offered 1959-60.)
- 580 Comparative Grammar of the Altaic Languages (3)** **Poppe**  
 Comparative phonology and morphology of Mongol and Turkic and other related languages. (Offered alternate years; offered 1959-60.)

#### RUSSIAN

- 521 Advanced Russian Syntax (3)** **Poppe**  
 A detailed structural analysis of the sentence types in the Russian literary language with emphasis on grammatical categories and word classes. (Offered alternate years; offered 1960-61.)
- 525 Russian Eighteenth-Century Literature (5)** **Erllich**  
 A discussion of representative works of Russian poetry, prose, fiction, and criticism in the formative period in the history of Russian letters. (Offered alternate years; offered 1959-60.) Prerequisites, 320 or permission.
- 526 Pushkin (4)** **Erllich**  
 Analysis of the works of Alexander Pushkin. (Offered alternate years; offered 1960-61.)
- 527 Studies in Russian Prose (4)** **Erllich**  
 Close analysis of representative works of the nineteenth-century Russian prose fiction in original texts. (Offered alternate years; offered 1959-60.)
- 557 Seminar in Russian Language (3)** **Staff**  
 Examination and discussion of Russian masterpieces.
- 559 Russian Oral Epic Tradition (3)** **Erllich**  
 Introduction to Russian folklore. (Offered every three years; offered 1960-61.)

- 560 Studies in Early Russian Literature (3)** **Erlich**  
(Offered alternate years; offered 1959-60.)
- 590 Seminar in Russian Literary History (4)** **Erlich**  
Close examination of selected periods or figures in Russian literature. (Offered alternate years; offered 1959-60.) Prerequisite, 10 graduate credits in Russian literature.
- 700 Thesis (\*)** **Staff**

**SLAVIC**

- 522 Phonetic Structure of Slavic Languages (3)** **Micklesen**  
A detailed analysis of the phonological evolution of the various Slavic languages from the earliest period of the Common Slavic language. (Offered alternate years; offered 1959-60.)
- 523 Morphological Features of Slavic Languages (3)** **Micklesen**  
A survey of the development of the various grammatical forms of the Slavic languages from the Common Slavic period. (Offered alternate years; offered 1959-60.)
- 531 Old Church Slavonic (3)** **Micklesen**  
The rise and development of the earliest Slavic literary language and a descriptive study of its orthography, phonology, morphology, and syntax. (Offered alternate years; offered 1960-61.)
- 532 Readings in Old Church Slavonic (3)** **Micklesen**  
Reading and grammatical interpretation of a selected group of Old Church Slavonic texts. (Offered alternate years; offered 1960-61.)

**TIBETAN**

- 502, 503, 504 Comparative Study of Chinese, Mongolian, Tibetan, and Sanskrit Texts (5,5,5)** **Li, Poppe, Staff**

**TURKIC**

- 501, 502 Comparative Grammar of Central Asian Turkic (3,3)** **Posch**  
Comparative phonology, morphology, and syntax of the Turkic languages (Uighur, Kazakh, Tatar, Kirghiz, Uzbek, Eastern Turki). History of the Turkic languages. Prerequisites, Turkic 303, German, and Russian.
- 503 Seminar on Central Asian Turkic Literature (3)** **Posch**  
Prerequisites, 502, German, and Russian.

**FISHERIES**

*See College of Fisheries Bulletin.*

**FOOD TECHNOLOGY**

**Chairman: HOWARD C. DOUGLAS, H309 Health Sciences Building**

The prescribed program in food technology, leading to a bachelor's degree, provides professional training for students who intend to enter the field of food production as either control- or research-laboratory workers, and for students who are interested in home economics research or in teaching food and nutrition in college.

**BACHELOR OF SCIENCE IN FOOD TECHNOLOGY**

A grade-point average of 2.50 in microbiology, chemistry, and home economics courses, and the same average in all other subjects, is required for graduation.

Students interested in laboratory work concerned with food production should elect the following courses: Chemical Engineering 481 (Inorganic Chemical Processes), 482 (Organic Chemical Processes), 483 (Chemical Engineering Process Design); Home Economics 415 (Experimental Cookery); and 10 credits in mathematics chosen from 104 (Plane Trigonometry), 105 (College Algebra), and 153 (Analytic Geometry and Calculus).

Students interested in teaching nutrition in college or working in laboratories conducting food preparation studies should elect the following courses: Home Economics 115 (Food Preparation), 307 (Nutrition), 315 (Advanced Food Selection and Preparation), and 407 (Advanced Nutrition).

During the fourth year, some electives may be chosen to emphasize microbiology and chemistry or food utilization; others may be in either formal course work or practical work in federal, state, or private food or plant laboratories or institution kitchens.

### First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 100 or 110 General	4-3	Chem. 150 General	4	Chem. 160 General	3
Engl. 101 Composition	3	Engl. 102 Composition	3	Chem. 170 Qual. Anal.	3
Math. 103 Intermed. Alg. & Trig.	3	Math. 105 College Alg.	5	Engl. 103 Composition	3
Health Educ. 110 or 175	2	Approved electives	2	Math. 153 Anal. Geom. and Calculus	5
Health	2	Phys. Educ. activity	1	Phys. Educ. activity	1
Phys. Educ. activity	1	ROTC	2-3	ROTC	2-3
ROTC	2-3		17-18		17-18
	15-16				

### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 231 Organic	3	Chem. 232 Organic	3	Chem. 221 Quant. Anal.	5
Chem. 241 Organic Lab.	2	Chem. 242 Organic Lab.	2	Physics 103 & 109 General	5
Physics 101 & 107 General	5	Physics 102 & 108 General	5	Approved electives	5
Zool. 111 General or Bot. 111 Elementary	5	Zool. 112 General or Bot. 112 Elementary	5	ROTC	2-3
ROTC	2-3	ROTC	2-3		17-18
	17-18		17-18		

### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Biochem. 481 Biochem.	4	Biochem. 482 Biochem.	3	Approved electives	15
Chem. 355 Physical	4	Biochem. 483 Biochem. Lab.	3		15
Approved electives	6	Chem. 356 Physical	3		
	14	Approved electives	6		
			15		

### Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Micro. 300 Fund. of Bacteriol.	6	Bot. 461 Yeasts & Molds	5	Micro. 499 Research	5
Approved electives	9	Micro. 430 Industrial	5	Approved electives	10
	15	Approved electives	5		15
			15		

## GENERAL AND COMPARATIVE LITERATURE

Chairman: FRANK W. JONES, 119A Parrington Hall

This program is centered administratively in the Department of English. It leads to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy.

### BACHELOR OF ARTS

Requirements for a major in general literature are: some upper-division credit or the equivalent in one foreign language, ancient or modern; 15 credits in General Literature 300, 301, 302, or equivalents; and not less than 35 credits in other subjects selected with the chairman to form a coherent program.

### ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

**MASTER OF ARTS.** This degree is offered with a major in General Literature. Students who do not intend to obtain a doctorate may earn this degree largely in courses in foreign literature in translation. Candidates must present an undergraduate major in English, General Literature, or a foreign language, and must have a reading knowledge of two foreign languages, ancient or modern, with

upper-division credit or the equivalent in one of these. Other requirements are: 10 credits in General Literature, 5 of which must be in 510 or 511; English 507; 20 credits in a coherent program of courses in English and other literatures; and a thesis (10 credits), or 10 additional credits in literature.

The examination consists of three two-hour questions: one on English or American literature, one on a foreign literature, and one on a comparative topic.

**DOCTOR OF PHILOSOPHY.** This degree is offered with a major in Comparative Literature, and it is awarded by the department in which the candidate does his major work. The following departments are authorized to award the degree: English, Romance Languages and Literature, Germanic Languages and Literature, and Far Eastern and Slavic Languages and Literature.

Candidates are concerned with problems common to two or more literatures. They must have a reading knowledge of at least two foreign languages, ancient or modern, and must take graduate courses in at least one of these. Other requirements are: General Literature 510, 511; 45 credits in English or the candidate's major foreign language, including English 505, 507, and 509, or equivalent courses in the major foreign language; and 35 credits in the candidate's minor field, or fields, chosen with the approval of the chairman of Comparative Literature and of the departments concerned. No more than 10 credits are allowed in English courses at the 400-level.

The general examination consists of three days of written examinations, each lasting six to eight hours, and an oral examination. The written examinations are: (1) on three major writers; (2) on a comparative problem in the field of the candidate's concentration; (3) examination by the department of the candidate's major field. The oral examination follows the pattern of the doctoral examination in English.

For the written examination on three major writers, candidates whose major field is English will prepare to write on two of the three major figures in the doctoral examination in English (Chaucer, Shakespeare, Milton), and will be assigned a question on one of these. Other candidates will offer one or two major writers in the major language, and one in each minor language.

## COURSES FOR UNDERGRADUATES

300 Masterpieces of European Literature: Epic (5)	Jones
301 Masterpieces of European Literature: Drama (5)	Jones
302 Masterpieces of European Literature: Lyric (5)	Jones
450, 451 Romanticism and the Nineteenth Century in Europe (5,5)	Jones
480 The Symbolist Movement (5)	Jones

## COURSES FOR GRADUATES ONLY

510, 511 Studies in General and Comparative Literature (5, maximum 10), (5 maximum 10)	Jones
600 Research (*)	Staff
700 Thesis (*)	Staff

## LITERATURE COURSES IN OTHER DEPARTMENTS

### CLASSICS

210 Greek and Roman Classics in English (5)
422 Greek Historians and Philosophers in English (3)
426 Greek and Roman Epic in English (3)
427 Greek and Roman Drama in English (3)
430 Greek and Roman Mythology (3)
440 Greek and Roman Critics in English (3)

### FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE

Chinese 320 Chinese Literature in English (5)
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- Japanese 420 Classical Japanese Literature in English (3)  
 Japanese 421 Modern Japanese Literature in English (3)  
 Japanese 422 Studies in Japanese Poetry in English (3)  
 Japanese 423 Japanese Drama in English (3)  
 Korean 320 Korean Literature in English (5)  
 Mongolian 320 Mongolian Literature in English (5)  
 Russian 320 Russian Literature in English (5)  
 Russian 421 Contemporary Russian Literature in English (5)  
 Russian 422 Russian Plays in English (5)  
 Russian 424 The Russian Symbolists in English (3)  
 Russian 425 Dostoevski in English (5)  
 Russian 426, 427 The Russian Novel in English (5,5)  
 Slavic 320 Polish Literature in English (5)

#### GERMANIC LANGUAGES AND LITERATURE

- 350 Masterpieces of German Literature in English (3)  
 351 Contemporary German Literature in English (3)  
 462 Goethe in English (3)  
 464 Thomas Mann in English (3)

#### ROMANCE LANGUAGES AND LITERATURE

- French 319 Nineteenth-Century Novel in English (3)  
 French 320 Contemporary Novel in English (3)  
 French 416 Rabelais and Montaigne in English (3)  
 French 417 Racine and Moliere in English (3)  
 French 418 Literature of the Enlightenment in English (3)  
 Italian 318 Italian Literature in English (5)  
 Italian 384 Renaissance Literature of Italy in English (2)  
 Italian 481, 482 Dante in English (2,2)  
 Spanish 315 Latin-American Authors in English (5)  
 Spanish 318 Don Quijote in English (3)  
 Spanish 345 Spanish Literature of the Renaissance in English (3)  
 Spanish 420 Contemporary Spanish Essay and Drama in English (3)  
 Romance 460 The Literature of the Renaissance in English (5)

#### SCANDINAVIAN LANGUAGES AND LITERATURE

- 309, 310, 311 The Scandinavian Novel in English (2,2,2)  
 382 Twentieth-Century Scandinavian Drama in English (2)  
 480 Ibsen and His Major Plays in English (2)  
 481 Strindberg and His Major Plays in English (2)

## GENERAL EDUCATION

Chairman: SPENCER MOSELEY, 314 Art Building

The General Education program provides courses for first- and second-year students who desire a broad range of learning, either as an end in itself or as a basis for the choice of a major. These courses consider the physical universe, the biological world (including man), human society, aesthetic expression in literature and the arts, and philosophy as integral unities to be studied integrally. They are therefore given in such a way as to present these concepts whole, rather than to study in highly technical detail any of their specialized aspects. The courses are taught by regular members of the faculties of the departments involved.

This two-year integrated program does not in itself lead to a degree but pro-

vides the basic minimum of a general education. Any student may take all of it, or any part of it; it is especially recommended for premajors and for students in elective curricula who wish to fulfill their group requirements with General Education courses. Several of the courses are given in two or three quarters each year; the logical sequences of the courses in this program, however, are as follows:

**First Year**

<i>Humanities</i>	<i>Social Sciences</i>	<i>Natural Sciences</i>	<i>Expression and Methodology</i>
1. Hum. 101 Literature	Soc. Sci. 101 Hist. of Civilization	Chem. 100 or 110 General Chemistry	Engl. 101 Comp.
2. Hum. 102 The Arts	Soc. Sci. 102 Hist. of Civilization	Phys. Sci. 101 The Physical Universe	Engl. 102 Comp.
3. Hum. 103 Philos.	Soc. Sci. 103 Hist. of Civilization	Science elective	Engl. 103 Comp.

**Second Year**

1. Hum. 201 Literature	Soc. Sci. 201 Modern Society	Biol. 101J-102J Gen. Biology	Math. 120 Intro. to Mathematical Thinking
2. Hum. 202 Masterpieces of Art	Soc. Sci. 202 Modern Society		Math. 121 Basic Ideas of Algebra
3. Hum. 203 Philos.	Soc. Sci. 203 Modern Society		

Some General Education courses, but not all of them, may be applied toward specific majors. Students who plan to offer these courses in partial fulfillment of the requirements for departmental majors should obtain permission to do so from the departments involved.

**THE CORE GROUP.** In the interest of providing a carefully integrated liberal education for those who desire it, the General Education Committee has formed a special group of students who take the entire General Education program. All the studies of the students in this group are integrated. Students in the core group are placed in special sections and follow the complete two-year curriculum.

Students who take the whole General Education program and then choose a major are not required to meet the College group requirements for graduation. Instead, they must meet their major requirements in one of the three subject groups and have 15 credits in each of the other two groups.

**First Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Engl. 101 Composition	3	Chem. 100 or 110 General	4-3	Engl. 103 Composition	3
Hum. 101 Literature	5	Hum. 102 The Arts	5	Health Educ. 110 or 175	
Phys. Sci. 101 The Physical Universe	5	Soc. Sci. 102 Hist. Civ.	5	Health	2
Soc. Sci. 101 Hist. Civ.	5	Engl. 102 Composition	3	Hum. 103 Philosophy	5
Phys. Educ. activity	1	Phys. Educ. activity	1	Math. 120 Math. Thinking	2
ROTC	2-3	ROTC	2-3	Soc. Sci. 103 Hist. Civ.	5
	19-22		17-21	Phys. Educ. activity	1
				ROTC	2-3
					18-21

**Second Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Hum. 201 Literature	5	Hum. 202 Masterpieces of Art	5	Hum. 203 Philosophy	5
Soc. Sci. 201 Mod. Soc.	5	Soc. Sci. 202 Mod. Soc.	5	Soc. Sci. 203 Mod. Soc.	5
Biol. 101J- Gen. Biol.	5	Biol. 102J Gen. Biol.	5	Math. 121 Basic Algebra	3
ROTC	2-3	ROTC	2-3	ROTC	2-3
	15-18		15-18		13-16

**COURSES FOR UNDERGRADUATES****BIOLOGICAL SCIENCE****Biology 101J-102J General Biology (5-5)****Staff**

This course is offered jointly by the Departments of Botany and Zoology and is described in the course announcements of both departments.

**CHEMISTRY****100 General Chemistry (4)****Staff**

Open only to students without high school chemistry credit. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.

**110 General Chemistry (3)****Staff**

For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.

**ENGLISH****English 101, 102, 103 English Composition (3,3,3)****Staff**

Students in the General Education program enter special sections of English 101, 102, and 103. In these sections, their work consists of analysis and critical evaluation of readings selected for their relevance to the aims of a liberal education and to other courses in the program; training in effective organization and expression in various kinds of writing, including the investigative paper and the critical essay, with emphasis on well-built paragraphs and clear, effective sentences; study of words and their importance in the communication of thought and emotion.

**HUMANITIES****101 Literature (5)****Adams, Brown, Hilen, Phillips, Winther, Woodcock**

An introduction to literary forms and techniques through the analysis of representative examples of narrative and poetic art, with emphasis upon the relationship of content and expression.

**102 The Arts (5)****Moseley, Verrall, Staff**

Painting, sculpture, music, architecture, the dance, and drama studied through example, discussion, and criticism.

**103 Philosophy (5)****Miller, Rador, Smullyan, Staff**

Methods of reflective thinking and the use of them in considering such essential questions as the existence and nature of God, the meaning of a good life and a good social order, the nature and limits of human knowledge, the relationship between mind and body, and the nature of the universe. This course may be offered in partial fulfillment of the requirements for a major in philosophy.

**201 Literature (5)****Woodcock**

Reading and critical discussion of some of the greatest works in world literature.

**202 Masterpieces of Art (5)****Moseley, Verrall, Staff****203 Philosophy (5)****Miller**

Reading and critical discussion of some of the world's greatest philosophical systems. This course may be offered in partial fulfillment of the requirements for a major in philosophy.

**MATHEMATICS****120 Introduction to Mathematical Thinking (2)****Staff**

Mathematical logic and the number system. Background material for other freshman mathematics courses. Prerequisites, one year of high school algebra and one year of plane geometry.

**121 Basic Ideas of Algebra (3)****Staff**

Groups and fields; foundations of elementary algebra; simultaneous linear equations; quadratic equations; Boolean algebra. Prerequisite, 120.

**PHYSICAL SCIENCE****101 The Physical Universe (5)****Clark**

The universe as a unit; the stars; the solar system; the earth; the basic process; the atom. This course is a duplication of Physics 100.

**SOCIAL SCIENCE****101 History of Civilization: The Great Cultural Traditions (5)****Alden, Burke, Griffiths,****Kaminsky, Katz, Sugar, Woolf**

The historic foundation of civilizations—Mesopotamia, Egypt, India, China; economy; society, government, religion, and culture; the elaboration of culture and institutions in Greece, Rome, and the Orient; Christianity and the beginning of civilization in western Europe; early medieval civilization in the West. 101, 102, and 103 may be offered in partial fulfillment of the requirements for a major in history.

**102 History of Civilization: The Western Tradition in World Civilization (5)****Alden, Burke,****Griffiths, Kaminsky, Katz, Sugar, Woolf**

The beginning of modern civilization: the Renaissance; the Protestant Revolt; the state; commercial revolution and mercantilism; the rise of science; the "era of revolutions"; Indian, Chinese, and Japanese civilizations in the medieval and early modern eras; the Industrial Revolution and the rise of democracy.

**103 History of Civilization: The Contemporary World (5)****Alden, Burke, Griffiths,****Kaminsky, Katz, Sugar, Woolf**

The meeting of East and West: the "one-world" community in the twentieth century; imperialism, communism, fascism, democracy, internationalism; twentieth-century science; present-day philosophy; religion, literature, and art; the meaning of history for the citizen of the contemporary world.



**201, 202, 203 Modern Society (5,5,5)****Staff**

Part I: the various forms of society in the world today; the so-called "primitive" societies; the patterns of culture; the historical beginnings of industrial society in the West. Part II: the major social, economic, and political "regions" of the contemporary world; the Far East; the industrial West; the impact of western industrialism upon the East. Part III: economic, social, and political interrelationships of the modern regions and states; theories of society; the United Nations.

**GENERAL STUDIES****Director: W. GLEN LUTEY, 229 Denny Hall**

Enrollment in the Division of General Studies is open to students who plan to follow through to graduation the study of a field of knowledge or a subject of special interest not provided for in departmental curricula. It is also open to those who can spend only a limited time in the University and need guidance in making up a program of work from this or other colleges adapted to their special needs. To be admitted to the Division, the student must have maintained at least a 2.00 grade-point average in his previous educational experience, and must complete his transfer not later than the third quarter before graduation.

In addition to the flexible programs made out to supply the needs of individual students and the curricula developed as preparation for the Graduate School of Librarianship and the School of Social Work (see paragraph following), there are several organized curricula in General Studies. A nonprofessional major program in home relations focuses both on the physical home and its operation and on an understanding of family relations within the home. For students interested in personnel work with social, religious, or other groups, a program is provided in which the characteristics of both individuals and groups are studied.

The preprofessional curriculum in social welfare may achieve the educational objective not only of students anticipating graduate study in the professional social work curricula of the School of Social Work, but also of students interested in appointment to social welfare positions which do not require professional education. Although this undergraduate curriculum includes relevant courses and field experience in social welfare, it also seeks to provide a broad, liberal educational experience with particular emphasis on the social sciences. Requirements include at least 10 credits of selected coursework in each of the following fields: anthropology, sociology, history, psychology, philosophy, political science, and economics. Social work faculty members, as well as the General Studies staff, are available to advise students planning careers in this area. Inquiries concerning this major program may be addressed either to the General Studies Office or to Professor Richard G. Lawrence, School of Social Work.

Students who plan to instruct in a nursery school or to establish such a school of their own or who are interested in working with children of the preschool age in any other capacity will find that the general studies major in nursery school and child study is adapted to their needs. Information on this curriculum may be obtained at the General Studies Office.

Several area studies are offered. The literature and society program, for example, brings together the study of the literature of a country or period and courses in the social sciences and humanities which create a wider understanding of the societal implications of that literature. The French area study curriculum integrates the study of the language and literature with courses in the geography, history, economics, political science, and arts of France. The Latin American studies program combines the study of the Spanish and Portuguese languages and their literature with courses related to the Latin American area in the fields of anthropology, history, geography, political science, economics, and sociology. Inquiries concerning the Latin American studies program may be addressed to either the Division of General Studies or Professor Vargas-Barón, of the Department of Romance Languages and Literature, who is chairman of the interdepartmental committee directing this program.

## BACHELOR OF ARTS OR BACHELOR OF SCIENCE

The Bachelor of Arts degree is awarded when the major is in humanities or social science, the Bachelor of Science degree when the major is in science.

The requirements for graduation are: the early selection of a special field or subject of interest and the formation of an approved schedule of courses; completion of at least 70 credits in the chosen field or subject; and a senior study giving evidence of the student's competence in his major field.

## COURSES FOR UNDERGRADUATES

- 391 Supervised Study in Selected Fields (\*, maximum 6)** **Staff**  
Special supervised study in a field represented in the College of Arts and Sciences. Prerequisites, permission of major department, supervisor of study, and General Studies Office.
- 451 Sources of Modern Cultural Crisis (2-6)** **Interdepartmental Staff**  
Individual reading assigned by members of the interdepartmental staff. May be repeated in various fields. Prerequisites, either anticipated or current enrollment in 455-456 and permission.
- 455-456 Analysis of the Modern Cultural Crisis (3-3)** **Interdepartmental Staff**  
Economic, psychological, scientific and technological, artistic, moral, religious aspects; essential conflicts; the problem of synthesis. Open to seniors; juniors by permission.
- 493 Senior Study (1-5)** **Staff**  
For majors only. Prerequisites, permission of supervisor of study and General Studies Office.

## GENETICS

**Executive Officer: HERSCHEL L. ROMAN, 338 Johnson Hall**

The Department of Genetics offers undergraduate and graduate training in genetics. Information concerning curricula and degrees may be obtained from the departmental office.

## GEOGRAPHY

**Executive Officer: G. DONALD HUDSON, 406 Smith Hall**

The Department of Geography offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. In addition, the Department offers first and second teaching areas and a basic academic field for students in the College of Education.

## BACHELOR OF ARTS

Students electing to major in geography are required to complete 50 credits in the Department. Programs of study should be developed in consultation with the departmental adviser. These programs must meet the following requirements: (1) Geography 100; 15 credits on the 200-level, including Geography 207, 258; 15 credits on the 300-level; 15 credits on the 400-level, including Geography 426; (2) emphasis on a general field of specialization in geography; (3) the inclusion of appropriate supporting courses offered in other departments.

Fields of specialization in the Department include Anglo-America, the Far East and the Soviet Union, economic geography, and cartography. Fields from which appropriate courses should be drawn include the other social sciences, geology, mathematics, meteorology, and modern foreign languages.

It is recommended that students complete either an introductory course in geography or in one of the other social sciences before registering for upper-division courses in geography.

**PREREQUISITES**

In addition to specified prerequisites, where they are stated in connection with individual courses, the following general prerequisites must be adhered to:

1. 100-level: open to all students.
2. 200-level: open to sophomores and upperclassmen; open to freshmen who have completed Geography 100.
3. 300-level: open to juniors and seniors; open to sophomores who have completed one or more courses in geography on the 200-level.
4. 400-level: open to seniors; open to juniors who have completed one or more courses in geography on the 300-level.
5. 500-, 600-, 700-level: open only to graduate students.

**ADVANCED DEGREES**

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

The Department cooperates with other departments and schools in a program leading to the degree of Master of Arts in Urban Planning. (See the *Graduate School Bulletin*.)

**COURSES FOR UNDERGRADUATES****INTRODUCTION TO GEOGRAPHY**

- 100 Introduction to Geography (3)** **Jackson, Kakiuchi, Murphey**  
Major concepts and methods in the field of geography illustrated by and applied to the analysis of selected problems and types of regions.

**INTRODUCTION TO FIELDS IN GEOGRAPHY**

- 200 Survey of World Geography (5)** **Earle**  
A study of the world's regional structure using the regional method in the analysis and interpretation of the world's cultural, economic, and resource patterns.
- 201 Anglo-America (3)** **Hudson**  
A survey of the natural resources, their utilization, and the regional structures of Canada and the United States. An introduction to regional studies on a continental scale.
- 202 The Pacific Northwest (3)** **Staff**  
A survey of the economy of the Pacific Northwest in the light of factors of location, resources, resource-oriented industries, and resource policies. An introduction to regional studies on a local scale.
- 205 Physical Geography (5)** **Heath**  
Survey of the character and location of the different types of land forms, climates, soils, vegetation, minerals, and water resources; their significance to human occupation.
- 207 Economic Geography (5)** **Garrison, Martin, Ullman**  
World survey of extractive, manufacturing, and distributing activities; emphasis is placed on regional characteristics relating to the availability of resources and markets and the utilization of technological skills.
- 258 Maps and Map Reading (2)** **Heath, Sherman**  
Categories of maps and aerial photographs and their special uses; map reading and interpretation.
- 275 Political Geography (3)** **Jackson**  
An analysis of the geographic foundations of the major national states, their possessions and associated territories; factors of location and size, boundaries, communications, human and natural resources, and space relations as they bear on the functioning of the modern state.
- 277 Cities of the United States (3)** **Martin**  
The major cities of the United States with an analysis of their location, settlement, growth, and present function.

**INTERMEDIATE AND ADVANCED COURSES****Systematic Fields**

- 325 Historical Geography of America (3)** **Martin**  
Exploration, migration routes, pioneer settlement, and the moving frontier in relation to geographic phenomena. Criteria for the differential development of regional cultures.
- 370 Conservation of Natural Resources (5)** **Sherman**  
Principles and practices in the effective utilization of resources; public policies relating to conservation.

- 374 The Extractive Industries (5)** **Staff**  
Geographic principles related to the distribution, resources, and products of agriculture, mining, and lumbering.
- 441 Advanced Economic Geography I (3 or 5)** **Garrison**  
Location structures of urban centers, transportation routes, manufacturing, mining, and agriculture. Lectures, 3 credits; independent study, 2 additional credits with permission of instructor.
- 442 Advanced Economic Geography II (3 or 5)** **Garrison**  
A study of selected aspects of theories of Lösch, Christaller, Isard, and others that bear on topics in economic geography. Lectures, 3 credits; independent study, 2 additional credits with permission of instructor. Prerequisite, 441.
- 444 Geography of Water Resources (3 or 5)** **Marts**  
An analysis and appraisal of water resources in land and industrial development; problems and policies of river basin planning with emphasis on the Pacific Northwest. Lectures, 3 credits; independent study, 2 additional credits with permission of instructor.
- 448 Geography of Transportation (5)** **Ullman**  
A general analysis of circulation geography and principles of spatial interaction emphasizing commodity flow and the nature and distribution of rail and water transport and the role of transport in area development.
- 475 Problems in Political Geography (3 or 5)** **Jackson**  
A study of the principles of political geography based on an examination of the pertinent literature and an analysis of selected case studies of regional, national, and international political-territorial units. Lectures, 3 credits; independent study, 2 additional credits with permission of instructor. Prerequisite, 275.
- 477 Urban Geography (5)** **Ullman**  
A geographic analysis of urban and other agglomerated settlements in terms of their nature, economic base, principal functions, distribution, supporting areas, and internal structure.
- Regional Fields**
- 303J Asia (5)** **Earle, Kakiuchi**  
The historical and current patterns and development of human settlement and activities, primarily in Monsoon Asia. Regional frameworks; resources; problems of urban and agrarian development, industrialization, and economic growth. Offered jointly with the Far Eastern and Russian Institute.
- 304 Europe (5)** **Martin**  
The distribution of urban and rural settlement, chiefly in terms of natural assets and liabilities of the continent; industrial power, agricultural production, international trade; regional differentiation; strength and weakness of greater and lesser powers; military geography.
- 305 Latin America (5)** **Heath**  
The present and future development and problems of Caribbean and South America in terms of their natural resources, economic activities, and ethnic and settlement patterns.
- 306 Africa (5)** **Sherman**  
Historical and economic geography of Africa, emphasizing the role of natural resources in settlement and economic development; problems of colonization, the foundations of commercial agriculture, and trends in industrial development.
- 307 Australia and New Zealand (5)** **Earle**  
Pastoral and agricultural development; industrial potential; urbanization; immigration and trade policies; external economic and political relations.
- 332J Islands of the Pacific (3)** **Earle**  
An analysis of major Pacific islands and island groups with respect to their resources, settlement, population composition; role in modern transportation and communications; current political status. Offered jointly with the Far Eastern and Russian Institute.
- 333J The Soviet Union (3)** **Jackson**  
Natural resources with particular reference to current and potential developments in agriculture, other extractive industries, manufacturing, and trade; status and problems of transportation; trends in the distribution of population. Offered jointly with the Far Eastern and Russian Institute.
- 400 Advanced Regional Geography (3)** **Hudson**  
An analysis of the principles and concepts of regional geography.
- 402 United States (5)** **Martin**  
An analysis of the resources of the United States with particular reference to population patterns, economic activities, and regional structures.
- 404 Problems in the Geography of Europe (3 or 5)** **Staff**  
Investigation of the geographic aspects of selected current issues. Lectures, 3 credits; independent study, 2 additional credits with permission of instructor. Prerequisite, 304 or permission.
- 408 Canada and Alaska (3)** **Staff**  
An analysis of present and potential developments chiefly in terms of resource occupancy and interregional and international relations.

- 412J South Asia (5)** **Murphey**  
An analysis of the origins, development and present outlines of settlement, cultures, resource use, and economic structures in the Indian sub-continent, the Indo-Chinese peninsula, and insular Southeast Asia. Offered jointly with the Far Eastern and Russian Institute.
- 413J The Far East (5)** **Kakiuchi, Murphey**  
The nature and geographic setting of Far Eastern civilization with particular reference to the origins, development, and present outlines of settlement, cultures, resource use, and economic structures in China, Japan, and Korea. Offered jointly with the Far Eastern and Russian Institute.
- 433J Problems in the Geography of the Soviet Union (3 or 5)** **Jackson**  
The analysis of geographical aspects of selected agricultural, industrial, and other contemporary developments in the Soviet Union. Lectures, 3 credits; independent study, 2 additional credits with permission of instructor. Offered jointly with the Far Eastern and Russian Institute. Prerequisite, 333J.
- 434J Problems in the Geography of Southeast Asia (5)** **Earle**  
An analysis of regional and political structures; resources, economic activities, and problems of development; overseas and internal relationships. Offered jointly with the Far Eastern and Russian Institute.
- 435J Problems in the Geography of China (5)** **Murphey**  
China as a geographic problem; origins and development of Chinese civilization in its geographic base and its areal spread; political China and the Chinese sphere; physical base and resources; problems of agriculture, population, industrialization, urbanization, transportation, and contemporary development; Communist China. Offered jointly with the Far Eastern and Russian Institute.
- 437J Problems in the Geography of Japan (5)** **Kakiuchi**  
Regional structure of Japanese urban, industrial, and agricultural geography. An analysis of contemporary geographic patterns considering cultural and physical factors and selected aspects of their historical development. Offered jointly with the Far Eastern and Russian Institute.

### Cartography

- 360 Principles of Cartography (5)** **Heath, Sherman**  
Theory and principles of map scales, grid systems, symbolism, and map reproduction. Laboratory experience in applications of these principles to map design and construction.
- 361 Experimental Cartography (5)** **Heath, Sherman**  
Application of and experimentation with cartographic techniques and materials. Problems of relief representation, mapping of quantitative data and their relation to reproduction processes. Prerequisite, 360.
- 363 Aerial Photographs as Source Materials (2)** **Heath, Sherman**  
Training in the use of aerial photographs as source materials in map compilation. Prerequisite, 360.
- 425J Graphic Techniques in the Social Sciences (5)** **Schmid**  
Theory and practice of presenting statistical data in graphic form. Construction of bar, line, pictorial, and other types of charts and graphs, and areal distribution maps, etc., used for research and publicity purposes in sociology, geography, economics, education, and community planning. Offered jointly with the Department of Sociology. Prerequisite, Sociology 223 or equivalent.
- 458 Map Intelligence (3)** **Sherman**  
Analysis and appraisal of United States and foreign maps and atlases; mapping agencies, coverage, organization, and indexing; symbolism, scales, projections, and military grids; map library problems and operation.
- 462 Problems in Map Compilation and Design (5)** **Heath, Sherman**  
Application and analysis of map intelligence procedures as related to map compilation. Measurement and experimental study of psycho-physiological factors in design of map elements. Prerequisite, 360.
- 464 Problems in Map Reproduction (3)** **Heath**  
Reproduction processes and photographic techniques as applied to cartography. Prerequisite, 360.

### Introduction to Research

- 426 Statistical Measurement and Inference (5)** **Garrison**  
Identification of geographic problems and selection of data; tests of simple hypotheses; applications of unequation, simultaneous equation, and variance models; evaluation of findings. Prerequisite, an introductory course in statistics or permission.
- 490 Field Research (6, maximum 12)** **Staff**  
The development and application of skills essential to geographic field investigations: (1) training in the use of basic and special field techniques and base materials; (2) evaluation of these techniques and materials in a variety of research situations; (3) analysis and interpretation of field data; and (4) presentation of the results of field investigations.

## COURSES FOR GRADUATES ONLY

### INTRODUCTION TO PROFESSIONAL TRAINING

- 500 Contemporary Geographic Thought (3)**

**Staff**

501 Geographic Analysis (3)	Garrison
502 Professional Writing in Geography (*, maximum 6)	Hudson, Martin
503 Source Materials in Geographic Research (3)	Staff

### PROFESSIONAL TRAINING

#### Systematic Geography

510 Research Seminar: Settlement and Urban Geography (3, maximum 9)	Ullman
537 Research Seminar: Quantitative Methods in Economic Geography (3, maximum 6)	Garrison
538 Research Seminar: Geography of Transportation (3, maximum 6)	Ullman
539 Research Seminar: Utilization of Water Resources (3, maximum 6)	Marts

#### Regional Geography

504J Research Seminar: Japan (3, maximum 6) Offered jointly with the Far Eastern and Russian Institute.	Kakiuchi
505J Research Seminar: China and Northeast Asia (3, maximum 6) Offered jointly with the Far Eastern and Russian Institute.	Murphey
506J Research Seminar: Southeast Asia (3, maximum 6) Offered jointly with the Far Eastern and Russian Institute.	Earle
507J Research Seminar: Soviet Union (3, maximum 6) Offered jointly with the Far Eastern and Russian Institute.	Jackson
508 Research Seminar: Anglo-America (3, maximum 6)	Hudson, Marts

#### Cartography

520 Research Seminar: Cartography (3, maximum 6)	Sherman
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#### Nonthesis and Thesis Research

600 Research (*)	Staff
700 Thesis (*)	Staff

## GEOLOGY

Executive Officer: HOWARD A. COOMBS, 42 Johnson Hall

The Department of Geology offers courses leading to the degrees of Bachelor of Science, Bachelor of Science in Geology, Master of Science, and Doctor of Philosophy. In addition, the Department offers first and second teaching areas for students in the College of Education.

A grade-point average of 2.50 is required for entrance to the Geology Department and a cumulative grade-point average of 2.50 is required for graduation.

### BACHELOR OF SCIENCE OR BACHELOR OF SCIENCE IN GEOLOGY

Candidates for the Bachelor of Science with a major in geology must fulfill the College and departmental requirements tabulated below.

Candidates for the Bachelor of Science in Geology must take, in addition, 400, 414, 427, 443, and earn 15 credits in college-level language.

A student intending to take graduate work should take either French or German as an undergraduate.

		First Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 100 or 110		Chem. 150 General	4	Chem. 160 General	3
General	4-3	Engl. 102 Composition	3	Chem. 170 Qual. Anal.	3
Engl. 101 Composition	3	Gen. Engr. 101 Engr.		Engl. 103 Composition	3
Math. 103 Intermed. Algebra & Trig. or 104		Drawing	3	Gen. Engr. 103 Descript.	
Plane Trig.	3	Math. 105 College Algebra	5	Geom.	3
Elective	5	Phys. Educ. activity	1	Health Educ. 110 or 175	
Phys. Educ. activity	1	ROTC	2-3	Health or elective	2
ROTC	2-3		16-19	Phys. Educ. activity	1
				ROTC	2-3
	16-19				15-18

**Second Year**

FIRST QUARTER	CREDITS
Geol. 205 Rocks & Min. . . 5	
Physics 101 and 107 . . . . .	
General . . . . .	5
Approved electives . . . . .	5
ROTC . . . . .	2-3
	<hr/> 15-18

SECOND QUARTER	CREDITS
Geol. 206 Elem. Physiol. . . 5	
Physics 102 and 108 . . . . .	
General . . . . .	5
Geol. 221 Crystallography . . 5	
Approved electives . . . . .	2
ROTC . . . . .	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Geol. 207 Historical Geol. . . 5	
Geol. 222 Mineralogy . . . . 3	
Physics 103 and 109 . . . . .	
General . . . . .	5
Approved electives . . . . .	2
ROTC . . . . .	2-3
	<hr/> 15-18

**Third Year**

FIRST QUARTER	CREDITS
Geol. 308 Struct. Geol. . . . 5	
Geol. 320 Sed. Petrol. . . . . 4	
Approved electives . . . . .	6
	<hr/> 15

SECOND QUARTER	CREDITS
Geol. 330 Gen. Paleon. . . . 5	
Geol. 361 Stratigraphy . . . . 5	
Approved electives . . . . .	5
	<hr/> 15

THIRD QUARTER	CREDITS
Geol. 344 Field Methods . . . 5	
Approved electives . . . . .	10
	<hr/> 15

**Fourth Year**

FIRST QUARTER	CREDITS
Geol. 412 Physiol. of U.S. . . 5	
Geol. 423 Optical Min. . . . . 5	
Approved electives . . . . .	5
	<hr/> 15

SECOND QUARTER	CREDITS
Geol. 424 Petro. & Petrol., . . 5	
Igneous Rocks . . . . .	5
Approved electives . . . . .	10
	<hr/> 15

THIRD QUARTER	CREDITS
Approved electives . . . . .	15
	<hr/> 15

**ADVANCED DEGREES**

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. All candidates for advanced degrees in geology must have completed essentially the same academic work as outlined in the undergraduate curriculum. Examinations for both the master's and the doctor's degree will include subjects from the whole field of geology. All candidates must have an approved summer field course such as 400 or 500 or other field experience which is approved by the Department. Candidates for advanced degrees should take the following courses: 414, 443, 480, 481, and a second course in paleontology, or the equivalents of these courses.

**MASTER OF SCIENCE.** The language requirement for this degree must be met with either French or German. All students taking the graduate summer field course, 500, are excused from writing a thesis. Those who have not had 500 must present a thesis describing the geology of a small area.

**DOCTOR OF PHILOSOPHY.** Candidates must present French and German for the language requirement. All Ph.D. candidates must have either an M.S. or M.A. degree.

**COURSES FOR UNDERGRADUATES**

<b>101 Survey of Geology (5)</b>	<b>Mallory, Barksdale, McKee</b>
<b>205 Rocks and Minerals (5)</b>	<b>Ellis</b>
Prerequisite, high school chemistry.	
<b>206 Elements of Physiography (5)</b>	<b>Mackin</b>
Processes and agencies affecting the earth's surface; relationship of topography to structure.	
Prerequisite, 101 or 205.	
<b>207 Historical Geology (5)</b>	<b>Wheeler</b>
Origin and evolution of the earth, with emphasis on the general geological history of North America. Prerequisites, 205 and 206, or permission.	
<b>221 Crystallography and Sulfide Mineralogy (3)</b>	<b>Ellis</b>
Study of crystal morphology and the relation of crystal form to the space lattice and introduction of the mineralogy of the sulfides. Prerequisite, 205.	
<b>222 Mineralogy (3)</b>	<b>Ellis</b>
Descriptive mineralogy of more than 100 common minerals (excluding sulfides). Prerequisite, 221.	
<b>223 Mineralogy for Metallurgical Engineers (3)</b>	<b>Ellis</b>
Study of crystallography and descriptive mineralogy for metallurgical engineers only.	
<b>308 Structural Geology (5)</b>	<b>Barksdale</b>
Interpretation of rock structures and their genesis. Prerequisites, 205, 206, 207, and General Engineering 103.	

- 310 Engineering Geology (5)** McKee  
Elements of geology for civil engineers. Prerequisite, civil engineering major or permission.
- 320 Sedimentary Petrology (4)** Barksdale  
The origin and classification of sedimentary rocks with special emphasis on field identification. Prerequisite, 222.
- 330 General Paleontology (5)** Mallory  
Systematic study of invertebrate fossils and the principles of paleontology. Prerequisites, 205, 206, and 207, or permission.
- 344 Field Methods (5)** Barksdale  
Geologic and topographic surveying and recording. Prerequisite, 308.
- 361 Stratigraphy (5)** Wheeler  
Systematic study of spatial relations of surface-accumulated rocks and their space-time implications. Prerequisites, 205, 206, 207, and 320.
- 400 Field Course (15)** Staff  
Advanced or field work in general geology. (Offered Summer Quarter only.) Prerequisite, permission.
- 412 Physiography of the United States (5)** Mackin  
Regional geology of the United States as it applies to surface forms. Prerequisites, 205, 206, and 207.
- 414 Map Interpretation (5)** Mackin  
Principles of geologic interpretation of topographic maps and photos. Prerequisites, 205, 206, and 207.
- 423 Optical Mineralogy (5)** Staff  
Petrographic microscope and recognition of common minerals in thin section. Prerequisites, 205 and 222.
- 424 Petrography and Petrology of Igneous Rocks (5)** Vance  
Systematic study of rocks with the petrographic microscope. Prerequisite, 423.
- 425 Petrography and Petrology of Metamorphic Rocks (5)** Vance  
Systematic study of metamorphic rocks and their origin. Prerequisite, 424.
- 427 Ore Deposits (5)** Ellis  
Form, structure, mineralogy, petrology, and mode of origin. Prerequisites, 222 and 424.
- 436 Micropaleontology (5)** Mallory  
Principles of paleontology as applied to micropaleontology; the systematic study of foraminifera. Prerequisites, 330 and permission.
- 443 Advanced Structural Geology (5)** Misch  
Structural analysis in space and time; genetic interpretation; principles of geotectonics. Prerequisite, 308.
- 450 Elements of Seismology (5)** Neumann  
Theory of seismograph, seismic wave propagation and deep earth structure.
- 480 History of Geology (3)** Barksdale  
For those contemplating graduate study. Prerequisites, senior standing in geology and permission.
- 481 Preparation of Geologic Reports and Publications (3)** Coombs  
Organization, writing, and illustration of geologic reports. Prerequisites, senior standing in geology and permission.
- 498 Undergraduate Thesis (5)** Staff  
The thesis must be submitted at least one month before graduation.
- 499 Undergraduate Research (\*, maximum 5)** Staff  
Prerequisites, senior standing and permission.

## COURSES FOR GRADUATES ONLY

- 500 Graduate Field Course (15)** Staff  
(Offered Summer Quarter only.) Prerequisite, permission.
- 503 Advanced Petrography and Petrology of Sedimentary Rocks (\*)** Barksdale
- 510 Advanced Studies in Physiography (\*, maximum 10)** Mackin
- 515 Fluvial Morphology (\*, maximum 5)** Mackin
- 520 Seminar (\*)** Staff
- 521 Metamorphic Minerals (5)** Misch
- 522 Regional Metamorphism and Granitization (5)** Misch
- 524 Advanced Igneous Petrography and Petrology (3)** Vance
- 530 Advanced Studies in Paleontology (\*)** Mallory, Wheeler
- 531 Biostratigraphy (5)** Mallory
- 532 Stratigraphic Paleontology (3)** Wheeler



540	Advanced Studies in Structural Geology (*)	Barksdale, Misch
545	Structure of Europe (5)	Misch
546	Structure of Asia and West Pacific Rim (5)	Misch
550	Advanced Studies in Geophysics (*, maximum 9)	Neumann
560	Advanced Studies in Stratigraphy (*)	Mallory, Wheeler
563	West Coast Cenozoic Stratigraphy (4)	Mallory
565	Paleozoic Stratigraphy (4)	Wheeler
568	Mesozoic Stratigraphy (4)	Wheeler
570	Advanced Studies in Mineralogy, Petrography, and Petrology (*)	Coombs, Misch
571	Advanced Engineering Geology (3)	Coombs
572	Geochemistry (3)	McKee
580	Advanced Studies in Economic Geology (*)	Coombs
600	Research (*)	Staff
700	Thesis (*)	Staff

## GERMANIC LANGUAGES AND LITERATURE

Acting Executive Officer: HERMAN C. MEYER, 340 Denny Hall

The Department of Germanic Languages and Literature offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. In addition, it offers first and second teaching areas for students in the College of Education.

Students majoring in mathematics and the applied sciences should take German 110-111, 112, 204 (or 205, 206), 260, and upper-division courses in scientific German. Those majoring in history and the social sciences should take German 210, 310, and 311.

### BACHELOR OF ARTS

In this elective curriculum, 40 credits in German are required for graduation. Courses must include: German 207, 230, 300, 301, 302, 303, 310, 311, 401, 402, and 403. Scientific German, courses in English translation, and first-year German are not counted toward the major.

Students majoring in German as a preparation for library work or other careers that do not require knowledge of the spoken language may substitute courses in German literature (but not courses in English translation) in lieu of German 207, 300, 301, 302, 303, 401, 402, and 403.

Qualified students may fulfill the requirements of the junior year through study abroad in a university of recognized standing. Summer study abroad is also encouraged.

### ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. To register for any graduate course in German, students must receive permission from the Executive Officer of the Department. All candidates for advanced degrees must take 410, 411, 412, 415, 416, 417, 500, 501, 502, 503, 550, 552, 556, and 557 (or equivalents) as they are offered; 518 and 519 must be taken if twentieth-century literature is used as a major field.

**MASTER OF ARTS.** Two programs leading to the Master of Arts degree with a major in Germanics are available.

**Thesis Program.** For the M.A. degree, the student must, in addition to fulfilling general requirements of the Graduate School, take a minimum of 30 credits in Germanics. If the student minors in some other department he may elect the

30 credits in literary or in philological courses or a combination of the two. If his entire program lies within the field of Germanics, he must elect 30 credits in literary courses and 15 credits in philological courses or vice versa. In addition, the candidate must submit in final form, at least one month prior to final examination, an acceptable thesis giving evidence of the mastery of scholarly procedure and worth at least 9 credits.

**Nonthesis Program.** Students who wish to proceed directly toward the doctorate may elect to take a nonthesis program for the M.A. degree. In this case, the M.A. will be awarded after a minimum of two years of graduate residence, of which one year must be at the University of Washington, and after the student has satisfactorily passed his general examinations for the Ph.D. Students who elect this program should, on completion of the requirements stated above, notify the Department and the Graduate School of their intention.

A minor in Germanics for the M.A. degree must consist of a minimum of 15 credits in acceptable courses beyond an undergraduate minor in the field. In no instance, however, may a minor in Germanics for the master's degree be less than a major for the bachelor's degree.

**DOCTOR OF PHILOSOPHY.** For a major in Germanics, the student must complete all of the stated requirements of the Graduate School, pursue his studies for at least three graduate years, pass general examinations on the field, and submit a satisfactory dissertation which demonstrates a mastery of scholarly procedure and is a contribution to the sum total of knowledge. The general examinations, which are both written and oral, will not be confined to courses taken at the University or elsewhere, but will endeavor to demonstrate the student's grasp of the entire field of which his subject constitutes a part. The main burden of the examination will, of course, concern itself with the fields of Germanic philology and literature. The student may, at his option, major in Germanic literature and minor in Germanic philology or vice versa; or he may major in either of these two fields or a combination of them and minor in a different field.

For a minor in Germanics, a minimum of 15 credits in this field of Germanic literature or Germanic philology or a combination of the two is required. In no instance, however, may a minor in Germanics for the doctor's degree be less than the course requirements stated for the M.A. major under the thesis program.

## COURSES FOR UNDERGRADUATES

- |  |              |
|--|--------------|
| <b>101-102, 103 First-Year Speaking German (5-5,5)</b>   | <b>Staff</b> |
| Recommended for prospective majors and minors and those who wish to work toward a speaking knowledge. The methods and objectives are primarily oral-aural. Students with one year of high school German may receive 2½ credits only in -102. |              |
| <b>110-111 First-Year German (5-5)</b>   | <b>Staff</b> |
| A beginning course devoted primarily to the reading objective. Not open to those who have taken 101-102. Students with one year of high school German may receive 2½ credits only in -111.   |              |
| <b>112 First-Year Reading (5)</b>  | <b>Staff</b> |
| Continuation of 110-111. Prerequisites, 110-111 or one year of high school German. Not open to those who have taken 103.   |              |
| <b>121, 122 First-Year Reading German (5,5)</b>  | <b>Staff</b> |
| A special course devoted exclusively to the reading objective. Primarily for upper-division and graduate students. Not open to those who have had 110-111, 112.  |              |
| <b>204 Basic Second-Year Reading (5)</b>   | <b>Staff</b> |
| Prerequisite, 103 or 112, or two years of high school German.  |              |
| <b>205, 206 Intermediate Second-Year Reading (3,2)</b>   | <b>Staff</b> |
| Prerequisite, 204 or 112 (for students with grades of A or B in 112).  |              |
| <b>207 Second-Year Grammar Review (3)</b>  | <b>Staff</b> |
| Prerequisite, 103 or 112, or two years of high school German.  |              |
| <b>210 Advanced Second-Year Reading (3)</b>  | <b>Staff</b> |
| Prerequisite, 205 or 206.  |              |
| <b>230 Conversation (3)</b>  | <b>Staff</b> |
| For students interested primarily in acquiring a speaking knowledge. Prerequisite, 204 or 205 or 206, or 207.  |              |

- 260 Lower-Division Scientific German (3)** **Staff**  
Prerequisite, 204 or 205, or 206.
- 300 Phonetics (2)** **Reed**  
Speech sounds, stage pronunciation, and phonetic transcription. (Offered 1960-61.)
- 301, 302, 303 Grammar and Conversation (2,2,2)** **Kahn, Roy**  
The materials used aim not merely at an increase in ability to speak, write, and understand German, but also to broaden the student's understanding of the culture of the German-speaking countries. Primarily for majors and minors. Prerequisite, 10 credits in second-year German, including 207; 230 recommended.
- 310, 311 Introduction to the Classical Period (3,3)** **Sauerlander, Kahn**  
Lessing, Goethe, and Schiller. Prerequisite, 10 credits in second-year German or equivalent.
- 312 Introduction to the German Novelle (3)** **Sauerlander**  
Representative writers, such as Keller, Meyer, and Storm; theory of the *Novelle*. Prerequisite, as for 310.
- 320, 321, 322 Upper-Division Scientific German (2-3,2-3,2-3)** **Meyer**  
Prerequisite, 260 or equivalent.
- 325 Upper-Division Scientific German for Premedics (3)** **Staff**  
Prerequisite, 260 or equivalent.
- 401, 402, 403 Grammar and Composition (2,2,2)** **Wilkie, Meyer, Roy**  
Primarily for majors and minors. Prerequisites, 301, 302, and 303.
- 404 History of the German Language (5)** **Meyer**  
From early Germanic to the present day. Open to junior majors. (Offered 1959-60.)
- 410, 411, 412 History of German Literature (3,3,3)** **Buck, Wilkie, Kahn**  
From the beginnings to the Classical period. (Offered 1960-61.)
- 415, 416, 417 Nineteenth-Century Literature (3,3,3)** **Sommerfeld, Sauerlander, Roy**  
(Offered 1959-60.)
- 418, 419 Naturalism, Expressionism, and Twentieth-Century Realism (3,3)** **Roy**  
(Offered 1961-62.)
- 422 Analysis of German Poetry (3)** **Sommerfeld**  
(Offered 1960-61.)
- 431 Lessing's Life and Dramatic Works (3)** **Buck**  
(Offered 1959-60.)
- 433 Goethe: The Early Years (3)** **Sauerlander**  
(Offered 1960-61.)
- 434 Goethe: Life and Works, 1775-88 (3)** **Buck**  
(Offered 1960-61.)
- 436 Goethe's Faust I (3)** **Sommerfeld**  
(Offered 1959-60.)
- 437 Goethe's Faust II (3)** **Sommerfeld**  
(Offered 1959-60.)
- 438 Schiller's Historical Dramas (3)** **Kahn**  
(Offered 1961-62.)
- 450J Introduction to General Linguistics (5)** **Jacobs, Reed**  
Descriptive and historical techniques in the analysis of languages. Offered jointly with the Department of Anthropology.
- 497 Studies in German Literature (1-5, maximum 15)** **Staff**  
Prerequisite, 310 or equivalent.
- 498 Studies in the German Language (1-5, maximum 15)** **Staff**  
Prerequisite, 310 or equivalent.

## COURSES IN ENGLISH

- 350 Masterpieces of German Literature in English (3)** **Sommerfeld**  
(Offered 1960-61.)
- 351 Contemporary German Literature in English (3)** **Roy**  
Trends in German thought and letters in the twentieth century; social and economic backgrounds. (Not offered 1959-61.)
- 462 Goethe in English (3)** **Sauerlander**  
(Offered 1959-60.)
- 464 Thomas Mann in English (3)** **Roy**

## COURSES FOR GRADUATES ONLY

## LITERATURE COURSES

- 500 Bibliography and Methodology (2)** **Sommerfeld**  
(Offered 1959-60.)

<b>510 Literature of the Middle Ages (3)</b> (Offered 1960-61.)	<b>Buck</b>
<b>511 Reformation, Renaissance, and Baroque (3)</b> (Offered 1960-61.)	<b>Wilkie</b>
<b>512 Eighteenth-Century Movements (3)</b> (Offered 1960-61.)	<b>Kahn</b>
<b>515 The Romantic Movement (4)</b> (Offered 1959-60.)	<b>Sommerfeld</b>
<b>516 The Drama of the Nineteenth Century (4)</b> (Offered 1959-60.)	<b>Sauerlander</b>
<b>517 The Literature of the Later Nineteenth Century (4)</b> (Offered 1959-60.)	<b>Rey</b>
<b>518, 519 The Literature of the Twentieth Century (3,3)</b> (Offered 1961-62.)	<b>Rey</b>
<b>531 Lessing (3)</b> (Offered 1959-60.)	<b>Buck</b>
<b>534 Goethe: Life and Works, 1775-88 (3)</b> (Offered 1960-61.)	<b>Buck</b>
<b>535 Goethe: Life and Works, 1788-1832 (3)</b> (Offered 1960-61.)	<b>Sommerfeld</b>
<b>538 Schiller (4)</b> (Offered 1961-62.)	<b>Kahn</b>
<b>590, 591, 592 Seminar in Literary History (1-5,1-5,1-5)</b>	<b>Staff</b>
<b>600 Research (*)</b>	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

#### PHILOLOGY COURSES

<b>501, 502, 503 Advanced Syntax and Synonymy (2,2,2)</b>	<b>Staff</b>
<b>505 Introduction to Linguistics (3)</b> (Offered 1959-60.)	<b>Reed</b>
<b>550 Gothic (5)</b> (Offered 1959-60.)	<b>Meyer</b>
<b>552 Old High German (5)</b> (Offered 1959-60.)	<b>Reed</b>
<b>555 Old Saxon (3)</b> (Offered 1960-61.)	<b>Reed</b>
<b>556 Middle High German (5)</b> (Offered 1960-61.)	<b>Meyer</b>
<b>557 Middle High German Literature in the Original (5)</b> (Offered 1960-61.)	<b>Reed</b>
<b>560 Modern Dialects (3)</b> (Offered 1960-61.)	<b>Reed</b>
<b>570 Sanskrit (3-5)</b> (Offered 1959-60.)	<b>Reed</b>
<b>595, 596, 597 Seminar in Germanic Philology (1-5,1-5,1-5)</b>	<b>Staff</b>
<b>600 Research (*)</b>	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

## HISTORY

**Executive Officer: SOLOMON KATZ, 308 Smith Hall**

The Department of History offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. History majors in the College of Arts and Sciences may take the courses in the College of Education required for the teaching certificate. In addition, the Department of History offers first and second teaching areas for students in the College of Education.

### BACHELOR OF ARTS

Students majoring in history should plan their program in consultation with a faculty adviser designated by the Department of History. History is a discipline

which requires the study of human affairs at many different periods of time and in various parts of the world. The student's plan of study should therefore give attention to ancient, medieval, and modern times and should take account of significant developments in Europe, Asia, and the Americas. One purpose of his program should be to insure a comprehensive coverage of a number of different fields of history. Beyond this, he is encouraged to focus and concentrate his effort on certain areas in history that are of especial interest to him: such as the period of classical antiquity, the Middle Ages, the history of modern Europe, England, or the United States. The chosen area of concentration should be studied as intensively as time will permit.

For a Bachelor of Arts degree 50 credits in history are required. Courses must include: (1) either History 101 and 102 or the General Education sequence, Social Science 101, 102, and 103 (History of Civilization); for History 102, History 305 and 306 may be substituted; (2) either History 241 or History 341, 342, and 343; and (3) at least 25 credits in upper-division history courses.

In addition to the 50 credits in history courses, the student should select from the offerings of other departments elective courses in related subjects which support and enrich the major field. Thus a program in history should include courses in philosophy, literature, or the arts, and economics or political science. They should be chosen as part of the total plan of study with the counsel and advice of the major adviser and should meet the student's individual needs and interests. The program leading to the Bachelor of Arts degree should include 20 to 25 credits of these related electives. Students who plan to undertake graduate work in history should consider the necessity of acquiring a reading knowledge of foreign languages, especially French and German.

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Before beginning graduate work, students should have completed an undergraduate history major or the equivalent. It is expected that students specializing in Far Eastern history will have had sound undergraduate preparation in history.

The requirements for both advanced degrees include work in selected fields of history. Each field is a brief period or a restricted topic which is part of a general subject in one of the major divisions of history. Subjects within the first division are ancient history, medieval history, and Renaissance history; those within the second division are modern European history, United Kingdom, British Empire, and Commonwealth history; American history is the third division; subjects within the fourth division are the history of science, historiography, and the philosophy of history; subjects within a fifth division, Far Eastern history, may be selected by arrangement with the Department of History and the Far Eastern and Russian Institute.

**MASTER OF ARTS.** In history there are two programs leading to the degree of Master of Arts. The professional program is planned as the first year of a scholar's career and the assumption is that the student expects to continue working for the degree of Doctor of Philosophy. The second or general program is designed to meet the interests and purposes of secondary school teachers and other students who think of the M.A. as a terminal degree. The major emphasis is placed upon reading and lecture courses which will enrich and broaden the student's knowledge of history rather than upon technical problems of research and original scholarship.

The candidate in the professional program must complete History 501 and 502, one seminar, and graduate courses in three fields selected for special study. The subjects from which the candidate selects the fields should be in different divisions of history, as described above. In addition, he must have a reading knowledge of one foreign language and must submit an acceptable thesis, the writing of which should involve original research and the fundamentals of historical method.

The candidate in the general program must complete History 501 and 502, four courses numbered in the 400's (two in each of two divisions of history), and one graduate course in a field selected for special study. In addition, he must have a reading knowledge of a foreign language and must submit an acceptable thesis, the emphasis of which may be on interpretation rather than on research.

Students majoring in Far Eastern history must meet the requirements for the professional program, except that they may take either History 501 or 502. One of the three fields is arranged in cooperation with the Far Eastern and Russian Institute.

The prerequisite for a minor in history for the master's degree is an undergraduate program in history or such preparation as the Department deems satisfactory. For this minor, 15 credits in history are required, of which 10 must be in one historical subject and 5 in History 501 or 502.

**DOCTOR OF PHILOSOPHY.** Candidates must complete History 501, 502, and at least two years of seminar work, participate in the work of the advanced seminar, and prepare at least four fields from subjects in the five divisions of history described above. Candidates may choose two fields in only a single division. In addition, they must have a reading knowledge of two foreign languages related to their major fields of study and they are expected to complete a minor in another department.

Students majoring in Far Eastern history are expected to satisfy the same requirements except that only one year of seminar work in the History Department is required. Two fields are arranged in cooperation with the Far Eastern and Russian Institute.

A history minor for the doctor's degree requires History 501 and 502, and either a seminar or three fields selected from subjects in the different divisions of history named above.

## COURSES FOR UNDERGRADUATES

### INTRODUCTORY COURSES

**Social Science 101, 102, 103 History of Civilization (5,5,5)**

**Alden, Burke, Griffiths,  
Kaminsky, Katz, Sugar, Woolf**

See the General Education program, page 118, for description.

**101 Medieval European History (5)**

**Griffiths, Kaminsky, Lytle**

Europe from the disintegration of the Roman Empire to 1500. The evolution of basic values and assumptions of Western civilization, with emphasis on the aspects that led to the development of law and to the growth of ideas in political, economic, and social institutions, and in literature and art.

**102 Modern European History (5)**

**Emerson, Lytle, Treadgold**

Political, social, economic, and cultural history of Europe from 1500 to the present, including the evolution of nationalism, democracy, and imperialism and their interrelationship with the Industrial Revolution. Not open to students who have taken 305 and 306.

**201-202 Ancient History (5-5)**

**Katz**

Political, social, economic, and cultural development of the ancient Near East, Greece, and Rome; the elements of ancient civilization that contributed vitally to medieval and modern civilization.

**241 Survey of the History of the United States (5)**

**Holt, Pressly, Savolle**

Supplies the knowledge of American history which any intelligent and educated American citizen should have. Object is to make the student aware of his heritage of the past and more intelligently conscious of the present.

**271-272, 273 English Political and Social History (5-5,5)**

**Costigan**

England from the earliest times to the present, stressing the origins of American institutions and social patterns.

**291, 292 Latin American History (5,5)**

**Alden**

The Spanish and Portuguese empires in the New World; independence and the subsequent political, social, and economic development of Latin America.

**296J History of Japanese Civilization (5)**

**Staff**

A survey of political, economic, social, intellectual, literary, and artistic developments in Japan from earliest times to the present. Offered jointly with the Far Eastern and Russian Institute.

### ANCIENT HISTORY

**201-202 Ancient History (5-5)**

**Katz**

See Introductory Courses above.

- 401 Greece in the Age of Pericles (3)** **Katz**  
(Offered every four years; not offered 1959-61.)
- 402 Alexander the Great and the Hellenistic Age (5)** **Katz**  
Political, social, economic, and cultural history of the Greco-Oriental world from Alexander to the Roman conquest, with special emphasis on the change from city-state to world-state and the fusion of Greek and Oriental cultures. (Offered 1959-61.)
- 403 The Roman Republic (3)** **Katz**  
Political, social, economic, and cultural history, with emphasis on the last century of the Republic, the period of Cicero and Caesar. (Offered 1959-61.)
- 404 The Roman Empire (3)** **Katz**  
(Offered every four years; not offered 1959-61.)
- 410 The Byzantine Empire (5)** **Katz**  
Political, institutional, and cultural history of the Eastern Roman Empire from the fourth to the fifteenth centuries, with emphasis on its relations with the Latin West and the Slavic and Moslem areas.

## EUROPEAN HISTORY

### Medieval Period

- 101 Medieval European History (5)** **Griffiths, Kaminsky, Lytle**  
See Introductory Courses above.
- 408 Church and State in the Middle Ages (5)** **Kaminsky**  
The changing theories and realities of the relationship between the Church and the secular powers in medieval Europe. (Offered 1959-60.)
- 410 The Byzantine Empire (5)** **Katz**  
See Ancient History above.
- 411 Medieval History, 500-1100 (5)** **Kaminsky**  
(Not offered 1959-61.)
- 412 Medieval History, 1100-1300 (5)** **Kaminsky**  
Europe in the High Middle Ages: the culture of the cathedrals and universities, the formation of the national states, the development of urban society. (Offered 1960-61.)
- 413 Medieval History, 1300-1500 (5)** **Kaminsky**  
(Not offered 1959-61.)
- 426 Central Europe in the Middle Ages (5)** **Kaminsky**  
The origins and medieval history of Germany, Austria, Bohemia, and Poland, considered as forming a region within the sphere of Western European civilization.

### Early Modern Period

- 305 Early Modern European History (5)** **Emerson, Griffiths, Lytle, Treadgold**  
Political, social, economic, and cultural history of Europe from 1450 to the French Revolution (1789). Not open to students who have taken 102.
- 414 Culture of the Renaissance (5)** **Griffiths**  
Art, literature, politics, philosophy, science, and religion in Italy from 1300 to the death of Michelangelo.
- 415 The Reformation (5)** **Griffiths**  
Political and religious crisis; Lutheranism, Zwinglianism, Anglicanism, Anabaptism, Calvinism, Catholic reform; beginnings of Baroque art.
- 416 Monarchy in Europe, 1250-1750 (5)** **Griffiths**  
The development of monarchy from feudalism to absolutism: theories of rulership; the cult of the king; conflict with representative institutions.
- 421J Kievan and Muscovite Russia, 850-1700 (5)** **Treadgold**  
A survey of the development of Russia from the earliest times to the reign of Peter the Great. Offered jointly with the Far Eastern and Russian Institute.
- 429 France, 1429-1789 (5)** **Lytle**  
A survey of French institutions and culture during the classical age.

### Modern Period

- 102 Modern European History (5)** **Emerson, Lytle, Treadgold**  
See Introductory Courses above.
- 306 Europe Since the French Revolution (5)** **Emerson, Lytle, Sugar, Treadgold**  
Political, social, economic, and cultural history of Europe from the French Revolution (1789) to the present day. Not open to students who have taken 102.
- 422J Imperial Russia, 1700-1905 (5)** **Treadgold**  
Survey of the development of Russia from the reign of Peter the Great to the reign of Nicholas II. Offered jointly with the Far East and Russian Institute.
- 423J Twentieth-Century Russia (5)** **Treadgold**  
Survey of Russia and the U.S.S.R. from the reign of Nicholas II to the present. Offered jointly with the Far Eastern and Russian Institute.

- 424J Russian Revolutionary Movement (5)** **Treadgold**  
Intellectual and political aspects of Russian opposition to tsarism from 1825 to 1917. Offered jointly with the Far Eastern and Russian Institute.
- 427 History of Eastern Europe, 1918-58 (5)** **Sugar**  
The history of Eastern Europe (Poland, Czechoslovakia, Hungary, Rumania, Yugoslavia, Bulgaria, and Albania) from the end of World War I to the present.
- 430 The French Revolution and Napoleonic Era, 1789-1815 (5)** **Lytle**  
The transformation of France under the Revolution of 1789; the Reign of Terror and Napoleon; the impact of the Revolution and Napoleon upon Europe.
- 431 Europe, 1814-70 (5)** **Emerson, Lytle, Sugar**  
The development of Europe during the age of Metternich, the revolutions of 1848, and the emergence of new national states.
- 432 Europe, 1870-1914 (5)** **Emerson**  
The impact of population increase and technological change on European society; stresses and strains in European life and outlook.
- 433 Europe, 1914-45 (5)** **Emerson**  
The politics and society of Europe in the age of the concentration camp.
- 436 Germany, 1648-1914 (5)** **Emerson**  
A survey of the society, economy, and political problems of Central Europe from the Thirty Years' War to the First World War, with particular emphasis on the nineteenth century. (Offered alternate years; offered 1960-61.)
- 437 Germany, 1914-45 (5)** **Emerson**  
Politics and society from the collapse of the Bismarckian empire to the collapse of Hitler's empire. (Offered alternate years; offered 1959-60.)
- 460J Economic History of Europe (5)** **Morris**  
Origins of contemporary European economic institutions; emergence of the capitalistic system; problems of nineteenth century European economic organization; international conflict; the growth of new systems; patterns of European economic organization. Offered jointly with the Department of Economics.

#### UNITED KINGDOM, BRITISH EMPIRE, AND COMMONWEALTH HISTORY

- 271-272, 273 English Political and Social History (5-5,5)** **Costigan**  
See Introductory Courses above.
- 371 Constitutional History of England (5)** **Staff**  
The development of legal and governmental institutions of the English people through the Stuart period.
- 381 History of India, 1600 to the Present (5)** **MacKirdy**  
Impact of British trade upon Hindu and Moslem life; changes in economic, social, and political institutions; evolution of nationalism; partition, independence, and new international status. Special emphasis on the period since 1784. (Not offered 1959-60.)
- 382J The Civilization of India: Indian Thought (5)** **Gokhale**  
Main currents of Indian thought; a history of ideas in India. Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)
- 383J The Civilization of India: Impact of Islam and the West (5)** **Gokhale**  
The Islamic and Western impact on Indian culture. Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)
- 384J The Civilization of India: Literature and Arts (5)** **Gokhale**  
The literature and arts of India from earliest times to the present. Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)
- 470 England in the Seventeenth Century (5)** **Staff**  
(Not offered 1959-61.)
- 471 England in the Eighteenth Century (5)** **Costigan**  
(Not offered 1959-61.)
- 472 England in the Nineteenth Century (5)** **Costigan**  
Political, social, and cultural development; the agrarian, industrial, and French revolutions; the rise of parliamentary democracy; the Victorian age; political thought from Utilitarianism to Fabianism; Irish Home Rule.
- 473 England in the Twentieth Century (5)** **Costigan**  
From the Boer War to the present; conservatism, liberalism, and socialism; England in two world wars; the decline of British imperialism.
- 474 Modern Irish History (5)** **Costigan**  
Growth of Irish national feeling in the nineteenth century through the Home Rule and Sinn Féin movements, to the establishment of the Irish Free state and later the Republic of Eire; background of the Irish literary renaissance; establishment of Northern Ireland.
- 475 History of Canada (5)** **MacKirdy**  
The struggle for unity and nationhood as determined by geographical conditions, by religious antagonism, by the impact of modern commercial and industrial society upon an old-world culture, and by pulls toward Europe and the United States.



- 477 History of Australia and New Zealand (5)** **MackKirdy**  
A study of the techniques of overseas colonization of the nineteenth century and the development of egalitarian democratic communities in the late nineteenth and twentieth centuries.
- 480 History of the British Empire Since 1783 (5)** **MackKirdy**  
Britain in the Caribbean, Southeast Asia, Africa, and the Pacific: the dependent empire as a phase of modern capitalism; evolution of imperial policy from autocracy toward self-government and from laissez faire toward economic planning. (Offered alternate years; offered 1959-60.)
- 481 History of the Commonwealth of Nations (5)** **MackKirdy**  
The advancement of dependencies of Great Britain to the status of independent nations associated with Great Britain. (Offered alternate years; offered 1960-61.)
- 482J History of India: Earliest Times to 647 A.D. (5)** **Gokhale**  
A survey of the history of India in ancient times. The emphasis will be on forms of political organizations and economic life, social organizations and cultural developments. Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)
- 483J History of India: 647 to 1525 (5)** **Gokhale**  
A survey of the history of medieval India. The emphasis will be on forms of political organizations and economic life, social organizations and cultural developments. Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)
- 484J History of India: 1525 to the Present (5)** **Gokhale**  
A survey of the history of modern India. The emphasis will be on forms of political organizations and economic life, social organizations and cultural developments. Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)

## AMERICAN HISTORY

- 241 Survey of the History of the United States (5)** **Holt, Pressly, Savello**  
See Introductory Courses above.
- 291, 292 Latin American History (5,5)** **Alden**  
See Introductory Courses above.
- 340 The American People and Their Institutions (2)** **Pressly**  
A study of the American people and their dominant institutions. (Open to foreign students only.)
- 341 Foundation of American Civilization (5)** **Savello**  
The founding of Anglo-Saxon society in the western hemisphere, with attention to the earliest colonial establishments, the growth of a new culture, independence, and the organization of the American Union.
- 342 The Development of American Civilization to 1877 (5)** **Burke, Gates**  
The growth of the new nation; political, economic, and cultural activities through the post-Civil War period.
- 343 Modern American Civilization from 1877 (5)** **Pressly**  
The emergence of modern America, after the Civil War; interrelationships of economic, social, political, and intellectual developments. Not open to students who have taken 450.
- 441 American Revolution and Confederation (5)** **Savello**  
The causes of the separation of the United States from the British Empire; the political theory of the Revolution; its military history; the diplomacy of the Revolution; the Revolution as a social movement; intellectual aspects; readjustment after independence; the formation of the American union; the Constitution. (Offered every four years; offered 1959-60.)
- 442 The Colonial Mind (5)** **Savello**  
(Offered every four years; not offered 1959-61.)
- 443 The Intellectual History of the United States (5)** **Savello**  
A series of lectures and discussions devoted to the study of the development of the American "mind," from the beginnings to the present. (Offered every four years; offered 1959-60.)
- 447 History of the Civil War and Reconstruction (5)** **Pressly**  
Sectional conflict and the struggle between rival nationalisms in mid-nineteenth-century America.
- 450 Twentieth Century America (5)** **Pressly**  
Political, social, economic, and intellectual developments in the United States from 1900 to the present. Not open to students who have taken 343.
- 457 The Diplomatic History of North America, 1492-1763 (5)** **Savello**  
European diplomacy with regard to America, from the time of Columbus to the Peace of Paris, in 1763; America and the European balance of power; relations between colonies and rival colonial empires; colonial origins of later United States international policies. (Offered every four years; offered 1960-61.)
- 458 The United States in World Affairs, 1776-1865 (5)** **Holt**  
The history of the United States in world politics and the balance of power; background of the major episodes in American foreign relations.
- 459 The United States in World Affairs, 1865 to the Present (5)** **Holt**  
A continuation of 458 into the period when the United States became a major factor in the balance of power.

- 461 History of American Liberalism Since 1789 (5)** **Burke, Prossly**  
Comparative study of the aims and accomplishments of four major reform movements in the United States: Jeffersonian democracy, Jacksonian democracy, Progressivism, and the New Deal.
- 463 The Westward Movement (5)** **Burke, Gates**  
Territorial and economic expansion of the United States from the Revolution to World War I; conditions affecting settlement and development of the West; political and social institutions; interregional relationships.
- 464 History of Washington and the Pacific Northwest (5)** **Burke, Gates**  
Exploration and settlement; economic development; growth of government and social institutions; statehood.

## HISTORY OF SCIENCE

- 316 Science in Civilization: Antiquity to 1600 (5)** **Woolf**  
A history of science from preclassical antiquity to the end of the Middle Ages, stressing the growth of scientific ideas, the cultural context in which they take shape and their relationship to other movements of thought in the history of civilization.
- 317 Science in Civilization: Science in Modern Society (5)** **Woolf**  
The growth of modern science since the Renaissance, emphasizing the scientific revolution of the seventeenth century, the development of methodology and the emergence of new fields of interest and new modes of thought.
- 420 Science and the Enlightenment (5)** **Woolf**  
A study of the role of science in its relation to the intellectual, social, economic, and religious forces in the eighteenth century, and an examination of the growth of the international community in science during the same period.

## JAPANESE HISTORY

- 296J History of Japanese Civilization (5)** **Staff**  
See Introductory Courses above.
- 451J History of Chinese-Japanese Relations (3)** **Staff**  
Cultural, political, and economic influence in the nineteenth and twentieth centuries. Offered jointly with the Far Eastern and Russian Institute.
- 452J Early Japanese History (5)** **Staff**  
Dominant trends in the development of Japan from the earliest times to 1600 A.D. Offered jointly with the Far Eastern and Russian Institute.
- 453J Tokugawa Period (5)** **Staff**  
Political system, economic problems, and intellectual currents in Japan from 1600 to 1868. Offered jointly with the Far Eastern and Russian Institute.
- 454J Modern Japanese History (5)** **Staff**  
The development of Japan from feudal to modern state; effects of war and occupation. Offered jointly with the Far Eastern and Russian Institute.

*(For other courses in Far Eastern history see Far Eastern and Russian Institute.)*

## UNDERGRADUATE RESEARCH

- 490-491 Historical Method (5-5)** **Lytle**  
The purposes, materials, and techniques of historical scholarship. Theory, practice, and criticism.
- 499 Undergraduate Research (1-5, maximum 10)** **Staff**

## COURSES FOR GRADUATES ONLY

### HISTORIOGRAPHY

- 501 Historiography: Ancient, Medieval, and Early Modern European (5)** **Katz, Staff**
- 502 Historiography: Modern European and American (5)** **Holt, Staff**

### COURSES IN FIELDS OF SPECIALIZATION

*These courses are introductions to advanced study. They are designed to show how important historical conclusions have been reached, to suggest further research, and particularly to give bibliographical guidance to students in their preparation for the examinations in the fields selected.*

- 510 Greek, Roman or Byzantine History (3-6)** **Katz**
- 514 Medieval and Renaissance History (3-6)** **Griffiths, Kaminsky**
- 520 History of Science (3-6)** **Woolf**
- 532 Modern European History: Germany (3-6)** **Emerson**
- 533 Modern European History: France (3-6)** **Lytle**
- 534J Modern European History: Russia (3-6)** **Treadgold**  
Offered jointly with the Far Eastern and Russian Institute.

541 American History: Early (3-6)	Savelle
542 American History: Western (3-6)	Burke, Gates
543 American History: Civil War (3-6)	Pressly
544 American History: National Period (3-6)	Gates, Holt
545 American History: Twentieth Century (3-6)	Pressly
549J Japanese History (3-6) Offered jointly with the Far Eastern and Russian Institute.	Staff
575 English History (3-6)	Costigan
576 British Empire History (3-6)	MacKirdy

**SEMINARS**

503-504 Seminar in Philosophy of History (3-6)-(3-6) (Offered alternate years; offered 1959-60.)	Costigan
517-518-519 Seminar in Ancient or Medieval History (3-6)-(3-6)-(3-6)	Katz, Kaminsky
521-522-523 Seminar in Modern European History (3-6)-(3-6)-(3-6)	Emerson, Lytle
525-526-527 Seminar in the History of Science (3-6)-(3-6)-(3-6)	Woolf
535J-536J-537J Seminar in Russian History (3-6)-(3-6)-(3-6) Offered jointly with the Far Eastern and Russian Institute. Prerequisites, reading knowledge of Russian and permission.	Treadgold
550J-551J-552J Seminar in Japanese History (3-6)-(3-6)-(3-6) Offered jointly with the Far Eastern and Russian Institute. (Not offered 1959-60.) Prerequisite, permission.	Staff
553-554-555 Seminar in American History: Early (3-6)-(3-6)-(3-6)	Savelle
563-564-565 Seminar in American History: Western (3-6)-(3-6)-(3-6)	Gates
590-591-592 Seminar in American History: National Period (3-6)-(3-6)-(3-6)	Holt
593-594-595 Advanced Seminar (3-6)-(3-6)-(3-6)	Holt

**RESEARCH**

600 Research (*)	Staff
700 Thesis (*)	Staff

**HOME ECONOMICS**

**Director: MARY LOUISE JOHNSON, 201 Raitt Hall**

The School of Home Economics offers many types of major curricula leading to bachelor's and master's degrees, as well as elective courses for the general student. Undergraduate students majoring in home economics may choose from eight curricula, six of which lead to professional degrees, two to nonprofessional degrees.

Of the professional curricula, three lead to the degree of Bachelor of Science in Home Economics and are planned for those who wish to become dietitians or executive housekeepers, or to become home economists in business, journalism, or social work. Those who anticipate teaching may take either a Bachelor of Science in Home Economics or a Bachelor of Science in Home Economics Education. Students who specialize in textiles, clothing, and art receive a Bachelor of Arts in Home Economics. Those who select apparel manufacture follow a curriculum arranged jointly with the College of Business Administration and the School of Art and receive a Bachelor of Arts.

The two nonprofessional curricula are for students who wish to major in home economics but not to prepare for positions in the field. The nonprofessional curriculum in clothing and art leads to the Bachelor of Arts degree, the general nonprofessional curriculum to the Bachelor of Science.

A basic academic field and a second teaching area are offered for students in the College of Education. In addition, a variety of elective courses and programs are available for students majoring in other fields.

The School maintains a Home-Management House in which home economics students spend three to five weeks gaining practical experience in management and group living.

## BACHELOR OF SCIENCE IN HOME ECONOMICS AND BACHELOR OF SCIENCE IN HOME ECONOMICS EDUCATION

**CURRICULUM IN HOME ECONOMICS EDUCATION.** Students who plan to teach home-making in Washington high schools follow this prescribed curriculum, which meets the course requirements (a total of 60 credits in home economics) for the Temporary Vocational Certificate, as well as the course requirements for the Provisional General Certificate, which is issued through the College of Education (see the *College of Education Bulletin* for other requirements for the Provisional General Certificate).

Since this curriculum permits few elective credits, interested students should enter the program to be sure of completing the curriculum in four years.

First Year		Second Year	
	CREDITS		CREDITS
Home Ec. 101 Introduction	1	Home Ec. 215 Meal Planning	3
Home Ec. 115 Food Preparation	3	Home Ec. 234 Costume Design	3
Home Ec. 125 Textiles	3	Home Ec. 248 The House	3
Home Ec. 134 Clothing Construction	5	Econ. 200 Introduction	5
Art 109 Design	3	Educ. 209 Educ. Psychol.	3
Chem. 100 or 110 General	4-3	Educ. 370 Intro. to Teach. Procedures	5
Chem. 120 General and Organic	5	Music Appreciation	2-5
Engl. 101, 102, 103 Composition	9	Nursing 100 Home Nursing	3
Health Educ. 110 Health	2	Psychol. 100 General	5
Speech 100 Basic Improvement	5	Sociol. 110 Survey	5
Approved electives	5-6	Zool. 208 or 118 Physiology	5
Phys. Educ. activity	3		
	48		42-45

Third Year		Fourth Year	
	CREDITS		CREDITS
Home Ec. 307 Nutrition	5	Home Ec. 338 Family Clothing	3
Home Ec. 315 Adv. Food Selection	5	Home Ec. 348 Home-Management House	3
Home Ec. 347 Home Furnishings	5	Home Ec. 407 Adv. Nutrition or	
Home Ec. 354 Family Economics	5	434 Costume Design or 447 Adv.	
Home Ec. 356 Family Relationships	3	Home Furnishing or 495 Special	
Educ. 332 Teachers' Course in Home Ec.	3	Problems	3
Educ. 370E Elementary School Methods	5	Home Ec. 457 Child Nutrition	3
Educ. 373 State Manual	2	Educ. 360 Principles	3
Educ. 390 Evaluation	3	Educ. 371S Directed Teaching	8
Micro. 301 General	5	Educ. 372E Professional Lab.	
Psych. 306 Child Psych. or Educ. 402		Experiences	3
Child Study	5-3	Educ. 374 Fund. of Reading Instruct.	5
Approved electives	0-2	Hist. 464 Wash. and Pac. N.W.	5
	46	Psychol. 320 Dir. Obs. of Child Behavior	
		in Nurs. School	2
		Pub. Health 461 School & Comm. Health	5
		Approved electives	3
			46

**CURRICULUM IN INSTITUTION ADMINISTRATION, A—DIETETICS.** This prescribed curriculum is for students who plan careers as dietitians in food service. Those who intend to become members of the American Dietetic Association must take a year's internship in an approved administrative or hospital dietetics course after completing this program.

First Year		Second Year	
	CREDITS		CREDITS
Home Ec. 101 Introduction	1	Home Ec. 134 Clothing Construction or	
Home Ec. 115 Food Preparation	3	231 Clothing Selection	5-2
Home Ec. 125 Textiles	3	Home Ec. 215 Meal Planning	3
Art 109 Design	3	Home Ec. 248 The House	3
Chem. 100 or 110 General	4-3	Econ. 200 Introduction	5
Chem. 150 General	4	Chem. 231, 232 Organic	6
Engl. 101, 102, 103 Composition	9	Physics 170 For Nurses	5
Health Educ. 110 Health	2	Sociol. 110 Survey	5
Math. 101 Intermediate Algebra	5	Zool. 208 Physiology	5
Psych. 100 General	5	Approved electives	8-11
Approved electives	3-4		
Phys. Educ. activity	3		45
	45		

## Third Year

## CREDITS

Home Ec. 307 Nutrition, 407 Adv. Nutrition	8
Home Ec. 315 Adv. Food Selection	5
Home Ec. 347 Home Furnishing	5
Home Ec. 348 Home-Management House	2
Home Ec. 354 Family Economics	5
Home Ec. 356 Family Relationships	3
Micro. 301 General	5
Psychol. 320 Dir. Obs. of Child Behavior in Nurs. School	2
Approved electives	10
	<hr/> 45

## Fourth Year

## CREDITS

Home Ec. 372 Institution Food Prep., 472 Institution Food Purch., 473, 474 Institution Mgmt., 475 Institution Equip.	21
Home Ec. 408 Diet Therapy	3
Home Ec. 457 Child Nutrition	3
Biochem. 361 Biochemistry	3
Biochem. 363 Lab.	2
Educ. 333 Teaching Institution Admin.	5
Approved electives	8
	<hr/> 45

**CURRICULUM IN INSTITUTION ADMINISTRATION, B—EXECUTIVE HOUSEKEEPING.** This prescribed curriculum is designed for students who plan careers as executive housekeepers in hospitals, hotels, or other institutions. A year's internship must follow this program whereupon the student becomes a member of the National Executive Housekeepers Association.

## First Year

## CREDITS

Home Ec. 101 Introduction	1
Home Ec. 125 Textiles	3
Home Ec. 110 Food & Nutrition or 300 Nutrition	5-2
Chem. 100 or 110 General	4-3
Chem. 120 General and Organic	5
Engl. 101, 102, 103 Composition	9
Health Educ. 110 Health	2
Soc. 110 Survey	5
Approved electives	10-12
Phys. Educ. activity	3
	<hr/> 46

## Second Year

## CREDITS

Home Ec. 134 Clothing Construction	5
Home Ec. 248 The House	3
Art 109 Design	3
Econ. 200 Introduction	5
Nurs. 100 Home Nursing	3
Physics 170 Hlth. Sciences Physics	5
Psychol. 100 General	5
Speech 100 Basic Improvement	5
Approved electives	12
	<hr/> 46

## Third Year

## CREDITS

Home Ec. 347 Home Furnishing	5
Home Ec. 354 Family Economics	5
Home Ec. 356 Family Relationships	3
Micro. 301 General	5
Pers. 310 Personnel Management	5
Prod. 355 Purchasing & Material Mgmt.	5
Psychol. 320 Dir. Obs. of Child Behavior in Nurs. School	2
Speech 332 Principles of Group Discussion	5
Zool. 118 Physiology	5
Approved electives	5
	<hr/> 45

## Fourth Year

## CREDITS

Home Ec. 457 Child Nutrition	3
Home Ec. 473 Institution Mgmt.	5
Home Ec. 474 Institution Management (Accounting)	5
Home Ec. 475 Institution Equip.	3
Educ. 333 Methods of Teach. for Inst. Admin. Students	5
Hum. Rel. 460 Human Relations in Business and Industry	5
Mech. Engr. 418 Work Simplification	2
Pub. Health 421 Principles of Pub. Hlth. II	3
Soc. 466 Indust. Sociol. (should precede Hum. Rel. 460)	5
Approved electives	10
	<hr/> 46

Recommended electives: Journalism 200 (3), Speech 230 (5), Personnel 345 and 346 (3,3), Policy and Administration 463 (5).

**CURRICULUM IN BUSINESS, JOURNALISM, AND PUBLIC HEALTH.** Those anticipating sales promotion work in food, equipment, or utility companies or planning to combine home economics with journalism, social work, or public health follow the institution administration A curriculum for the first three years and during their fourth year take one of these sequences:

## Fourth Year

## HOME ECONOMICS AND BUSINESS

## CREDITS

Home Ec. 316 Demonst. Cookery	3
Home Ec. 408 Diet Therapy, and 415 Exper. Cook., or Biochem. 361 and 363 Biochem.	6-5
Home Ec. 457 Child Nutrition	3
Commun. 201 Communications Today	2
Journ. 200 News Writing	3
Speech 120 Public Speaking	5
Approved electives	21-23
	<hr/> 45

## HOME ECONOMICS AND JOURNALISM

## CREDITS

Home Ec. 457 Child Nutrition	3
Adver. 226 Intro. to Advertising	3
Commun. 201 Communications Today	2
Commun. 303 Public Relations	3
Journ. 200 News Writing	3
Journ. 301 Copy Editing	3
Journ. 404 Mag. Article Writing	3
Radio-TV 352 Radio and Television Advertising	5
Approved electives	23
	<hr/> 48

## HOME ECONOMICS AND SOCIAL OR PUBLIC HEALTH WORK

CREDITS	
Home Ec. 408 Diet Therapy	3
Home Ec. 457 Child Nutrition	3
Pub. Health 420 Epid. of Commun. Diseases	2
Public Health 423 Org. and Services	3
Pub. Health 463 Comm. Organization	3
Pub. Health 464 Comm. Health Educ.	3
Pub. Health 470 Intro. to Biometry	3
10 credits from Soc. Work 300, 302, 401, Biochem. 361 and 363 advised	10
Approved electives	15
	45

## BACHELOR OF ARTS IN HOME ECONOMICS

**CURRICULUM IN TEXTILES, CLOTHING, AND ART.** This prescribed curriculum is designed for students whose primary professional interest is in costume design and construction.

First Year		Second Year	
CREDITS		CREDITS	
Home Ec. 101 Introduction	1	Home Ec. 110 Food & Nutrition or 115 Food Prep. or 300 Nutrition	2-5
Home Ec. 125 Textiles	3	Home Ec. 234 Costume Design	3
Home Ec. 134 Clothing Construction	5	Art 106 Drawing	3
Art 105 Drawing	3	Art 111 Design	3
Art 109, 110 Design	6	Art 151 Figure Sketching	1
Chem. 100 or 110 General	4-3	Econ. 200 Introduction	5
Chem. 120 General and Organic	5	Psychol. 100 General	5
Engl. 101, 102, 103 Composition	9	Soc. Sci. 101, 102 Hist. of Civilization	10
Health Educ. 110 Health	2	Sociol. 110 Survey	5
Approved electives	7-8	Approved electives	8-5
Phys. Educ. activity	3		45
	48		
Third Year		Fourth Year	
CREDITS		CREDITS	
Home Ec. 334, 434 Costume Design	6	Home Ec. 425 Advanced Textiles	3
Home Ec. 347 Home Furnishings	5	Home Ec. 432, 433 Hist. of Costume & Textiles	8
Home Ec. 354 Family Economics	5	Home Ec. 435, 436 Adv. Costume Design	10
Home Ec. 356 Family Relationships	3	Art electives	8
Art. 369, 370, 371 Costume Design	6	Approved electives	16
Philos. 100 Introduction	5		45
Approved electives	15		
	45		

## BACHELOR OF ARTS

**CURRICULUM IN DESIGN FOR APPAREL MANUFACTURING.** This prescribed curriculum correlates work in the Schools of Home Economics and Art and the College of Business Administration. Its purpose is to equip qualified students with the knowledge and skills essential in designing for apparel manufacturing. Practical experience in factories is required, and is provided by registration in 380 (Field Work). For such experience the student is paid an amount relatively equivalent to tuition costs. Skill in typing is highly desirable. For the first two years, students follow the textiles, clothing, and art curriculum, then take this sequence in their third and fourth years:

Third Year		Fourth Year	
CREDITS		CREDITS	
Home Ec. 334, 434 Costume Design	6	Home Ec. 425 Adv. Textiles	3
Home Ec. 347 Home Furnishings	5	Home Ec. 432, 433 History of Costume and Textiles	8
Home Ec. 354 Family Economics	5	Home Ec. 435, 436 Adv. Costume Design	10
Home Ec. 356 Family Relationships	3	Business Administration electives	10-15
Acctg. 150 Fundamentals	4	Chosen from:	
Art 369, 370, 371 Costume Design	6	Personnel 310 Pers. Mgmt. (5), Hum. Rel. 460, Human Relations in Bus. & Indus. (5), Marketing 381 Retailing (5), Production 301 Principles (5), and other approved courses.	
Gen. Bus. 101 Introduction	5	Home Ec. 380 Field Work	6
Mktg. 301 Principles	5	Approved electives	8-3
Approved electives	6		45
	45		

**NONPROFESSIONAL CURRICULUM IN TEXTILES, CLOTHING, AND ART.** This elective curriculum is for those students who are interested in a career which combines retailing or communications (journalism, radio or television) with textiles and clothing. The flexibility resulting from the large number of electives in the junior and senior years, makes it possible for the students to elect widely among the courses of the supporting field.

Other suggested electives are: Home Economics 248, 300 or 307, 457 or Psychology 320 (Directed Observation of Child Behavior in the Nursery School) and Architecture 105 (The House).

For the first two years, students follow the textiles, clothing, and art curriculum, then take this sequence in their third and fourth years:

Third Year	CREDITS	Fourth Year	CREDITS
Home Ec. 334, 434 Costume Design	6	Home Ec. 425 Adv. Textiles	3
Home Ec. 347 Home Furnishings	5	Home Ec. 432, 433 History of Costume & Textiles	8
Home Ec. 354 Family Economics	5	4 credits from Home Ec. 321 Needlecraft, 322 Needlecraft, 329 Hand Weaving	4
Home Ec. 356 Family Relationships	3	Art or upper-division business electives	10
Art 369, 370 Costume Design	4	Approved electives	20
Philos. 100 Introduction	5		
Approved electives	17		
	45		45

## BACHELOR OF SCIENCE

**NONPROFESSIONAL GENERAL CURRICULUM.** This elective curriculum is for students who want a broad home economics background without specialization. Suggested electives are: Architecture 105 (The House); Microbiology 301 (General); Physics 170 (Introduction to Health Sciences Physics); Sociology 453 (Social Factors of Marriage); and courses in education, journalism, nursery school, and in the General Education program.

First Year	CREDITS	Second Year	CREDITS
Home Ec. 101 Introduction	1	Home Ec. 215 Meal Planning	3
Home Ec. 115 Food Preparation	3	Home Ec. 234 Costume Design	3
Home Ec. 125 Textiles	3	Home Ec. 248 The House	3
Home Ec. 134 Clothing Construction	5	Econ. 200 Introduction	5
Art 109 Design	3	Psychol. 100 General	5
Chem. 100 or 110 General	4-3	Sociology 110 Survey	5
Chem. 120 General and Organic	5	Zool. 208 Physiology	5
Engl. 101, 102, 103 Composition	9	Approved electives	16
Health Educ. 110 Health	2		
Approved electives	10-11		
Phys. Educ. activity	3		
	48		45

Third Year	CREDITS	Fourth Year	CREDITS
Home Ec. 307 Nutrition	5	Home Ec. 457 Child Nutrition	3
Home Ec. 347 Home Furnishings	5	Approved electives	42
Home Ec. 348 Home-Management House	2		
Home Ec. 354 Family Economics	5		45
Home Ec. 356 Family Relationships	3		
Psychol. 320 Dir. Obs. of Child Behavior in Nurs. School	2		
Approved electives	23		
	45		

## COURSES AND PROGRAMS FOR STUDENTS IN OTHER FIELDS

**GENERAL COLLEGE STUDENTS.** Those interested in homemaking will find value in the following courses: Home Economics 110, 125, 134, 215, 231, 240 (or 347), 248, 300 (or 307), 321, 322, 329, 350 (or 354), 356, and 457, and Education 332 (Teachers' Course in Home Economics).

**COLLEGE OF BUSINESS ADMINISTRATION STUDENTS.** For those interested in institution management the following sequence is recommended: Home Economics 115, 125, 215, 240, 307, 372, 472, 473, and 474; Chemistry 100 or 110 (General) and 150 (General); Microbiology 301 (General).

**JOURNALISM STUDENTS.** For those wishing a general background in home economics the following are recommended: Home Economics 115, 125, 231, 240, 300, 350, 356, and 457, or approved substitutes.

**COLLEGE OF EDUCATION STUDENTS.** Students who do not expect to teach vocational home economics in senior high schools but who wish a portion of their training in home economics may select their basic academic field or second area of concentration in home economics.

For a basic academic field (primarily for elementary teachers), the requirements are: 45 credits, including Home Economics 101, 115, 125, 134, 215, 234, 248, 307, 347, 354, 356, 457 and a 3-credit elective in home economics, plus prerequisite courses of Art 109, Chemistry 100 or 110 (General) and 120 (General and Organic), and Economics 200 (Introduction) to complete the field.

For a second area of concentration, students may select one of four sequences. General: Home Economics 110 or 115, 125, 134, 248, 300; Textiles, Clothing, and Art: Home Economics 125, 134, 234, 347; Food, Nutrition, and Health: Home Economics 110 or 115, 215, 300, 350, 457; or Family Relationships and Child Welfare: Home Economics 110 or 115, 300, 350, 356, 457, Psychology 320 (Directed Observation of Child Behavior in the Nursery School).

## ADVANCED DEGREES AND GRADUATE WORK

Students who intend to work toward a master's degree must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

**MASTER OF ARTS OR MASTER OF SCIENCE.** The Master of Arts is attained by work in textiles and clothing, the Master of Science by work in foods and nutrition. Study in either area may be combined with home economics education or family economics. A minor in a field related to home economics is required.

**MASTER OF ARTS IN HOME ECONOMICS OR MASTER OF SCIENCE IN HOME ECONOMICS.** There is no foreign language requirement for these degrees. Candidates may take all their work in home economics or may take up to 15 credits in related fields, such as art, economics, education, public health, or the biological, physical, or social sciences. Candidates must present acceptable undergraduate preparation in home economics and basic fields.

**DIETETIC INTERNSHIPS.** Graduates in institution administration who wish to become hospital dietitians select a hospital training course, which is a dietetic internship, for their fifth year of study. Those who wish to become dietitians in lunch rooms, restaurants, or dormitories select an administration internship, such as the one offered by the School of Home Economics. Some of these internships carry graduate credit, and completion of all approved courses makes students eligible for membership in the American Dietetic Association.

## COURSES FOR UNDERGRADUATES

- |            |  |                       |
|------------|--|-----------------------|
| <b>101</b> | <b>Introduction to Home Economics (1)</b><br>Orientation to college; women's educational needs and opportunities in the professional fields.   | <b>Staff</b>          |
| <b>110</b> | <b>Food and Nutrition (5)</b><br>Food selection and preparation, and family meal planning and service, with emphasis on nutritive and economic values. For nonmajors interested in homemaking.   | <b>Anderson</b>       |
| <b>115</b> | <b>Food Preparation (3)</b><br>Cookery techniques presented in lecture-demonstration, followed by laboratory experience. Food selection, basic cookery, simple meal planning service, and cost calculation. No credit for those who have taken 110 or 119. | <b>Anderson, Crum</b> |
| <b>119</b> | <b>Family Nutrition (3)</b><br>Normal nutritional requirements of the family and simple dietary modifications. Food selection. Cultural effects on diet pattern. For student nurses.   | <b>Staff</b>          |
| <b>125</b> | <b>Textiles (3)</b><br>Relationship of raw materials, construction, and finish to quality and cost; identification of fibers, yarns, and fabrics; microscopic and chemical tests; economic development of textile industry.                                | <b>Brockway</b>       |



- 134 Clothing Construction and Selection (3 or 5)** **Shigaya, Hendren**  
Analysis and selection of clothing and accessories. Wardrobe inventory. Planning and construction of cotton or linen dresses. Those having had 231 will receive only 3 credits.
- 215 Meal Planning and Preparation (3)** **Henderson**  
Factors in food purchasing. Preparation and service of nutritious and attractive meals for families on different economic levels. Prerequisites, 115, chemistry, and sophomore standing.
- 231 Clothing Selection (2)** **Payne**  
Choice of clothing, emphasizing appropriateness to personality and occasion as well as quality and cost. Not open to those who have had 134.
- 234 Costume Design and Construction (3)** **Payne, Hendren**  
Flat-pattern designing and wool techniques, including the design of a muslin pattern and the use of it in making a wool dress; study of clothing for children. Prerequisites, 125, 134, and Art 109.
- 240 Home Furnishing (3)** **Hosmer**  
Color and design; selection and arrangement of furniture and furnishings. Fabrics, floor coverings, wall and window treatment, and accessories. For nonmajors. Not open to students who have taken 347.
- 248 The House, Its Equipment, and Management (3)** **Turnbull**  
Management of time, energy, and equipment in the home as a factor in successful family living.
- 300 Nutrition (2)** **Crum**  
Importance of food to the maintenance of health; nutritive values and human needs; ways of meeting human requirements at different cost levels. For nonmajors.
- 305 Diet in Health and Disease (3)** **Anderson**  
Practical applications of nutrition principles to feeding problems and to dietary modifications necessitated by disease. For student nurses. Prerequisite, 119.
- 307 Nutrition (3 or 5)** **Johnson**  
Chemistry of digestion and metabolism. Food values; human requirements and ways of meeting them at different cost levels. Qualified transfer students receive 3 credits. Prerequisites, general chemistry and physiology.
- 315 Advanced Food Selection and Preparation (2 or 5)** **Nielsen**  
Relationship of science to cookery. Food preservation. Simple experimental cookery. Meal preparation and service; food budgeting and purchasing. Students who pass a qualified diagnostic examination may take lectures only and receive 2 credits. Prerequisites, 215 and general chemistry.
- 316 Demonstration Cookery (3)** **Nielsen**  
Techniques and methods adapted to teaching and business. Prerequisite, 215 or permission.
- 321 Needlecraft (2)** **Payne**  
Italian embroidery and its application to table and other household linens. History of lace. Prerequisites, 134 and Art 109.
- 322 Needlecraft (2)** **Payne**  
National and historic embroideries with application to modern use in the home and in costume. Prerequisites, 134 and Art 109.
- 329 Hand Weaving (2)** **Brockway**  
Mechanism of looms, warping techniques, designing and weaving with various yarns; contemporary designers. Prerequisite, permission.
- 334 Costume Design and Construction (3)** **Payne**  
Design by draping. Study of clothing production at all price levels. Silk and rayon technique. Prerequisite, 234.
- 338 Clothing for the Family (3)** **Payne**  
A study of family clothing considering income, social, and psychological factors, ready-to-wear, and mass production. Construction of children's garments and renovation of adult's. Prerequisite, 234.
- 347 Home Furnishing (5)** **Hosmer**  
Selection and arrangement of house furnishings to contribute to family living: wall treatment, floor coverings, fabrics, furniture, accessories, furnishings, and budgets. Field trips and special laboratory projects. Not open to students who have taken 240. Prerequisites, 125 and Art 109.
- 348 Home-Management House (2-3)** **Henderson**  
Residence in the School's Home-Management House, with opportunity to apply principles of homemaking in money management; keeping of records; care of house; group relationships; and food buying, preparation, and service. *Advance reservation required.* Home economics education students receive 3 credits; others, 2. Prerequisites, 248, 307, 315, 347, 354, and permission.
- 350 Managing Family Finances (3)** **Turnbull**  
Planning the use of financial and other resources to further the goals of the family. The connection between outside social and economic conditions and personal financial problems. For nonmajors. Not open to those who have had 354.
- 354 Family Economics and Finances (5)** **Turnbull**  
Economic and social conditions affecting the consumer, such as credit and marketing practices; managing family finances in relation to these conditions. Not open to those who have had 350. Prerequisite, Economics 200.

- 356 Family Relationships (3)** **Gould**  
Principles underlying good family relationships; wholesome adjustment of the home to a changing society.
- 372 Institution Food Preparation (5)** **Smith**  
Laboratory and institution practice in large-quantity food preparation and cost control. Prerequisite, 215.
- 380 Field Work in Apparel Manufacturing (2, maximum 6)** **Payne**  
Open only to apparel manufacturing majors. A program of part-time employment planned in advance with the instructor to provide on-the-job training correlated with periodic reports and evaluation of experience.
- 407 Advanced Nutrition (3)** **Johnson**  
Recent research on vitamins, minerals, amino acids, and their interrelationships. Methods of utilizing knowledge in public health work and in teaching. Prerequisites, 307 and organic chemistry, or permission.
- 408 Diet Therapy (3)** **Staff**  
Nutrition as a curative and preventive factor in disease. Primarily journal readings. Prerequisite, 407.
- 415 Experimental Cookery (3)** **Nielsen**  
Food experiments illustrating science applications. Subjective and objective testing of food. Prerequisite, 315 or permission.
- 425 Advanced Textiles (3)** **Brockway**  
Tests for textile strength, sun fading, washing, weight, thread count, water repellency, quantitative analysis, and microanalysis. Developments in synthetics and finishes, distributive education, technical and trade organizations, legislation, and standardization. Prerequisites, 125, Economics 200, and general chemistry.
- 429 Advanced Weaving (3)** **Brockway**  
Student development of original drafts and woven fabric designs. Cloth analysis, including textural qualities and the contributing factors. Trends in textile design and production and study of work of contemporary weaver designers. Prerequisite, 329 or equivalent.
- 432 History of Costume and Textiles (4)** **Payne**  
A study of fabrics and costumes used and worn by the peoples of ancient Egypt, Mesopotamia, Greece, Rome, and following centers of European civilization to the Renaissance. Prerequisites, junior standing and permission.
- 433 History of Costume and Textiles (4)** **Payne**  
Continuation of 432 from the Renaissance to the present time. Prerequisite, 432.
- 434 Costume Design and Construction (3)** **Payne, Shigaya**  
Basic principles of coat and suit construction; comparative costs of ready-to-wear. Prerequisites, 334 or 338 and junior standing.
- 435 Advanced Costume Design and Construction (5)** **Payne**  
Flat-pattern drafting, grading, and designing. Prerequisites, 434 and Art 369.
- 436 Advanced Costume Design and Construction (5)** **Payne**  
Advanced design by draping; custom work. Prerequisite, 435.
- 447 Advanced Home Furnishing (3)** **Hosmer**  
Selection of fabrics, floor coverings, wall coverings, and furniture. Furniture finishing. Techniques of making draperies, slip covers, and cushions. Individual projects relating to high school home projects. Prerequisite, 347.
- 454 Advanced Family Economics and Finances (2)** **Turnbull**  
Family adjustment to differing social and economic conditions. Legislation that affects consumers. Interaction of production, distribution, and consumption of consumer goods. Prerequisite, 350 or 354.
- 457 Child Nutrition and Care (3)** **Johnson**  
Physical, mental, and emotional health of children. Experience with parents and children in the Child Nutrition Service. Prerequisite, 300 or 307, or permission.
- 472 Institution Food Purchasing (3)** **Terrell**  
Market organization, buying procedures, payment and credit; food selection and care; inspection of merchandise for those who plan to do institution buying. Prerequisites, 315 and 372.
- 473 Institution Management (5)** **Terrell**  
Principles and methods of organization and administration in food service institutions. A study of food production and service problems, types of institutions, work planning, personnel direction, quality and cost controls, sanitation, budget analysis, professional ethics, executive qualifications. Problem solving and field trips. For institution management students and others by permission.
- 474 Institution Management (5)** **Sandstrom**  
Food and food service accounting problems. Recording financial transactions; cost controls; profit and loss statements. Prerequisites, 215 and 372.
- 475 Institution Equipment (3)** **Terrell**  
Institution kitchens and serving units; routing of work; equipment selection, operation, and care; repair and depreciation records. Prerequisites, 372 and permission.

- 495 Special Problems in Home Economics (\*, maximum 10)** **Staff**  
 Individual study and research in fields of special interest. In registration, field of interest should be indicated by area letter. Prerequisite, permission.
- |                               |                             |
|-------------------------------|-----------------------------|
| A. Costume design             | F. Foods                    |
| B. Institution administration | G. Home economics education |
| C. Nutrition                  | H. Family relations         |
| D. Textiles                   | I. Home management          |
| E. Family economics           | K. Home furnishing          |

## COURSES FOR GRADUATES ONLY

- 507 Readings in Nutrition (\*)** **Johnson**  
 Library research. Prerequisite, 407 or equivalent.
- 515 Readings in Food Selection and Preparation (\*)** **Nielsen**  
 Professional literature on recent developments. Prerequisite, 315 or equivalent, or permission.
- 525 Seminar in Textiles (3)** **Brockway**  
 Readings and discussion of factors affecting economic utilization and technical development of textile products. Trends in current research and methods of investigation. For graduate students in textiles and clothing. Prerequisites, 125, 425, or equivalent.
- 554 Social and Economic Problems of the Consumer (3-5)** **Turnbull**  
 Selected topics in the family economics field. Prerequisites, 454 or equivalent and permission.
- 562 Home Economics Education (\*)** **McAdams**  
 Study of achievements, trends, functions, methods, and teaching materials.
- 576, 577, 578 Supervised Field Work (4,4,4)** **Terrell**  
 Three quarters of practice and organized classwork for graduates in institution management and dietetics. An administrative dietetics internship approved by the American Dietetic Association. Fee, \$25.00 (payable first quarter).
- 600 Research (\*)** **Staff**  
 In registration, field of interest should be indicated by area letter. Prerequisite, permission.
- |                               |                             |
|-------------------------------|-----------------------------|
| A. Costume design             | F. Foods                    |
| B. Institution administration | G. Home economics education |
| C. Nutrition                  | H. Family relations         |
| D. Textiles                   | I. Home management          |
| E. Family economics           | K. Home furnishing          |
- 700 Thesis (\*)** **Staff**

## JOURNALISM

(See Communications, page 88.)

## LAW, PREPROFESSIONAL PROGRAM

**Adviser, 121 Miller Hall**

Students at the University who plan to enter the University School of Law may qualify for entrance by (1) obtaining a bachelor's degree before entrance; or (2) taking three years of undergraduate work (135 credits) with a 2.50 grade-point average; or (3) taking a special three-year course of prelegal training which leads to a bachelor's degree at the successful completion of the first year in the School of Law.

Students who take the three-year course leading to a bachelor's degree after one year in the School of Law choose one of three curricula. The College of Business Administration provides a business-law curriculum (see the *College of Business Administration Bulletin*) and the College of Arts and Sciences provides both an arts-law and a science-law curriculum. In all these curricula, the three-year program must include 135 credits with a 2.50 grade-point average and the required quarters in physical education activity and military training if a degree is to be conferred by the college at the end of a year in the School of Law. The grade point of 2.50 does not include the physical education activity and lower-division military training grades.

These three-year curricula are open to students from other institutions who enter the University with advanced standing, provided that they earn at least 45 approved credits in the University before entering the School of Law. This privi-

lege is not extended to normal-school graduates attempting to graduate in two years nor to transfer students who enter the University with the rank of senior.

Students who enter the School of Law after three years of undergraduate work and who have completed at least the third year (45 credits) of prelaw in residence at the University of Washington may qualify for a bachelor's degree after one year in the School of Law by: (a) offering University of Washington School of Law credits as general upper-division electives to apply at the discretion of the major department concerned, provided they meet all requirements of the college and major department; or (b) complying with the prelaw curriculum which qualifies them for an undergraduate major in law.

**ARTS-LAW CURRICULUM.** The requirements are: English 101, 102, 103 (Composition); Health Education 110 (Health Education) or 175 (Personal Health); three quarters of physical education activity; 12 or 18 credits in ROTC courses; 25 credits in a special field; 20 credits in a related field; and 82 credits in electives, arranged to fulfill group requirements and to provide 28 credits in upper-division courses. No correspondence courses may be included in any of the three-year programs.

The following courses are especially recommended by the University of Washington School of Law: General Business 101 (Introduction to Business); Economics 200 (Introduction to Economics); History 271-272 (English Political and Social History); Philosophy 100 (Introduction to Philosophy), 120 (Introduction to Logic); and Political Science 201 (Modern Government) or 202 (American Government and Politics), 362 (Introduction to Public Law); and at least one course in accounting, Accounting 150 (Fundamentals of Accounting) is recommended. If a student takes all these basic courses, he may choose his special and related fields from any department in the College. If not, his special and related fields must be selected from economics, history, philosophy, and political science.

**SCIENCE-LAW CURRICULUM.** The requirements for this curriculum are the same as those for the arts-law curriculum except that a major in a physical or biological science may be substituted for the special and related field requirements.

## LIBERAL ARTS

**Assistant Professor: W. GLEN LUTEY, 229 Denny Hall**

There is no curriculum leading to a degree in Liberal Arts. The following courses are given as general interest courses for students in all fields.

### COURSES FOR UNDERGRADUATES

- |            |   |              |
|------------|---|--------------|
| <b>101</b> | <b>Introduction to Modern Thought (5)</b>   | <b>Lutey</b> |
|            | Man's place in the universe; cosmic origins; origin and nature of life; mind and behavior; values.  |              |
| <b>111</b> | <b>Introduction to the Study of the Fine Arts (5)</b>   | <b>Lutey</b> |
|            | The appreciation of masterpieces of architecture, painting, sculpture, and music; the problems common to them; the philosophy of art; the relations of beauty, truth, and morality. |              |

## GRADUATE SCHOOL OF LIBRARIANSHIP, PREPROFESSIONAL PROGRAM

**Director, 111 Library**

Students planning to apply for admission to the Graduate School of Librarianship should consult the Director of the School, in person or by correspondence, for guidance in their undergraduate studies. In general, it is recommended that a student establish a major in a subject of special interest to him and supplement his comprehensive knowledge of that field with a broad cultural course which

includes literature, the political and social sciences, some aspect of the physical sciences, and psychology. A study of at least one modern foreign language is essential.

An undergraduate curriculum in the Division of General Studies (see page 121) provides a flexible program for students planning to enter the School.

Students without substantial library experience should have some instruction in elementary library studies during their undergraduate years. Attention is called to the all-University nonprofessional course, Librarianship 100 (The Use of Books and Libraries), given by the Graduate School of Librarianship. This course is open to all students, particularly new and lower-division students, and it helps to orient those interested in librarianship as a career. The School offers certain other undergraduate courses which, although primarily designed to prepare students to meet certification requirements for teacher-librarians, may serve also as introductory work for those who plan to enter the School after graduation (see the *Graduate School Bulletin* for a complete statement of admission requirements).

## COURSES FOR UNDERGRADUATES

- 100 The Use of Books and Libraries (2)** **Staff**  
Lectures and discussions illustrating the use of libraries, general reference materials and aids, and reference books in various subject fields. Open to any student but designed primarily for freshmen, sophomores, and new students.
- 451 Children's Books (3)** **Peterson, Wheeler**  
An introduction to the field of children's books, with special emphasis on their selection and application to the school curriculum and to the child's recreational reading interests.
- 452 Storytelling (3)** **Wheeler**  
The art and materials of storytelling in public libraries, schools, and recreational centers. Folk and fairy tales, myths, epics, picture books, and realistic materials are studied, evaluated and adapted. Open to all students; not required for teacher-librarians.
- 460 School Library Administration (3)** **Turner**  
Methods of developing a strongly functioning library as an integral part of the school. Planning the library; public relations; personnel; routines involved in care and circulation of materials.
- 461 School Library Materials (3)** **Turner**  
Study of reference materials and basic books in subject fields, with special attention to their use in correlation with the school curriculum.
- 462 Reading of Young People (3)** **Turner**  
Principles of evaluation and selection of books for young people. Study of available materials; sources of information about books and reading interests.
- 463 Elementary Classification and Cataloging (4)** **Peterson, Turner**  
Simple cataloging techniques suitable for the school or small library.
- 464 Elements of Technical Processes (3)** **Peterson, Turner**  
Techniques of acquisition, processing, and circulation of library materials; practice in cataloging. Prerequisite, 463
- 470 History of the Book (3)** **Bevis**  
History of the written and printed book from earliest times to the present, including a survey of modern presses and publishing.

## LINGUISTICS

**Committee:** M. JACOBS, Anthropology; F.-K. LI, N. POPPE, Far Eastern;  
C. E. REED, Germanics

Linguistics is an interdepartmental program for graduate students only. The usual prerequisites for admission to study in this program are formal approval by the Linguistics Committee, and the equivalent of 45 quarter credits in undergraduate language courses other than English.

**MASTER OF ARTS.** Requirements include Anthropology 450J, 451 or 551, 553J, and other approved language courses; and a reading knowledge of both German and French.

**DOCTOR OF PHILOSOPHY.** Requirements include those listed for the master's degree; a strong supporting minor and breadth of background beyond narrowly

linguistic matters; and independent, original research with a living informant or informants.

Further information about linguistics may be obtained from the Graduate School or from a member of the Linguistics Committee.

## MATHEMATICS

**Executive Officer: C. B. ALLENDOERFER, 239 Physics Hall**

The Department of Mathematics offers courses leading to the degrees of Bachelor of Arts, Bachelor of Science, Master of Arts, Master of Science, Master of Science in Mathematical Statistics, and Doctor of Philosophy. Two undergraduate curricula are offered, both of which lead to bachelor's degrees: an elective curriculum for students interested in a general, nonprofessional study of the subject, and a prescribed curriculum for those who plan graduate work or a professional career in mathematics. Students in the prescribed curriculum may choose either a mathematics, a mathematical statistics, or a numerical analysis option. The Department also offers first and second teaching areas for students in the College of Education.

The prerequisite for a major in the Department of Mathematics is  $1\frac{1}{2}$  units of algebra, 1 unit of geometry, and  $\frac{1}{2}$  unit of trigonometry in either high school or college. Four years of mathematics in high school are strongly recommended.

Students presenting one and one-half years of high school algebra and who wish to enter 103, 104, or 105 must take a qualifying test before they can register for any of these courses. These tests are given by the Mathematics Department during registration periods and at certain other times. Students presenting credit for high school trigonometry must have this validated by an exemption test given at the same time. Students presenting two years of high school algebra may be exempted from 105 by passing an exemption test. Students exempted from 105 may replace this course with approved mathematics electives. Those with high scores on both exemption tests will be placed in 153 or 163. Students with satisfactory scores on the Advanced Placement Test given by the College Entrance Examination Board will be placed in 251 or 252.

Mathematics 120 is an introductory course for students who plan to major in mathematics and for other science students. It may be taken concurrently with any other freshman mathematics course. It may also be used in conjunction with 121 as an introductory course for liberal arts students.

No grade lower than C in any mathematics course is accepted for credit toward a major.

## BACHELOR OF ARTS

In the elective curriculum, 45 credits in mathematics are required. Courses must include 105, 153, 251, 252, 253, and 22 credits in approved electives. The only approved lower-division electives are 120, 121, and 281. No more than 10 credits from the following list may be presented: 120, 121, 281, 382, and 383.

## BACHELOR OF SCIENCE

In the prescribed curriculum, a grade-point average of 2.50 is required in all mathematics courses. For all options, requirements in other fields include: one year of general physics including laboratory and 15 credits each in the humanities and the social sciences. The College of Arts and Sciences group requirements do not apply to this curriculum. German, French, or Russian is recommended as a humanities elective.

**MATHEMATICS OPTION.** A minimum of 57 credits in mathematics is required, including 105, 153, 251, 252, and 253 and 34 credits in approved electives. The electives must include 9 upper-division credits in each of two of the four cate-

gories: algebra, analysis, geometry, and statistics. The only approved lower-division electives are 120, 121, and 281. No more than 10 credits from the following list may be presented: 120, 121, 281, 382, and 383.

This sequence of courses is recommended but not prescribed: freshman year, 105, 120, 153, and 251; sophomore year, 252, 253, and 324; junior year, 325, 321, and 322; 401, 402, and 403; and senior year, 424, 425, and 426; 441, 442, and 443.

**MATHEMATICAL STATISTICS OPTION.** This option has a twofold purpose: to train professional statisticians; and to instruct students who want to broaden their mathematical studies or intend to use methods of mathematical statistics for work in other fields such as biology, economics, education, psychology, or sociology. To coordinate this program, to conduct research in statistics, and to provide competent consultation on statistical problems, the Department maintains a Laboratory of Statistical Research, directed by Z. W. Birnbaum.

In this option, 105, 153, 251, 252, 253, 281, 401, 481, 482, 483, and 484 are required. An additional requirement is 10 approved credits in courses on applications of statistical methods chosen from the offerings of other departments. Prospective graduate students should take additional upper-division mathematics courses.

**NUMERICAL ANALYSIS OPTION.** This option prepares students for work in numerical analysis and the use of high-speed digital computing machines. Courses required are: 105, 153, 251, 252, 253, 281 (or 481), 401, 402, 321, 324, 374, 464, 465, and 466.

## ADVANCED DEGREES

The Department of Mathematics offers courses leading to the degrees of Master of Arts, Master of Science, Master of Science in Mathematical Statistics, and Doctor of Philosophy. Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

The candidate's minimum undergraduate preparation for an advanced degree in mathematics must be equivalent to the requirements for a mathematics major for the Bachelor of Arts degree. Students presenting only these minimum entrance requirements must expect to spend at least two years in order to obtain a master's degree.

The minor in mathematics for a master's degree requires at least 12 credits in approved courses numbered 400 or above. At least 9 of these are to be taken in residence.

The minor for the degree of Doctor of Philosophy requires a minimum of 33 approved credits in courses numbered 400 or above, including at least 6 credits in each of three of the four categories: algebra, analysis, geometry, and statistics.

**MASTER OF ARTS.** A minimum of 27 approved credits, with at least 9 credits in courses numbered 500 or above, is prescribed. These courses must include at least 6 credits in each of: algebra, analysis, and one other field. The thesis for this degree, while demonstrating ability and aptitude, may be largely expository.

**MASTER OF SCIENCE.** A minimum of 27 approved credits, with at least 18 credits in courses numbered 500 or above, is prescribed. These courses must include at least 6 credits in each of: algebra, analysis, and one other field. The thesis should demonstrate the student's ability to engage in independent research.

Under certain circumstances, this degree may also be awarded to a student who has passed the general examinations for the Ph.D. degree. In such cases, no thesis is required.

**MASTER OF SCIENCE IN MATHEMATICAL STATISTICS.** The undergraduate preparation should consist of courses in mathematical statistics through Chi-Tests or the equivalent. The candidate must present a minimum of 27 approved credits in mathematics. This work may include, on approval, some courses in mathematical

statistics needed to make up deficiencies in undergraduate preparation and must include 15 credits in mathematical courses numbered 500 or above.

**DOCTOR OF PHILOSOPHY.** The general examination of a candidate for this degree covers (1) the subject matter usually covered in first-year graduate courses in algebra, real variable, and two other fields chosen by the candidate and approved by his supervisory committee; and (2) additional material related to the candidate's field of special interest, such as that included in second-year graduate courses.

## COURSES FOR UNDERGRADUATES

- XA, XB Survey of Algebra (1/2 unit each)** **Staff**  
For students who are deficient in high school algebra for entrance requirements. Offered by extension only. Prerequisite, XA or permission for XB.
- XC, XD Survey of Plane Geometry (1/2 unit each)** **Staff**  
For students who are deficient in high school plane geometry for entrance requirements. Offered by extension only. Prerequisites, one year of high school algebra for XC; XC or permission for XD.
- 101 Intermediate Algebra (5)** **Staff**  
Similar to third term of high school algebra. Not open for credit to students who have taken one and one-half years of algebra in high school. Beginning Autumn Quarter, 1961, to be offered by Extension Classes and Correspondence Study only. Prerequisite, one year of high school algebra.
- 103 Intermediate Algebra and Trigonometry (3)** **Staff**  
Meets five hours per week. First four weeks, review of intermediate algebra. After this review, students must pass qualifying test to continue in 103. Those failing the test will be reregistered in 101, for which they will receive no University credit. Last six weeks, plane trigonometry, equivalent to 104. Beginning Autumn Quarter, 1961, not open for credit to students who have taken trigonometry in high school. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, and one year of plane geometry.
- 104 Plane Trigonometry (3)** **Staff**  
Trigonometric functions, identities, graphs, logarithms, and solution of triangles. Mathematics 120 may be taken concurrently as a supplement to this course. Beginning Autumn Quarter, 1961, not open for credit to students who have taken trigonometry in high school. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, and one year of plane geometry.
- 105 College Algebra (5)** **Staff**  
Functions and graphs; linear and quadratic equations; progressions; complex numbers; theory of equations; determinants. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, or 103.
- 112 Mathematics of Business (5)** **Staff**  
Discounts, simple interest, installment buying, binomial theorem, annuities, bonds, probability, and insurance mathematics. (Credit may not be applied toward a major in mathematics.) Prerequisite, one and one-half years of high school algebra, or 101.
- 120 Introduction to Mathematical Thinking (2)** **Staff**  
Mathematical logic and the number system. Background material for other freshman mathematics courses. Prerequisites, one year of high school algebra and one year of plane geometry.
- 121 Basic Ideas of Algebra (3)** **Staff**  
Groups and fields; foundations of elementary algebra; simultaneous linear equations; quadratic equations; Boolean algebra. Prerequisite, 120.
- 153 Analytic Geometry and Calculus (5)** **Staff**  
Equations of straight lines and simple curves. Differentiation of algebraic functions, applications, conic sections. Prerequisites, 103 or 104, and 105, or exemption by qualifying test.
- 155, 156 Algebra and Calculus (3,3)** **Staff**  
Selected topics from college algebra, analytic geometry, and elementary calculus. Intended primarily for nonscience majors who need a brief introduction to calculus. Not open to students who have taken either 105 or 153. Prerequisites, 103 or 104 for 155; 155 for 156.
- 163 Analytic Geometry and Calculus (5)** **Staff**  
Honors section of 153. Prerequisites, 103 or 104, and 105, or exemption by qualifying test, and permission.
- 251 Analytic Geometry and Calculus (5)** **Staff**  
Definite integrals, applications, formal integration, and differentiation of transcendental functions. Prerequisite, 153 or 163.
- 252 Analytic Geometry and Calculus (5)** **Staff**  
Parametric equations, polar coordinates, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251 or 261.
- 253 Analytic Geometry and Calculus (3)** **Staff**  
Solid analytic geometry, multiple integrals, partial derivatives. Prerequisite, 252.



- 261, 262 Analytic Geometry and Calculus (5,5)** **Staff**  
Honors sections of 251, 252 covering material equivalent to that in 251, 252, and 253. Prerequisites, 153 or 163 and permission for 261; 261 and permission for 262.
- 281 Elements of Statistical Method (5)** **Staff**  
Numerical and machine computation; graphical and tabular presentation of data; averages, measures of scatter, and other statistics; scatter diagram, least-square lines, regression, and correlation; elements of sampling. Prerequisites, 105 and one year of plane geometry.
- 321, 322 Differential Equations (3,3)** **Staff**  
Elementary methods of solution, linear differential equations, systems of differential equations, series solutions. Prerequisites, 253 or 262 for 321; 321 for 322.
- 324 Advanced Calculus I (3)** **Staff**  
Calculus of functions of several variables, infinite series. Prerequisite, 253 or 262.
- 325 Advanced Calculus II (3)** **Staff**  
Vector analysis, theorems of Stokes, Gauss, and Green. Prerequisites, 253 or 262 and 324 (desirable but not essential).
- 374 Principles of Digital Computers and Coding (5)** **Staff**  
High-speed digital computation, number systems, machine components, programming, operation. Three hours lecture, four hours laboratory per week with problems run on a high-speed machine. (Credit may not be applied toward a major in mathematics.) Prerequisite, 105.
- 382, 383 Statistical Inference in Applied Research (5,5)** **Staff**  
Elements of probability; discrete and continuous distribution; binomial, Poisson, and normal distributions. Elements of sampling; confidence limits; simple tests of statistical hypotheses, analysis of variance, and applications to biological problems. Prerequisites, 153 or 163, 281, or permission for 382; 382 for 383.
- 401 Linear Algebra (5)** **Staff**  
Matrices; determinants; groups of transformations; linear spaces; linear transformations and their invariants. Prerequisite, 253 or 262.
- 402, 403 Introduction to Modern Algebra (3,3)** **Staff**  
Construction of the number systems in algebra; groups, rings, and fields; polynomials. Prerequisite, 401 for 402; 402 for 403.
- 424, 425, 426 Fundamental Concepts of Analysis (3,3,3)** **Staff**  
Elementary logic, sets, functions, real numbers, sequences, continuity, derivatives, integrals, elementary functions, functions on Euclidean  $n$ -space, and Fourier series. Prerequisites, 253 or 262, and 401 or permission for 424; 424 for 425; 425 for 426.
- 427, 428, 429 Topics in Applied Analysis (3,3,3)** **Staff**  
427: elementary complex variable. Prerequisite, 324 or 325.  
428: Laplace transforms, boundary value problems, Fourier series, Bessel functions. Prerequisites, 324 or 325, and 321.  
429: Legendre functions, curvilinear coordinates, calculus of variations. Prerequisite, 428.
- 441 Foundations of Geometry (3)** **Staff**  
Axiomatic treatment of the foundations of projective and Euclidean geometries. Introduction to non-Euclidean geometry. Prerequisite, 253 or 262.
- 442 Advanced Analytic Geometry (3)** **Staff**  
Advanced topics in plane analytic geometry; solid analytic geometry, including analysis of quadric surfaces; homogeneous coordinates. Prerequisites, 253 or 262, and 401 or permission.
- 443 Differential Geometry (3)** **Staff**  
Elementary differential geometry of curves and surfaces. Prerequisites, 321 and 442.
- 444 Advanced Euclidean Geometry (5)** **Staff**  
(Offered Summer Quarter only.)
- 445 Non-Euclidean Geometry (2½)** **Staff**  
(Offered Summer Quarter only.)
- 464 Numerical Analysis I (3)** **Staff**  
Basic principles of numerical analysis, classical interpolation and approximation formulas, finite differences and difference equations. Laboratory work on desk calculators. Prerequisite or corequisite, 321.
- 465 Numerical Analysis II (5)** **Staff**  
Numerical methods in algebra. Systems of linear equations, matrix inversion, successive approximations, iterative and relaxation methods. Three hours lecture and four hours laboratory per week on a high-speed machine. Prerequisites, 374, 401, and 464.
- 466 Numerical Analysis III (5)** **Staff**  
Numerical differentiation and integration. Solution of differential equations and systems of such equations. Three hours lecture and four hours laboratory per week on a high-speed machine. Prerequisites, 374 and 464.
- X470 Operations Research (5)** **Staff**  
Offered through Extension Classes only.
- X472 Reliability Theory (3)** **Staff**  
Offered through Extension Classes only.
- X473 Noise and Information Theory (3)** **Staff**  
Offered through Extension Classes only.

- 481 Calculus of Probabilities (5)** **Staff**  
Fundamental concepts; discrete and continuous random variables; mathematical expectations, law of large numbers; important types of distributions; characteristic functions; central limit theorem. Prerequisite, 253.
- 482 Classical Methods of Statistical Inference (5)** **Staff**  
Universe, sample, parameters, and statistics; point estimates and confidence regions; distributions of classical statistics and their use in estimation and tests of hypotheses. Prerequisites, 401 and 481.
- 483 Theory of Correlation (5)** **Staff**  
Multivariate distributions; variances, covariances, regression, and correlation; specialization of multivariate normal distributions; sampling of bivariate normal variables. Prerequisite, 482.
- 484 Chi-Tests (5)** **Staff**  
Distribution of the Chi-square, and its use for testing hypotheses; contingency tables; parameters estimated from sample; some non-parametric methods. Prerequisite, 483.
- 497J Special Topics in Mathematics for Teachers (2-5, maximum 15)** **Staff**  
Offered jointly with the College of Education when demand is sufficient.
- 498 Special Topics in Mathematics (2-5)** **Staff**  
(Offered when demand is sufficient.)

## COURSES FOR GRADUATES ONLY

- 501, 502 Foundations of Mathematics (3,3)** **Staff**  
Fundamental concepts and methods of mathematics; the axiomatic method; the logical foundations of mathematics.
- 504, 505, 506 Modern Algebra (3,3,3)** **Staff**  
Theory of groups, rings, integral domains, and fields; polynomials; vector spaces, Galois theory, and theory of ideals. Prerequisite, 403 or equivalent.
- 510 Seminar in Algebra (\*, maximum 5)** **Staff**
- 511, 512, 513 Special Topics in Algebra (2-3,2-3,2-3)** **Staff**  
Each may be repeated twice for credit. In recent years the following subjects have been covered: Group and Ring Extensions, Power-Associative Algebras, Lattice Theory, Infinite Abelian Groups.
- 524, 525, 526 Real Variable (3,3,3)** **Staff**  
Metric spaces; general measures and integration; differentiation of set functions; real valued functions on the line; Banach spaces. Prerequisites, 426 or equivalent for 524; 524 for 525; 525 for 526.
- 527, 528, 529 Methods of Mathematical Physics (3,3,3)** **Staff**  
Real and complex functions. Fourier analysis, Fuchsian differential equations, linear algebra, and eigenvalue theory. Special functions, second-order linear partial differential equations, and approximate solutions of Schrödinger equation. Prerequisite, 426 or 429 or equivalent.
- 530 Seminar in Analysis (\*, maximum 5)** **Staff**
- 531, 532, 533 Special Topics in Analysis (2-3,2-3,2-3)** **Staff**  
Each may be repeated twice for credit. In recent years the following subjects have been covered: Functional Analysis, Abstract Harmonic Analysis, Linear Operators in Hilbert Space, Banach Spaces, Theory of Integration, Convex Sets.
- 534, 535, 536 Complex Variable (3,3,3)** **Staff**  
Complex numbers; analytic functions; contour integration; power series; analytic continuation; sequences of analytic functions; conformal mapping of simply connected regions. Prerequisites, 524 for 534; 534 for 535; 535 for 536.
- 544, 545, 546 Differential Geometry (3,3,3)** **Staff**  
Differential geometry and curves and surfaces in ordinary space and in n-space. Riemannian geometry.
- 550 Seminar in Geometry (\*, maximum 5)** **Staff**
- 551, 552, 553 Special Topics in Geometry (2-3,2-3,2-3)** **Staff**  
Each may be repeated twice for credit. In recent years the following subjects have been covered: Tensor Analysis, Riemannian Geometry, Differentiable Manifolds, Complex Manifolds.
- 561, 562, 563 Topology (3,3,3)** **Staff**  
Theory of sets; ordinal and cardinal numbers; real numbers; topological spaces; homology; homotopy; fixed point theorems; and manifolds. Prerequisites, 426 or equivalent for 561; 561 for 562; 562 for 563.
- 564, 565, 566 Algebraic Topology (3,3,3)** **Staff**  
Classical and modern approaches to algebraic topology; complexes and their homology theory; applications: fixed points, primary obstruction; products and Poincaré duality; axiomatic approach; covering spaces. (Offered alternate years; offered 1959-60.)
- 581, 582, 583 General Theory of Statistical Estimation and Testing Hypotheses (3,3,3)** **Staff**  
Elements of decision theory; Neyman-Pearson theory; randomized tests; maximum likelihood statistics; confidence regions; distribution-free statistics; linear hypotheses; analysis of variance; block design. Prerequisites, 483 and 484.

- 590 Seminar in Probability and Statistics (\*, maximum 5)** **Staff**  
 Reports by students and staff on contemporary research.
- 591, 592, 593 Special Topics in Statistics (3,3,3)** **Staff**  
 Each may be repeated twice for credit. In recent years the following subjects have been covered: Advanced Probability Theory, Stochastic Processes, Distribution-free Inference, Game and Decision Theory, Advanced Theory of Estimation (including Sequential Estimation).
- 600 Research (\*)** **Staff**  
 Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## MEDICAL TECHNOLOGY

**Supervisor: LESTER D. ELLERBROOK, D505 Health Sciences**

The medical technology program is designed to train young men and women to be professional workers in hospital, clinic, public health and medical research laboratories. The prescribed preparatory program consists of three years of regular university training with emphasis upon certain courses in chemistry and biology. This is followed by an 18-month period of full-time instruction and training in medical technology itself.

The program of instruction in medical technology is supervised by the Department of Pathology in the School of Medicine. During this 18-month period the students become familiar with the common clinical laboratory procedures and with the interpretation of the results obtained. They learn the tests used in the laboratories of clinical chemistry, hematology, serology, urinalysis, microbiology, and pathology. This program is approved by the Council on Medical Education and Hospitals of the American Medical Association. Graduates are eligible to be examined by the Board of Registry of the American Society of Clinical Pathologists. They are urged to take this examination and become registered Medical Technologists. (Courses in biochemistry, microbiology, and pathology are listed with those of other departments in the *School of Medicine Bulletin*.)

## BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

Students should choose most of their electives in the humanities and the social sciences in order to satisfy the college group requirements.

### First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 100 or 110		Chem. 150 General	4	Anatomy 301 General	4
General	4-3	Engl. 102 Composition	3	Chem. 160 General	3
Engl. 101 Composition	3	Zoology 111 General	5	Chem. 170 Qual. Anal.	3
Health Educ. 110 or 175		Approved electives	3	Zoology 112 General	5
Health	2	Phys. Educ. activity	1	Phys. Educ. activity	1
Math. 101 or 103 or		ROTC	2-3	ROTC	2-3
105 Algebra	5-3				
Phys. Educ. activity	1		16-19		16-19
ROTC	2-3				
	12-18				

### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 221 Quant. Anal.	5	Chem. 231 Organic	3	Chem. 232 Organic	3
Engl. 103 Composition	3	Chem. 241 Lab.	2	Chem. 242 Lab.	2
Zool. 381 Microtechnique	4	Zool. 208 Physiology	5	Approved electives	10
Approved electives	3	Approved electives	5	ROTC	2-3
ROTC	2-3	ROTC	2-3		
	15-18		15-18		15-18

It is recommended that students who cannot fit the suggested courses in anatomy and physiology into their schedules try to take Conjoint 317-318 (Elementary Anatomy and Physiology), especially during the summer-autumn sequence. Permission of the instructor is required.

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Micro. 441- Med.		Micro. -442 Med.		Biochem. 361 Biochem. . . .	3
Bacteriol. . . . .	5-	Bacteriol. . . . .	-5	Biochem. 363 Lab. . . . .	2
Psychol. 100 General . . . .	5	Approved electives . . . . .	10	Micro. 443 Mycology . . . .	2
Speech 120 Public				Micro. 444 Parasit. . . . .	4
Speaking . . . . .	5		15	Approved electives . . . . .	4
	15				15

Permission is required for courses in biochemistry and microbiology. Recommended electives for third-year students who have satisfied the college group requirements include Pathology 310 (General Pathology) and Microbiology 320 (Media Preparation).

Near the conclusion of the third year, students apply for admission to the 18-month period of full-time instruction in medical technology. During this period they register for the courses Pathology 321, 322-, -323-, -424-, -425, 426 (Medical Technology). The first twelve months of this period consists of full-time classroom and laboratory instruction offered in the School of Medicine. This is followed by approximately six months of full-time instruction and supervised experience in affiliated hospital and public health laboratories.

In order to make the fees more comparable to those of many schools of medical technology, the University grants only 5 credits for Pathology 321, and 6 credits each for 322-, -323-, -424- and -425. In order to meet graduation requirements 16 credits are granted for 426.

## MEDICINE, PREPROFESSIONAL PROGRAM

Adviser, 121 Miller Hall

This program is designed for students in the College of Arts and Sciences who plan to enter a medical school when their preprofessional training is completed.

The minimum requirement for admission to most medical schools is three years of college training (135 academic quarter credits) with a grade-point average of at least 2.50. As recommended by the Association of American Medical Colleges, the course should include at least 9 credits in English composition, 12 credits in inorganic chemistry, 6 credits in organic chemistry, 12 credits in physics, 12 credits in biology, and the required quarters of physical education activity and military training. Many schools require a knowledge of a modern foreign language, and a few require a bachelor's degree.

Students who are interested in attending a particular medical school should choose electives to meet the requirements of that school. In general, medical school admissions committees favor a broad program of studies with the inclusion of as much work in the humanities and social sciences as possible. Students who have an aptitude for and an interest in the sciences, especially those who plan to do medical research or to become specialists in certain branches of medicine, are advised to take thorough training in a science such as chemistry, zoology, physics, or microbiology.

Because many premedical students are not admitted to a medical school, all students in this program are urged to select a major by the end of their second year. Each student, with an adviser in his major department and the premedical adviser, then plans a program that will enable him to complete the requirements for entrance into medical school by the end of the third year, and to complete the requirements for the bachelor's degree, either through his major department or through the first year's work in the School of Medicine at the University of Washington (see Basic Medical Science, page 76), at the end of the fourth year.

During the second year, the premedical adviser should be consulted about taking a medical admissions test and applying for admission to medical school. Students must arrange for the medical admissions test well in advance of their application to a medical school.

## METEOROLOGY AND CLIMATOLOGY

**Executive Officer: PHIL E. CHURCH, 201F Meteorology Building**

The Department of Meteorology and Climatology offers courses leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy.

An elective curriculum which includes the branches of physical, synoptic, and dynamic meteorology and climatology is offered for undergraduate students working toward the bachelor's degree. This curriculum prepares students to receive the rating of professional meteorologist given by the United States Civil Service Commission.

### BACHELOR OF SCIENCE

The Department requires a minimum of 36 credits in meteorology and climatology in courses numbered above 300, of which 18 credits must be earned in courses above 400. Meteorology 322, 442, 445, 451, and their prerequisites are required. Courses required from other departments are: Mathematics 252, 253 (Analytic Geometry and Calculus) or equivalent, and 281 (Elements of Statistical Method), and Physics 121, 122, and 123 (General Physics) or equivalent.

A grade of C or better must be earned in each of the required courses in mathematics, physics, and the mandatory courses in meteorology. An over-all grade-point average of at least 2.20 must be obtained in all courses taken in meteorology and climatology.

### ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. The complete program for an advanced degree must be approved by the staff.

**MASTER OF SCIENCE.** The minimum course requirements are: 15 credits in lecture or laboratory courses in this Department numbered above 500, including 541, 542, and 546; in addition, 2 credits in a seminar must be earned. Supporting courses must include Physics 320 (Introduction to Modern Physics) or equivalent and Mathematics 321 (Differential Equations) and Meteorology 451 (unless these courses were satisfactorily completed as an undergraduate). At least one course in applied mathematics must be taken.

Also required is a thesis which must be directed toward the solution of a problem of substantial importance and which must demonstrate the candidate's ability to do independent research.

**DOCTOR OF PHILOSOPHY.** The minimum requirements are: 96 credits exclusive of research and thesis. Normally a student must complete a minimum of 12 credits in mathematics courses numbered 300 or above and 9 credits in physics courses numbered 400 or above (which may include Physics 481, 482, 483) beyond that required for entrance as a graduate student in the Department.

Admission to candidacy for the Ph.D. degree is granted on the basis of capability in general meteorology and climatology, theoretical meteorology and climatology, atmospheric analysis, and mathematical methods as demonstrated in written and oral examinations, and on comprehension of the fundamentals of physics and the important principles and concepts of meteorology.

### COURSES FOR UNDERGRADUATES

- |  |  |
|--|--|
| <p><b>101 Survey of the Atmosphere (5)</b><br/>Composition and structure of earth's atmosphere; relation of earth to sun and consequent geographical temperature distribution; processes within the atmosphere which produce rain, snow and other condensation phenomena; tropical and extratropical storms, thunderstorms, chinooks, and cold waves.</p> <p><b>321 Physical Climatology (5)</b><br/>Analysis of effects of latitude, altitude, mountains, ocean currents, wind systems, and various surfaces on the distribution of air temperatures, precipitation, and other climatic elements. Statistical reduction and interpretation of climatic data. Prerequisite, 101.</p> | <p style="text-align: right;"><b>Staff</b></p> <p style="text-align: right;"><b>Church</b></p> |
|--|--|

- 322 Regional Climatology (5)** **Church**  
Principles of several climatic classifications. Description of elements of climatic types of continents, emphasizing North America, and adjacent ocean areas based on the Koeppen and Thornthwaite classification systems. Prerequisite, 101.
- 329 Microclimatology (3)** **Buettner, Businger**  
Climatic characteristics in the lower layers of the atmosphere. Soil temperatures and their relation to temperatures of overlying air. Vertical temperature, moisture, wind speed, and wind direction gradients. Effects of plane, concave and convex surfaces, and vegetal covering on temperature and wind distribution. Prerequisite, 101.
- 340, 341 Physical Meteorology (5,5)** **Staff**  
340: review of mechanics, atmospheric statistics; ideal gases and adiabatic process; real gases and condensation process; growth of liquid droplets and ice crystals in the atmosphere; behavior of acoustic and shock waves in the atmosphere; behavior of light waves, radar waves, and radio waves in the atmosphere. Prerequisites, one year of college physics and Mathematics 251, or permission. 341: interchange of thermal radiation between the sun, the atmosphere, and the earth; thermal radiation from "atomic" explosions; electrical and magnetic properties and behavior of the upper atmosphere; structure and composition of the atmosphere. Prerequisites, 340 and Mathematics 252, or permission.
- 350 Meteorological Laboratory (5)** **Reed**  
International meteorological codes; plotting of meteorological charts; introduction to analysis of weather maps and allied charts. Prerequisite, one year of calculus.
- 360 Meteorological Instruments and Observations (5)** **Badgley, Businger**  
Accuracy and sensitivity of meteorological instruments and representatives of meteorological observations; principles of operation and techniques of using common meteorological instruments for measuring precipitation, temperature, pressure, humidity, and wind (including winds aloft); principles of operation of radiosondes. Prerequisite, one year of calculus.
- 414 Synoptic Meteorology (5)** **Reed**  
Kinematics of horizontal motion, vertical motion, structure of weather systems, vertical stability and instability in relation to weather phenomena. Prerequisite, 341 or permission.
- 441, 442 Introduction to Atmospheric Motions (5,5)** **Fleagle, Reed**  
441: preliminary mathematics, vector operators, fundamental equations, simple manipulations of equations. Prerequisites, 341 or permission, and Mathematics 253. 442: vorticity theorem, instability of large scale motions, behavior of weather systems, bases of forecasting. Prerequisites, 414, 441, or permission.
- 445 Atmospheric Thermodynamics (3)** **Badgley**  
Fundamental thermodynamic concepts and their relation to kinetic theory; first and second laws of thermodynamics; change of phase; mixture of gases; nuclei and pseudo-adiabatic processes; theories of precipitation; thermodynamic charts and computations. Prerequisites, calculus and general physics.
- 451, 452 Meteorological Laboratory (5,5)** **Reed**  
451: routine three-dimensional weather analysis using current teletype data; practice forecasting by conventional techniques; measurement of vertical velocity and horizontal convergence and divergence for a selected synoptic case; isentropic analysis; exercises in numerical prediction. Prerequisites, 350 and 442, which may be taken concurrently. 452: continuation of routine analysis and forecasting with emphasis upon flight cross sections and special forecast problems. Prerequisite, 451.
- 462 Oceanographic Meteorology (6)** **Fleagle**  
Classroom work and field observations relating to the physical processes occurring at ocean-atmosphere boundary. Transfer of energy, momentum, and moisture and their effects on small-scale and large-scale phenomena, including fog formation, convection, modification of air masses. (Offered at Friday Harbor Summer Quarter only.) Prerequisite, 442 or permission.
- 492 Readings in Meteorology or Climatology (\*)** **Staff**  
Prerequisite, permission.
- 493 Special Problems in Meteorology or Climatology (\*)** **Staff**  
Prerequisite, permission.
- 494 Meteorological Statistics (\*)** **Staff**  
Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 520 Seminar (2-5)** **Staff**
- 522 Advanced Regional Climatology (3)** **Church**  
Intensive study of the characteristics of climatic elements for a selected region or climatic type and a statistical analysis of the elements studied. Prerequisite, 322 or permission.
- 528 Applied Meteorology and Bioclimatology (3)** **Buettner**  
Interrelationship of meteorology and climatology to: human heat balance, aviation medicine, air pollution, agriculture, forestry, transportation, etc. Prerequisites, 322 and 341, or permission.
- 531 The Upper Atmosphere (3)** **Buettner**  
Structure, composition, and dominant physical and photochemical processes. Sound propagation, aurora, air glow, and ionosphere. Role of the sun. Exosphere and planetary atmospheres. Prerequisites, Mathematics 322 and Physics 320, or permission.

- 532 Atmospheric Electricity (3)** **Buettner**  
Formation and disappearance of atmospheric ions. Normal air electrical field. Lightning and its causes. Earth magnetic field. Prerequisite, 531 or permission.
- 533 Atmospheric Radiation (3)** **Buettner**  
Solar spectrum. Atmospheric scattering, spectra of water vapor and other gases. Albedo of earth and atmosphere. Radiative heat balance. Prerequisites, Physics 320 and Mathematics 322. (Formerly 571.)
- 541, 542 Dynamic Meteorology (3,3)** **Feagle**  
541: basic equations of dynamic meteorology, circulation and potential vorticity theorems, barotropic and baroclinic atmospheres, divergenceless and irrotational flows, large and small scale approximations. Prerequisite, Mathematics 418 or Aeronautical Engineering 571, or equivalent. 542: particle dynamics applied to large scale motions and to stability criteria. linearized barotropic wave, numerical forecasting equations, baroclinic, diabatic, and topographic effects. Prerequisites, 541 and Mathematics 321.
- 543, 544 Atmospheric Wave Theory (3,3)** **Feagle**  
543: perturbation equations in Eulerian and Lagrangian form, wave motions in incompressible and compressible fluids, wave theory of cyclones, flow over mountains. Prerequisites, 442, Mathematics 322, or permission. 544: structure of baroclinic wave, baroclinic instability, general circulation, dispersion of waves, associated Legendre equation, wave motion on spheres, atmospheric tides. Prerequisite, 543.
- 546, 547, 548 Atmospheric Turbulence (3,3,3)** **Badgley, Businger**  
546: laminar and turbulent flow; analogy between kinetic theory of gases and turbulence theory; Reynolds averaging; dissipation of energy; statistical descriptions of turbulent flow. Prerequisite, 442 or permission.  
547: diffusion of matter in the atmosphere; application of Fickian and statistical theories of diffusion; use of Lagrangian and Eulerian correlation functions. Prerequisite, 546.  
548: turbulent flux of heat, momentum, and moisture in the layer of the atmosphere next to the earth; Richardson's stability criterion; free convection. Prerequisite, 546.
- 551 Advanced Meteorological Laboratory (5, maximum 10)** **Reed**  
Selected advanced nonroutine types of analysis. Exercises in objective map analysis and numerical weather prediction. Prerequisite, 442 or permission.
- 560 Theory of Meteorological Instruments (3)** **Badgley**  
The physical theory of the operation of meteorological instruments. Emphasis on new and specialized research instruments and on more difficult problems involving standard instruments. Prerequisites, one year of calculus and permission.
- 570 Seminar on Cloud Physics (2)** **Businger**  
The physical processes in the formation and modification of clouds and the formation of precipitation in the atmosphere are examined. Prerequisite, permission.
- 572 Seminar on Polar Meteorology (3)** **Staff**  
Critical examination of source materials and original papers on selected topics applicable to polar meteorology. Prerequisite, permission.
- 580 Field Investigations (10)** **Church**  
Summer field work at various locations in the Pacific Northwest on horizontal and vertical gradients in the atmosphere; meteorological conditions as applied to various human activities such as agriculture (irrigated and nonirrigated), forestry, frost protection, public health, atmospheric pollution, etc. (Offered Summer Quarter only.) Prerequisite, permission.
- 593 Laboratory in Experimental Meteorology (3, maximum 6)** **Staff**  
The role of controlled-model experiments in meteorology. Laboratory study of cloud formation and modification; convection cells, turbulent air motion; themally-induced air drainage; flow over obstacles; wave motion; surface of discontinuity; atmospheric circulation. Prerequisite, 542.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## MICROBIOLOGY

**Executive Officer: CHARLES A. EVANS, G305 Health Sciences Building**

For students in the College of Arts and Sciences, the Department of Microbiology in the Division of Health Sciences offers a four-year elective curriculum leading to a bachelor's degree. The degrees of Master of Science and Doctor of Philosophy are also offered in the field of microbiology.

## BACHELOR OF SCIENCE

The requirements are: 36 credits in microbiology courses, including Microbiology 300; 10 credits in botany or zoology or Biology 101J-102J (General); Physics 101, 102, 103, and 107, 108, 109 (General Physics and General Physics Laboratory); Chemistry 110, 160 (General), and 170 (Qualitative Analysis), or 100

or 110, 150, 160 (General), 170 (Qualitative Analysis), 221 (Quantitative Analysis), 231, 232, 241, 242 or 335, 336, 345, and 346 (Organic Chemistry and Organic Chemistry Laboratory); and Mathematics 105 (College Algebra), and 153 (Analytic Geometry and Calculus). Biology 451 (Genetics), Botany 461 (Yeasts and Molds), and Zoology 423 (Protozoology) may be counted toward the 36 credits in microbiology courses.

A combined grade-point average of 2.50 in biology and chemistry courses is required for admission to Microbiology 300 and 441-; a grade-point average of 2.00 in microbiology courses is required for graduation.

During their third and fourth years, most students take specialized courses in microbiology and related fields of interest. The following courses are recommended for all students: Microbiology 300, 320, 430, and 441-442; Biology 451 (Genetics); Botany 461 (Yeasts and Molds); and Biochemistry 481, 482 (Biochemistry).

In addition to the above courses, the following are suggested for students with an interest in either general or medical microbiology:

**GENERAL.** Microbiology 499; Zoology 400 (General Physiology); 423 (Protozoology).

**MEDICAL.** Microbiology 322, 443, 444; Anatomy 301 (General Anatomy), 330 (Microscopic Anatomy); Pathology 231 (General Pathology); Zoology 358 (Vertebrate Physiology).

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*.

Candidates for advanced degrees are selected primarily upon the basis of scholarship and motivation. An undergraduate record of at least a B average is highly desirable as an indication that the student is capable of more advanced work. While the academic background of students entering graduate work in microbiology is quite variable, it is generally agreed that a strong background in chemistry and biology is essential. One year of physics is required, and mathematics through analytic geometry and calculus is recommended.

## COURSES FOR UNDERGRADUATES

- 204 Medical Parasitology for Sanitarians (4)** **Groman**  
Consideration of medically important parasites with emphasis on public health aspects. (Offered eight weeks of quarter.) For undergraduate students majoring in public health. Prerequisites, 301 or equivalent, and permission.
- 235 Microbiology for Students of Dentistry (7)** **Staff**  
Lecture and laboratory introducing the student to the principles of microbiology. Infectious microorganisms and the flora of the mouth are emphasized. Required for second-year dental students. Students who have had previous training in microbiology may be permitted to substitute a research problem for the laboratory work. Prerequisite, for non-dental students, permission.
- 300 Fundamentals of Bacteriology (\*, maximum 6)** **Douglas, Ordal**  
Basic bacteriology; comparative morphology, taxonomy, physiology of bacteria. For students majoring in microbiology and others interested chiefly in the biological and chemical aspects of microbes. Required for students majoring in microbiology. Recommended for graduate students majoring in chemistry or biology. Prerequisites, 10 credits in organic chemistry, 10 credits in botany or zoology, and permission.
- 301 General Microbiology (5)** **Rickenberg, Ordal, Douglas**  
Microorganisms and their activities. A survey course for students of pharmacy, nursing, dental hygiene, home economics, education, and others interested in a one-quarter survey course with minimal training in chemistry. Prerequisites, two quarters of general chemistry.
- 320 Media Preparation (\*, maximum 5)** **Duchow**  
Practical work in the preparation of culture media and solutions. Nutritional requirements of microorganisms are considered. For students expecting to enter vocations involving laboratory work with bacteria. Prerequisite, permission.
- 322 Applied Bacteriology (5)** **Staff**  
Practical experience in a public health laboratory, fifteen hours per week. For students majoring in medical microbiology. Prerequisites, 441-442 or equivalent, and permission.



- 430 Industrial Microbiology (3 or 5)** **Douglas**  
Microbiology and biochemical aspects of industrially important fermentative and oxidative processes. For students majoring in microbiology or food technology. Prerequisites, 300 or 301, and Chemistry 221 and 232.
- 441-442 Medical Bacteriology, Virology, and Immunology (\*, maximum 5-, -, maximum -5)** **Evans, Groman, Henry, Sherris, Weiser**  
441- includes a survey of microorganisms and a general consideration of the morphology and physiology of bacteria; an introduction to immunology, formation and properties of antibodies, nature of antigen-antibody reactions, blood groups, allergies, and an analysis of factors of innate and acquired immunity. During the last part of 441- and throughout 442 specific pathogenic bacteria and viruses are studied in detail. Students who have had previous work in bacteriology may by special permission be allowed to take 441- or -442 for less than the full 5 credits. Required for second-year medical students. Open to upper-division undergraduates and graduate students. Prerequisites, 10 credits in organic chemistry, 10 credits in botany or zoology, and permission.
- 443 Medical Mycology (\*, maximum 2)** **Henry**  
Consideration of morphology, physiology, immunology, and epidemiology of the medically important fungi. (Offered three weeks of quarter.) Required for second-year medical students. Open to upper-division undergraduates and graduate students. Prerequisites, 441-442 or equivalent, and permission.
- 444 Medical Parasitology (\*, maximum 4)** **Groman**  
Consideration of medically important parasites with emphasis on their biology in relation to the production and prevention of disease. (Offered eight weeks of quarter.) Required for second-year medical students. Open to upper-division undergraduates and graduate students. Prerequisites, 441-442 or equivalent, and permission.
- 499 Undergraduate Research (\*)** **Staff**  
Specific problems in industrial, medical, and general microbiology.

## COURSES FOR GRADUATES ONLY

- 510 Physiology of Bacteria (3)** **Douglas, Eaton, Groman, Ordal, Rickenberg, Whiteley**  
Fundamental physiological and metabolic processes of bacteria. (Offered alternate years; offered 1960-61.) Prerequisite, permission of instructor.
- 515 Methods and Applications of Tissue Culture (4)** **Rickenberg**  
A survey of techniques of animal and plant tissue culture and their applications in biological and medical research. Students' individual research projects will be considered, if feasible. Prerequisites, one course in microbiology, one course in biochemistry, and permission.
- 520 Seminar (1)** **Staff**
- 530 Comparative Morphology and Physiology of the Higher Bacteria (4)** **Ordal**  
Enrichment, isolation, and comparative morphology and physiology of selected representatives of the following groups of bacteria: Nitrobacteriaceae, Rhodobacteriaceae, Caulobacteriaceae, Actinomycetales, Myxobacterales, Chlamydoxanthales, Caryophanae, and Borrelomycetaceae. (Offered alternate years; offered 1959-60.) Prerequisite, permission.
- 540 Filterable Viruses (\*, maximum 4)** **Evans, Groman**  
(Offered alternate years; offered 1959-60.) Prerequisites, -442 and permission; histology is recommended.
- 550 Advanced Immunology (\*, maximum 4)** **Weiser**  
(Offered alternate years; offered 1960-61.) Prerequisites, 441- and permission.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## MUSIC

**Director: STANLEY CHAPPLE, 104 Music Building**

The School of Music offers courses leading to the degrees of Bachelor of Arts, Bachelor of Arts in Music, Master of Arts in Music, and Doctor of Philosophy. For undergraduate students, the School provides one elective curriculum, which leads to the degree of Bachelor of Arts; four prescribed curricula, which lead to the degree of Bachelor of Arts in Music, with a major in music composition, performance, teaching, or music history and literature; a first area of concentration, a basic academic field, and a second area of concentration for students in the College of Education; and courses for students majoring in other fields.

Every prospective music student is interviewed to determine: (a) his musical sensitivity; (b) his musicianship: pitch, rhythm, singing or playing at sight, vocal or instrumental facility, the ability to identify keys and key signatures; (c) his musical skill through performance as a vocalist or as an instrumentalist; (d) his ability to play on the piano all major and harmonic minor scales, a simple piece

by Bach, an easy sonatina, and an easy composition by a romantic or contemporary composer, and to read at sight music of the difficulty of the average hymn.

If a student meets requirements a, b, and c, but is unable to meet requirement d, he may begin his studies in music on condition that he enroll in Music 110A (Class Instruction: Piano) until he satisfies this requirement.

Music 104 is required of all music majors during the first quarter of residence and is to be continued each successive quarter until satisfactory skills are attained. Exemption is by examination only.

Since participation in music organizations is an indispensable part of his musical experience, every music student must be a member of one or more music ensembles throughout his four years. No credit for this experience may be earned by freshmen and sophomores; from 6 to 12 credits must be earned by upper-division students. An instrumentalist must participate in vocal ensembles for at least one year.

Every music student must choose a primary performance field, either voice or instrument; during his senior year he will publicly demonstrate his ability in his performance field, either as a soloist or as a member of a small ensemble.

In general, the student must complete three quarters of work in applied music before he receives a grade, but if his work falls below a C average he is given a grade of D or E at the end of the current quarter. A grade-point average of 2.50 in music courses is required for graduation.

## BACHELOR OF ARTS

In the elective curriculum, minimum requirements in addition to the group requirements of the College of Arts and Sciences (see page 62) are: 19 credits in first- and second-year theory and literature; 12 credits in vocal or instrumental instruction (Music 130, 330); 19 credits in upper-division history and theory; 6 credits in upper-division ensemble; and 15 credits in the humanities.

## BACHELOR OF ARTS IN MUSIC

The prescribed curricula are designed for those who intend to major in composition, in vocal or instrumental music (piano, violin, violoncello, voice, organ, or another approved instrument), in music education, or in music history and literature. In addition to the group requirements of the College of Arts and Sciences (see page 62), the completion of one of the four musical curricula is required.

### CURRICULUM IN COMPOSITION

First Year		Second Year	
	CREDITS		CREDITS
Music 101, 102, 103 Theory	6	Music 124-125 Instrumental Lab.	2
Music 104 Sight Singing	3	Music 202, 203 Theory	6
Music Ensemble	0	Music 207, 208 Music Lit.	4
Vocal or Instrumental Instruction	6	Music Ensemble	0
Engl. 101, 102, 103 Composition	9	Vocal or Instrumental Instruction	6
Health Educ. 110 or 175 Health	2	Science or Social Science	15
Science or Social Science	15	Approved electives	12
Approved electives	4	ROTC	6-9
Phys. Educ. activity	3		45-54
ROTC	6-9		
	48-57		
Third Year		Fourth Year	
	CREDITS		CREDITS
Music 214, 215 Instrumental Techniques	2	Music 322, 422 Tonal Counterpoint	6
Music 301, 401 Contemp. Idioms	6	Music 353 Orchestration	3
Music 304 Choral Lit.	1	Music 408 Baroque Music	3
Music 307, 308 Music History	4	Music 409 Contemp. Music	3
Music 321, 421 Modal Counterpoint	6	Music 481 Harmonic Analysis	3
Music 384 Instrumental Conducting	1	Music 484 Instrumental Conducting	1
Music 385 Choral Conducting	2	Music 485 Choral Conducting	2
Music 491 Composer's Lab.	6	Music 486 Instrumental Conducting	1
Music Ensemble	3	Music 491 Composer's Lab.	9
Approved electives	14	Music Ensemble	3
	45	Approved electives	11
			45

**CURRICULUM IN VOCAL OR INSTRUMENTAL MUSIC.** The student must take 36 credits in the major performance field, beginning with Music 150, and 6 credits in another instrument or in voice. If the major instrument is organ, the 6 credits must be in voice (Music 110C and 120C or 130C).

**PIANO.** To be accepted as a piano major the student must take an examination which includes three two-part inventions by Bach, one memorized, or three compositions of equal difficulty from the pre-Haydn period; one complete sonata by Haydn, Mozart, or Beethoven; two short compositions, one each from romantic and contemporary periods; reading at sight an easy composition; all major and all harmonic and melodic minor scales, four octaves, hands together (M.80, four notes to the beat); major and minor arpeggios, root positions, and inversions.

**First Year**

	CREDITS
Music 101, 102, 103 Theory	6
Music 104 Sight Singing	3
Music 131, 132, 133 Piano Sight Reading	3
Music 150A Piano	9
Music Ensemble	0
Engl. 101, 102, 103 Composition	9
Health Educ. 110 or 175 Health	2
Science or Social Science	13
Phys. Educ. activity	3
ROTC	6-9
	48-57

**Second Year**

	CREDITS
Music 150A Piano	9
Music 202, 203 Theory	6
Music 207, 208 Music Lit.	4
Music Ensemble	0
Science or Social Science	17
Approved electives	9
ROTC	6-9
	45-54

**Third Year**

	CREDITS
Music 304 Choral Lit.	1
Music 307, 308 Music History	4
Music 331, 332, 333 Keyboard	
Transposition	6
Music 334, 335, 336 Accompanying	6
Music 337, 338, 339 Repertoire	6
Music 350 Vocal or Instrumental Instr.	9
Music Theory, upper-division	6
Music Ensemble	3
Approved electives	4
	45

**Fourth Year**

	CREDITS
Music 350 Vocal or Instrumental Instr.	9
Music 380 Adv. Chamber Music	3
Music 434, 435, 436 Piano Teaching	6
Music Ensemble	3
Music Theory, upper-division	6
Approved electives	18
Senior Recital	0
	45

Required electives: Approved electives must include 6 credits in another instrument or voice.

**VIOLIN AND VIOLONCELLO****First Year**

	CREDITS
Music 101, 102, 103	6
Music 104 Sight Singing	3
Music 150B or D Violin, Viola, or Violoncello	9
Music Ensemble	0
Engl. 101, 102, 103 Composition	9
Health Educ. 110 or 175 Health	2
Science or Social Science	16
Phys. Educ. activity	3
ROTC	6-9
	48-57

**Second Year**

	CREDITS
Music 150B or D Violin, Viola, or Violoncello	9
Music 202, 203 Theory	6
Music 207, 208 Music Lit.	4
Music Ensemble	0
Science or Social Science	14
Approved electives	12
ROTC	6-9
	45-54

**Third Year**

	CREDITS
Music 307, 308 Music History	4
Music 334 Accompanying	2
Music 350 Vocal or Instrumental Instr.	9
Music 360 Univ. Symphony Orch.	3
Music 380 Adv. Chamber Music	3
Music 384 Instrumental Conducting	1
Music Theory, upper-division	6
Approved electives	17
	45

**Fourth Year**

	CREDITS
Music 350 Vocal or Instrumental Instr.	9
Music 360 Univ. Symphony Orch.	3
Music 367 History of Chamber Music	3
Music 380 Adv. Chamber Music	3
Music 490 Collegium Musicum	1-2
Music Theory, upper-division	6
Approved electives	20
Senior Recital	0
	45-46

Required electives: Approved electives must include 6 credits in another instrument or voice.

## ORGAN

## First Year

	CREDITS
Music 101, 102, 103 Theory	6
Music 104 Sight Singing	3
Music 131, 132, 133 Piano Sight Reading	3
Music 150E Organ	9
Music Ensemble	0
Engl. 101, 102, 103 Composition	9
Health Educ. 110 or 175 Health	2
Science or Social Science	13
Phys. Educ. activity	3
ROTC	6-9
	48-57

## Third Year

	CREDITS
Music 120C Class Instruction: Voice	3
Music 304 Choral Lit.	1
Music 307, 308 Music History	4
Music 322, 422 Tonal Counterpoint	6
Music 337, 338, 339 Repertoire	6
Music 350 Vocal or Instrumental Instr.	9
Music 385 Choral Conducting	2
Music Ensemble	3
Music Theory, upper-division	6
Approved electives	5
	45

## Second Year

	CREDITS
Music 110C Class Instruction: Voice	3
Music 150E Organ	9
Music 202, 203 Theory	6
Music 207, 208 Music Lit.	4
Music Ensemble	0
Science or Social Science	17
Approved electives	6
ROTC	6-9
	45-54

## Fourth Year

	CREDITS
Music 350 Vocal or Instrumental Instr.	9
Music 357 Church Music	3
Music Ensemble	3
Music Theory, upper-division	6
Approved electives	24
Senior Recital	0
	45

**VOICE.** To be accepted as a voice major, the student must take an examination which includes three songs selected from Schirmer Volume 1722 (Twenty-four Early Songs and Arias), preferably in the original language, and pass a test in sight-singing of the difficulty of a simple folk song or hymn tune. A voice major must complete 15 college credits in either French, German, or Italian by the end of the sophomore year.

## First Year

	CREDITS
Music 101, 102, 103 Theory	6
Music 104 Sight Singing	3
Music 111, 112, 113 Rhythmic Movement	3
Music 150C Voice	9
Music Ensemble	0
Engl. 101, 102, 103 Composition	9
Health Educ. 110 or 175 Health	2
Science or Social Science	13
Phys. Educ. activity	3
ROTC	6-9
	48-57

## Third Year

	CREDITS
Music 304 Choral Lit.	1
Music 307, 308 Music History	4
Music 337, 338, 339 Repertoire	6
Music 350 Vocal or Instrumental Instr.	9
Music 385 Choral Conducting	2
Music Ensemble	3
Music Theory, upper-division	6
Engl. 257 or 320 Poetry	5
Science or Social Science	10
	46

## Second Year

	CREDITS
Music 150C Voice	9
Music 202, 203 Theory	6
Music 207, 208 Music Lit.	4
Music 211 Music Theatre Tech.	1
Music Ensemble	0
Science or Social Science	7
Foreign language	15
Approved electives	5
ROTC	6-9
	47-56

## Fourth Year

	CREDITS
Music 334 Accompanying	2
Music 350 Vocal or Instrumental Instr.	9
Music Ensemble	3
Music Theory, upper-division	6
Approved electives	22
Senior Recital	0
	42

Required electives: Approved electives must include 6 credits in another instrument. •

**CURRICULUM IN MUSIC EDUCATION.** Students majoring in music education must pass minimum competence examinations which shall consist of the ability to sing and play on the piano, at sight, material at a level equivalent to that of eighth-grade music classes. These examinations are prerequisite to registration in Music 344.

This prescribed curriculum meets the requirements for the degree of Bachelor of Arts in Music, and the requirements for a teaching certificate which is issued

through the College of Education (see the *College of Education Bulletin* for other requirements for the Provisional General Certificate).

The curriculum in music education permits the selection of a field of emphasis for teaching. Specific requirements for the three fields are listed below the general requirements.

#### General Requirements

Music Theory (27 credits)  
101, 102, 103, 104, 202, 203, 303,  
321 or 322, 301 or 353 or 491, 481  
General Studies (64 credits)  
English 101, 102, 103  
Health Education 110 or 175,  
and P.E. Activities  
Social Sciences, Group II (20 credits)  
Psychology 100, 360  
History 464  
Elective  
Science, Group III (10 credits)

Music Literature (8 credits)  
207, 208, 307, 308  
Choral Literature 304 (1 credit)  
Education (19 credits)  
See *College of Education Bulletin*  
for course descriptions: 209,  
370, 390, 371S  
State of Washington Certification  
Education 360, 370E, 372E, 373,  
374, Art elective, Public Health  
461, Speech 100

#### Specific Emphasis Requirements

##### Instrumental Music Emphasis

Conducting (3)  
384, 484, 486  
Applied Music (min. 24)  
Major instrument (12)  
Piano (0-6) See above  
requirements  
Instrumental Techniques  
(min. 9) 214, 215, 216,  
224, 225, 226, 246,  
254, 255, 256  
Music Education (12)  
344, 346J, 414, 415,  
424, 425  
Music Ensemble (min. 6,  
four years required  
but must include one  
year choral)  
Approved electives (6)

##### General Music Emphasis

Conducting (3)  
384, 385  
Applied Music (min. 27)  
Voice (9)  
Piano (12, at level of  
130 or 210 and above)  
Instrumental Techniques  
(6) 124-125, 214,  
215, 225, 226  
Music Education (12)  
344, 345, 346J,  
elect 2 from: 414,  
415, 424, 425  
Music Ensemble (min. 6,  
four years required but  
must include both one  
year of choral and one  
year of instrumental)  
Approved electives (3)

##### Choral Music Emphasis

Conducting (4)  
385, 485  
Applied Music (min. 28)  
Voice (15-18)  
Piano (6-9, at level of  
130 or 210 and above),  
124-125, 334  
Music Education (10)  
344, 346J, 414, 415  
Music Ensemble (min. 6,  
four years choral  
required)  
Approved electives (3)

**CURRICULUM IN MUSIC HISTORY AND LITERATURE.** Students in this curriculum must demonstrate proficiency in vocal or instrumental performance by the end of the sophomore year.

#### First Year

	CREDITS
Music 101, 102, 103 Theory	6
Music 104 Sight Singing	3
Music Ensemble	0
Vocal or Instrumental Instruction	6
Engl. 101, 102, 103 Composition	9
Health Educ. 110 or 175 Health	2
Science or Social Science	15
Approved electives	4
Phys. Educ. activity	3
ROTC	6-9

48-57

#### Second Year

	CREDITS
Music 202, 203 Theory	6
Music 207, 208 Music Lit.	4
Music Ensemble	0
Vocal or Instrumental Instruction	6
Science or Social Science	15
French or German	15
ROTC	6-9

46-55

Upper-division minimum requirements are: 18 credits in music history and literature, to include some work in each of five fields (renaissance, baroque, classic, romantic, contemporary); and 12 credits in theory and composition.

#### COURSES FOR STUDENTS MAJORING IN OTHER FIELDS

Recommended courses are: Music 107, 108, 117, 118, 119, 121, 122, 123, 217, 218, 219, 227, and 317. Ensemble groups (Music 100, 140, 160, 180, 340, 360, and 380) are also open to nonmajors and may be taken either for credit or as activities. Credit for Music 100 (University Singers) is granted upon completion of three consecutive quarters; no new students are admitted during Spring Quarter. All ensemble courses except Music 100 require auditions.

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Summaries of the undergraduate preparation required for each of the various majors are listed in the information leaflets, "Graduate Studies," prepared by the School of Music.

**MASTER OF ARTS IN MUSIC.** All candidates must demonstrate proficiency in general musicianship, including piano, and show a satisfactory knowledge of music theory and music literature. The minimum requirements are: for a major in composition, music education, musicology, or opera, 36 credits and a 9-credit thesis; for a major in music performance (piano, violin, voice, organ, conducting), 39 credits and a 6-credit thesis. The candidate's committee may require additional work beyond the basic minimum, depending upon the student's previous preparation, level of accomplishment in graduate studies, and educational objectives. Musicology is the only major which requires a reading knowledge of either French or German.

**DOCTOR OF PHILOSOPHY.** Candidates must have a broad knowledge of music literature and music theory and a reading knowledge of French and German. A minimum of 90 credits is required, of which 20 to 30 will normally represent a minor or supporting courses in other departments such as languages and literature, history, philosophy, psychology, or anthropology. The candidate may concentrate in musicology (18 credits required from Music 500, 547, 568, 569, 577, 578, 579, 600) or in theory and composition (18 credits required in Music 591). All candidates must complete 18 credits in Music 507, 508, 509, and such supplementary work in music history, theory, performance, conducting, or music education as may be determined by the supervisory committee in considering the individual program.

## COURSES FOR UNDERGRADUATES

- |                      |   |                        |
|----------------------|---|------------------------|
| <b>100</b>           | <b>University Singers (1-1-1, maximum 6)</b>  | <b>Kechley</b>         |
|                      | Study, preparation, and performance of oratorios, cantatas, and other large choral works.   |                        |
| <b>101, 102, 103</b> | <b>First-Year Theory (2,2,2)</b>  | <b>Staff</b>           |
|                      | Intensive training in basic musicianship; sight reading, ear training, keyboard harmony, creative harmony; elements of counterpoint, analysis, and form. Primarily for majors. Prerequisite, permission.              |                        |
| <b>104</b>           | <b>Sight Singing (1, maximum 3)</b>   | <b>Staff</b>           |
|                      | Required of all music majors during the first quarter of residence and is to be continued each successive quarter until satisfactory skills are attained. Exemption is by examination only. Prerequisite, permission. |                        |
| <b>107</b>           | <b>Survey of Music (5)</b>  | <b>Clarke</b>          |
|                      | Illustrated lectures with supplementary readings to provide the general student with background for the understanding of common musical forms, idioms, and styles. For nonmajors.                                     |                        |
| <b>108</b>           | <b>The Orchestra (2)</b>  | <b>Sokol</b>           |
|                      | The development of the orchestra and its literature. For nonmajors.   |                        |
| <b>110A</b>          | <b>Class Instruction: Piano (1-1-1, maximum 3)</b>  | <b>Staff</b>           |
|                      | Primarily for majors who cannot meet the entrance requirements in piano. Fee, \$5.00. Prerequisite, permission.   |                        |
| <b>110C</b>          | <b>Class Instruction: Voice (1-1-1, maximum 3)</b>  | <b>Staff</b>           |
|                      | Primarily for majors. Fee, \$5.00. Prerequisite, permission.  |                        |
| <b>110Y</b>          | <b>Class Instruction: Piano (1)</b>   | <b>Staff</b>           |
|                      | For elementary education students. Fee, \$5.00. Prerequisite for Education 377X-377Y.   |                        |
| <b>110Z</b>          | <b>Class Instruction: Voice (1)</b>   | <b>Staff</b>           |
|                      | For elementary education students. Fee, \$5.00. Prerequisite for Education 377X-377Y.   |                        |
| <b>111, 112, 113</b> | <b>Rhythmic Movement (1,1,1)</b>  | <b>Rosinbum</b>        |
|                      | Muscular coordination with musical rhythms.   |                        |
| <b>117</b>           | <b>Music Appreciation: Symphonic Music, Nineteenth Century (2)</b>  | <b>Hokanson, Sokol</b> |
|                      | Illustrated studies to increase the understanding and enjoyment of symphonic music of the nineteenth century. For nonmajors. Prerequisite, 107 or 108.  |                        |
| <b>118</b>           | <b>Music Appreciation: Symphonic Music, Seventeenth and Eighteenth Centuries (2)</b>  | <b>Hokanson, Sokol</b> |
|                      | For nonmajors. Prerequisite, 107 or 108.  |                        |
| <b>119</b>           | <b>Music Appreciation: Symphonic Music, Contemporary (2)</b>  | <b>Hokanson, Sokol</b> |
|                      | For nonmajors. Prerequisite, 107 or 108.  |                        |

- 120A Class Instruction: Piano (1-1-1, maximum 3)** **Staff**  
Primarily for majors. Fee, \$5.00. Prerequisite, 110A or equivalent.
- 120C Class Instruction: Voice (1-1-1, maximum 3)** **Staff**  
Primarily for majors. Fee, \$5.00. Prerequisite, 110C or equivalent.
- 121, 122, 123 Elementary Music Theory (2,2,2)** **Staff**  
Fundamentals of music notation and harmony. For nonmajors. Prerequisite for 122, 121 or permission.
- 124-125 Instrumental Laboratory (1-1)** **Staff**  
Group instruction on orchestral instruments for noninstrumental majors in music education.
- 130 Vocal or Instrumental Instruction (2-3, maximum 18)** **Staff**  
Primarily for majors not specializing in performance. Fee, \$25.00 for 2 credits or \$37.50 for 3 credits. For description and teacher designation, see 150. Prerequisite, examination.
- 131, 132, 133 Piano Sight Reading Laboratory (1,1,1)** **Geissmar**  
For majors in piano and organ; exemption by examination. Others by permission.
- 140 University Concert Band (1, maximum 6)** **Welke**
- 150 Vocal or Instrumental Instruction (2-3, maximum 18)** **Staff**  
One or two individual half-hour lessons per week; weekly studio class in interpretation. Fee, \$25.00 for 2 credits or \$37.50 for 3 credits.  
A. PIANO. Jacobson (A1), Ringgold (A2), Bostwick (A3), Normann (A4), Geissmar (A5), Moore (A6), Hokanson (A7)  
B. VIOLIN or VIOLA. Zetlin (B1), Sokol (B2), Ferrin (B3)  
C. VOICE. Werner (C1), Lawrence (C2), Jones (C4), Harris (C5)  
D. VIOLONCELLO. Heintz (D2), Harnett (double bass, D3)  
E. ORGAN. Eichinger (E)  
F. WOODWIND. Rutherford (flute, F1), Allport (oboe, F2), Phillips (clarinet, F3), Jussila (bassoon, F4), Skowronek (flute, F5), Marsh (oboe, F6), Welke (clarinet, F7)  
G. BRASS. Welke (horn, G1), Welke (trumpet, G2), Cloud (trombone, G3), Cole (G5)  
H. HARP. Graf (H1), Lundgren (H2), Palmer (H3)  
J. PERCUSSION. Slivka (J)  
K. HARPSICHORD. Bostwick (K)
- 160 University Symphony Orchestra (1, maximum 6)** **Chapple**
- 180 Chamber Music (1, maximum 6)** **Staff**  
Small instrumental and vocal groups.  
Section A. PIANO  
Section B. STRING  
Section C. MADRIGAL  
Section D. OPERA  
Prerequisite, permission.  
Section E. ORGAN  
Section F. WOODWIND  
Section G. BRASS  
Section H. SMALL VOCAL ENSEMBLES
- 181 Music Theory Laboratory (3)** **Staff**  
Written and keyboard harmony, sight singing, literature, and analysis. With permission, 3 credits in this course may be substituted for Music 102 or 103. (Offered Summer Quarter only.)
- 202, 203 Second-Year Theory (3,3)** **Staff**  
For majors. Prerequisite, 103.
- 207, 208 Music Literature (2,2)** **Staff**  
Beethoven to the present day. For majors. Prerequisite, 103.
- 210A Class Instruction: Piano (2, maximum 12)** **Staff**  
Primarily for majors not specializing in performance. Fee, \$10.00. Prerequisite, examination.
- 210C Class Instruction: Voice (2, maximum 12)** **Staff**  
Primarily for majors not specializing in performance. Fee, \$10.00. Prerequisite, examination.
- 211 Music Theatre Technique (1)** **Rosinbum**  
Stage deportment and dramatic movement for singers. Prerequisite, 113.
- 214, 215, 216 Instrumental Techniques (1,1,1)** **Staff**  
Class instruction in violin. Primarily for majors.
- 217, 218, 219 Music Appreciation: Opera (2,2,2)** **Werner**  
Survey of opera. For nonmajors.
- 224, 225, 226 Instrumental Techniques (1,1,1)** **Staff**  
Class instruction in violoncello; clarinet; trumpet. Primarily for majors.
- 227 The Concerto (2)** **Staff**  
Music appreciation. A survey of the solo concerto for nonmajors. Prerequisite, 107 or 108.
- 246 Instrumental Techniques (1)** **Staff**  
Class instruction in flute. Primarily for majors.
- 254, 255, 256 Instrumental Techniques (1,1,1)** **Staff**  
Class instruction in lower brass, double reed, and percussion instruments. Primarily for majors. Prerequisites, 225, 226.
- 301 Contemporary Idioms (3)** **McKay**  
Analytical study of present-day composition techniques. Prerequisite, 203 or permission.

- 303 Keyboard Harmony (3)** **Staff**  
Prerequisite, 120A or equivalent.
- 304 Choral Literature (1)** **Terry**  
Interpretation and analysis of choral music through performance. Prerequisite, permission.
- 307, 308 Music History (2,2)** **Terry, Woodcock, Irvine**  
From the beginnings to Beethoven. Prerequisites, 203 and 208 for 307, and 307 for 308.
- 317 Music Appreciation: Chamber Music (2)** **Heinitz**  
Survey of literature for chamber music ensembles. For nonmajors. Prerequisite, 107 or 108.
- 321 Modal Counterpoint (3)** **Babb**  
Studies in sixteenth-century style. Prerequisite, 203 or permission.
- 322 Tonal Counterpoint (3)** **Verrall**  
Polyphonic composition: canon, invention, and fugue. Prerequisite, 203 or permission.
- 330 Vocal or Instrumental Instruction (2-3, maximum 18)** **Staff**  
For majors not specializing in performance. Fee, \$25.00 for 2 credits or \$37.50 for 3 credits. For description and teacher designation, see 150.
- 331, 332, 333 Keyboard Transposition and Improvisation (2,2,2)** **Beale**  
Prerequisite, 203 or permission.
- 334, 335, 336 Accompanying (2,2,2)** **Hokanson**  
Study and performance of music of different types and periods for voice or instrument in combination with piano.
- 337, 338, 339 Repertoire (2,2,2)** **Staff**  
For applied music majors. To be taken concurrently with 350 during the junior year.  
Section A. PIANO                      Section B. SONG                      Section C. ORGAN
- 340 University Concert Band (1, maximum 6)** **Welke**  
Prerequisite, audition.
- 344 Elementary School Music (4)** **Swanson**  
The development of the music program in the public school from grade one through nine. Prerequisites, 385, Education 370, and examination.
- 345 The General Music Class (2)** **Swanson**  
The teaching of music and its literature in nonperforming classes on the junior and senior high school level. Prerequisite, 344.
- 346J Teachers' Course in Secondary School Music (4)** **Normann**  
The development of the music program in the senior high school. Two credits count as education and 2 as music. Offered jointly with the College of Education. Prerequisites, 344, 385, and Education 370.
- 347 Music in the Americas (2)** **Clarke**  
Contribution of music to church and society in the western hemisphere during the seventeenth and eighteenth centuries. Prerequisites, 203 and 208, or permission.
- 348 Music in the Americas (2)** **Clarke**  
Study through performance of American composition of the nineteenth and twentieth centuries. Prerequisites, 203 and 208, or permission.
- 350 Vocal or Instrumental Instruction (2-3, maximum 18)** **Staff**  
To be taken concurrently with 337, 338, and 339 during the junior year. Fee, \$25.00 for 2 credits or \$37.50 for 3 credits. For description and teacher designation, see Music 150. Prerequisite, examination.
- 352 Musical Form (3)** **Woodcock**  
Analysis of the principal forms of music composition. Prerequisite, 203 or permission.
- 353 Orchestration (3)** **Verrall**  
Technique of writing for orchestra and other large ensembles; analytical and historical approach to problems of organization and sonority. Prerequisite, 203.
- 354 Band Arranging (2)** **Welke**  
Study of tone color, voicing, transposition, and arranging. Prerequisite, 203.
- 355 Music Calligraphy (1)** **Verrall**  
Preparation, editing, proofreading, and copying of manuscripts.
- 357 Church Music (3)** **Woodcock**  
Survey of liturgy, chant, hymn, anthem, and solo. Prerequisites, 203 and 308, or permission.
- 360 University Symphony Orchestra (1, maximum 6)** **Chapple**  
Prerequisite, audition.
- 367 History of Chamber Music (3)** **Irvine**  
Primarily for string majors. Prerequisites, 203 and 308, or permission.
- 377, 378, 379 Score Reading (2,2,2)** **Irvine**  
Reading from score at the piano as a technique for the investigation of ensemble literature. Prerequisites, 203 and 208, or permission.
- 380 Advanced Chamber Music (1, maximum 6)** **Staff**  
Selected instrumental and vocal groups. Prerequisite, permission.
- 384 Instrumental Conducting (1)** **Welke**  
Transposition, score analysis, and baton technique. Prerequisite, 203.



- 385 Choral Conducting (2)** **Munro**  
Score analysis, musical styles, hand technique. To be taken concurrently with 304. Prerequisite, permission.
- 401 Contemporary Idioms (3)** **McKay**  
Continuation of 301.
- 407 Renaissance Music (2)** **Irvine**  
Prerequisites, 203 and 307, or permission.
- 408 Baroque Music (3)** **Terry**  
Prerequisites, 203 and 308, or permission.
- 409 Contemporary Music (3)** **McKay**  
Prerequisites, 203 and 208, or permission.
- 414, 415 School Choral Materials (1,1)** **Jones**  
Survey of materials, study of rehearsal procedures and programming for choral groups at the junior and senior high school level. Prerequisite, 344.
- 417 Medieval Music (2)** **Irvine**  
Prerequisites, 203 and 307, or permission.
- 421 Modal Counterpoint (3)** **Babb**  
Continuation of 321.
- 422 Tonal Counterpoint (3)** **Verrall**  
Continuation of 322.
- 424, 425 School Instrumental Materials (1,1)** **Normann, Cole**  
Survey of materials for instrumental groups. Prerequisite, 344.
- 427 Haydn and Mozart (3)** **Terry**  
Prerequisite, 308 or permission.
- 428 Beethoven (3)** **Woodcock**  
Prerequisites, 203 and 208, or permission.
- 430 Vocal or Instrumental Instruction (2-3, maximum 18)** **Staff**  
For majors not specializing in performance. Fee, \$25.00 for 2 credits or \$37.50 for 3 credits. For description and teacher designation, see 150.
- 434, 435, 436 Piano Teaching (2,2,2)** **Woodcock, Moore**  
Survey and study of teaching material; supervised practice teaching.
- 437 Rococo and Preclassic Music (3)** **Terry**  
Prerequisites, 203 and 308, or permission.
- 440 Wind Sinfonietta (2, maximum 6)** **Welke**  
(Offered Summer Quarter only.)
- 447 Schumann and Brahms (3)** **Woodcock**  
Prerequisites, 203 and 208, or permission.
- 449 Late Nineteenth-Century Music (3)** **Irvine**  
Prerequisites, 203 and 208, or permission.
- 450 Vocal or Instrumental Instruction (2-3, maximum 18)** **Staff**  
Fee, \$25.00 for 2 credits or \$37.50 for 3 credits. For description and teacher designation, see 150.
- 452 Musical Form (3)** **Woodcock**  
Continuation of 352.
- 453 Orchestration (3)** **Beale**  
Continuation of 353.
- 460 Sinfonietta (1, maximum 9)** **Chapple**  
Prerequisite, audition.
- 464, 465 Opera Direction and Production (4,4)** **Rosinbum**  
Practical experience with problems of the opera theatre.
- 467 History of Keyboard Music (3)** **Woodcock**  
Development of organ, clavichord, harpsichord, and piano; idioms of corresponding types of keyboard music and styles of performance. Prerequisites, 203 and 308, or permission.
- 474 The Curriculum in Music Education (3)** **Normann**
- 480 Opera Theatre (2, maximum 6)** **Chapple, Rosinbum**  
Preparation for participation in public performance of roles in chamber opera. Prerequisite, permission.
- 481 Harmonic Analysis (3)** **Beale**  
Prerequisite, 203 or permission.
- 484 Instrumental Conducting (1)** **Cole**
- 485 Choral Conducting (2)** **Munro**
- 486 Instrumental Conducting (1)** **Chapple**

- 487, 488 History of Opera (3,3)** **Munro, Irvine**  
Periods and styles of opera, with special study of representative works in the light of the cooperative contributions of the voice, orchestra, libretto, scenic design, and acting. 487: pre-opera through Mozart; 448: since Mozart. Prerequisites, 203 and 308, or permission.
- 490 Collegium Musicum (1-2, maximum 6)** **Bestwick, Heinitz, Terry**  
Special studies in the performance of early ensemble music. Techniques and repertoire of the viols. Prerequisite, permission.
- 491 Composer's Laboratory (3, maximum 18)** **McKay, Verrall**  
Prerequisite, 203 or permission.
- 495 Advanced Choral Conducting (3)** **Munro**  
Prerequisite, permission.
- 497, 498 History of Choral Music (3,3)** **Munro, Terry**  
497: Josquin through Bach; 498: Haydn to the present. Prerequisites, 203 and 308, or permission.
- 499 Undergraduate Research (\*, maximum 6)** **Staff**  
Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 500 Methods of Musical Research (3)** **Irvine**  
Bibliography and research techniques. Designed to prepare students for their work in seminars, individual research, and the writing of theses.
- 507 Seminar in Renaissance and Baroque Music (3, maximum 6)** **Munro**  
Prerequisite, one or more undergraduate courses in the same field.
- 508 Seminar in Classic and Romantic Music (3, maximum 6)** **Woodcock**  
Prerequisite, one or more undergraduate courses in the same field.
- 509 Seminar in Modern Music (3, maximum 6)** **Irvine**  
Prerequisite, one or more undergraduate courses in the same field.
- 514 Psychological Foundations of Music (3)** **Normann**  
The nature of musical effects; growth and development of musical powers; factors influencing musical taste; applications of music to therapy and industry.
- 524 Seminar in Music Education (3)** **Swanson**  
Special problems in the teaching and supervision of music in the elementary grades. Prerequisite, one year of teaching experience and permission.
- 525 Seminar in Music Education (3)** **Normann**  
Special problems in the teaching and administration of music in the secondary school and junior college. Prerequisite, one year of teaching experience and permission.
- 526 Seminar in Music Education (3)** **Normann**  
Philosophical foundations in music education. Prerequisite, one year of teaching experience and permission.
- 547 Seminar in American Music (3, maximum 6)** **Clarke**  
History and literature of music in the United States from 1600 to the present.
- 550 Vocal or Instrumental Instruction (3, maximum 12)** **Staff**  
Fee, \$37.50. Prerequisite, 36 credits in the same branch of performance.
- 561 Problems in Choral and Orchestral Scoring (2-5)** **Verrall**  
Special techniques of choral, orchestral, and dramatic composition. Original composition and research, with emphasis on the evolution of ensemble types and forms.
- 566 Opera Direction and Production (4 or 6, maximum 12)** **Rosinbum**  
Practical experience with problems of the opera theatre.
- 568, 569 Historiography and Criticism (3,3)** **Irvine**  
An approach to critical scholarship through the review and evaluation of the writings of music historiographers and music critics, with main emphasis on the period since 1770.
- 577, 578 Early Notation (2,2)** **Irvine**  
577: Gregorian notation; ars antiqua; ars nova. 578: white mensural notation; lute and organ tablatures. Prerequisites, 417 for 577, 407 for 578, or permission.
- 579 Seminar in Musicology (3, maximum 6)** **Irvine**  
Selected topics in music history, literature, and theory. Prerequisite, permission.
- 584, 585, 586 Advanced Conducting (1-3,1-3,1-3)** **Chapple**  
Analysis of scores leading to rehearsal and preparation of musical groups.
- 590 Recital (2, maximum 6)** **Staff**  
Public performance in one solo recital and in chamber music, cantata, concerto, opera, or oratorio.
- 591 Graduate Composition (\*)** **McKay, Verrall**
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## OCCUPATIONAL THERAPY, PREPROFESSIONAL PROGRAM

Adviser, 121 Miller Hall

The two-year preprofessional program in occupational therapy is designed specifically to prepare students for admission to the curriculum in Occupational Therapy in the School of Medicine of the University of Washington, although it also follows the general requirements of other occupational therapy schools.

The following courses are required, with a cumulative grade-point average of 2.50 for admission to the professional program: Art 109 (Design), 201 (Ceramic Art), 290 (Art Education); Anatomy 301 (General Anatomy); Chemistry 100 or 110 and 120 (General and Organic Chemistry); Conjoint 295, 296 (Introduction to Normal Growth and Development); Education 180, 182, and 280 (Mechanical Drawing, General Shop, and Fundamentals of Woodwork for Industrial Education Teachers); Home Economics 329 (Hand Weaving); Physical Medicine and Rehabilitation N107 and 290 (Introduction to Occupational Therapy and Pre-Occupational Therapy Clerkship); Physics 170 and 170L (Introduction to Health Science Physics and Laboratory); Psychology 100 and 101 (General Psychology and Psychology of Adjustment); Sociology 110 (Survey of Sociology); and Zoology 208 (Elementary Human Physiology). Electives should be selected from the humanities and social studies.

A complete description of the occupational therapy curriculum will be printed in the next *School of Medicine Bulletin*, scheduled for publication in July, 1960. Until this publication is available, information on the occupational therapy curriculum can be obtained from the Office of the Registrar.

## OCEANOGRAPHY

Executive Officer: RICHARD H. FLEMING, 202 Oceanography Building

The Department of Oceanography offers courses leading to the degrees of Bachelor of Arts, Bachelor of Science, Master of Science, and Doctor of Philosophy. For undergraduate students, the Department offers two programs leading to bachelor's degrees: an elective curriculum which provides a basic introduction and allows a wide choice of electives in other fields, and prescribed curricula which permit more specialized study.

Additional Summer Quarter instruction is given at the Friday Harbor Laboratories in the San Juan Islands. In many courses, work at sea is performed on board the M.V. "Brown Bear" and other vessels which are attached to the Department.

### BACHELOR OF ARTS

The elective curriculum requires at least 36 credits in upper-division courses in oceanography. A general background in the basic sciences is also required, paralleled by a comprehensive program in one of the basic fields. Students who contemplate graduate work should take at least one foreign language.

### BACHELOR OF SCIENCE

In order to complete the program for the degree of Bachelor of Science within four years, entering high school graduates must have met the general College of Arts and Sciences entrance requirements and have a total of  $1\frac{1}{2}$  units of algebra,  $\frac{1}{2}$  unit of trigonometry, and 1 unit each of plane geometry, chemistry, and physics. Four years of high school mathematics are strongly recommended.

Four options are offered under this program: biological oceanography, chemical oceanography, geological oceanography, and physical oceanography. During the first two years, the program is essentially the same for all options. Students entering their third year will select one of the options and during their third and fourth years will follow the appropriate course program.

## First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Ocean. 110- Lectures . . .	1-	Ocean. -111- Lectures . . .	1-	Ocean. -112 Lectures . . .	1
Chem. 110 General . . .	3	Chem. 150 General . . .	4	Chem. 160 General . . .	3
Math. 153 Anal. Geom. & Calc. . . . .	5	Math. 251 Anal. Geom. & Calc. . . . .	5	Math. 252 Anal. Geom. & Calc. . . . .	5
Physics 121 General . . .	3	Physics 122 General . . .	3	Physics 123 General . . .	3
Physics 131 General Lab. 2		Physics 132 General Lab. 2		Physics 133 General Lab. 2	
Health Educ. 175 or 110 Health . . . . .	2	Phys. Educ. activity . . .	1	Phys. Educ. activity . . .	1
Phys. Educ. activity . . .	1	ROTC . . . . .	2-3	ROTC . . . . .	2-3
ROTC . . . . .	2-3		16-19		15-18
	17-20				

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 170 Qual. Anal. . .	3	Chem. 221 Quant. Anal. . .	5	Ocean. 203 Intro. . . . .	5
Engl. 101 Composition . .	3	Engl. 102 Composition . .	3	Engl. 103 Composition . .	3
Math. 253 Anal. Geom. & Calc. . . . .	3	Science electives . . . . .	8	Math. 281 Elem. of Stat. Method . . . . .	5
Science electives . . . . .	6	ROTC . . . . .	2-3	Science electives . . . . .	3
ROTC . . . . .	2-3		16-19	ROTC . . . . .	2-3
	15-18				16-19

During the third and fourth years, all students will be expected to complete the following: Oceanography 360, 361, 390, 405, 421-422, 440, 441, and 442; 10 credits in social sciences; and a minimum of 20 credits in a foreign language. Furthermore, third-year students will select one of the following options and during the next two years will be expected to complete the additional courses listed below.

**BIOLOGICAL OCEANOGRAPHY OPTION.** Oceanography 401, 431, and 433; Zoology 111, 112 (General Zoology), 330 (Natural History of Marine Invertebrates), 400 (General Physiology), 433, and 434 (Invertebrate Zoology); Biology 472 (Principles of Ecology), or 473 (Limnology); Geology 101 (Survey of Geology).

**CHEMICAL OCEANOGRAPHY OPTION.** Oceanography 401, 403, 452, and 453; or 401, 403, and 431; or 403, 410, 411, and 412; Chemistry 335, 336, 337 (Organic Chemistry), 345, 346, 347 (Organic Chemistry Laboratory), 355, 356, 357 (Physical Chemistry), 358 (Physical Chemistry Laboratory), and 426 (Instrumental Analysis); Geology 101 (Survey of Geology).

**GEOLOGICAL OCEANOGRAPHY OPTION.** Oceanography 401, 403, 452, and 453; Geology 205 (Rocks and Minerals), 206 (Elements of Physiography), 207 (Historical Geology), 221, 222 (Crystallography and Sulfide Mineralogy), 308 (Structural Geology), 330 (General Paleontology), 361 (Stratigraphy), and one of the following: 320 (Sedimentary Petrology), 436 (Micropaleontology), or 531 (Advanced Paleontology). Geology 423 (Optical Mineralogy) is highly recommended.

**PHYSICAL OCEANOGRAPHY OPTION.** Oceanography 403, 410, 411, and 412; Meteorology 340, 341 (Physical Meteorology), 441, 442 (Introduction to Atmospheric Motions), and 462 (Oceanographic Meteorology); Mathematics 321 (Differential Equations), and 324, 325 (Advanced Calculus I and II); Physics 221, 222 (Mechanics); Geology 101 (Survey of Geology).

Students will take oceanography courses directly related to their option in their third year. All college requirements for graduation must be satisfied.

## ADVANCED DEGREES

Students who intend to work toward the degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Applicants must have completed the equivalent of an undergraduate major in oceanography or in one of the physical or biological sciences. For those without an undergraduate major in oceanography, a broad training in the exact and natural sciences is desirable. Students who have not

majoring in oceanography will be accepted only if their qualifications meet those of the department responsible for the field of their undergraduate major.

Specialization is in either physical, chemical, geological, or biological oceanography. Students will be expected to attain a general knowledge of oceanography in addition to their specialty.

German, Russian, and French are the most valuable foreign languages in the study of oceanography.

## COURSES FOR UNDERGRADUATES

- 101 Survey of Oceanography (5)** **Staff**  
Origin and extent of the oceans; nature of the sea bottom; causes and effects of currents and tides; animal and plant life in the sea. Recommended for nonmajors.
- 110-111-112 Lectures in Oceanography (1-1-1)** **Fleming**  
Weekly lectures, demonstrations, and tours to familiarize students with the subject matter and opportunities in oceanography. To be taken in the first or second year by students majoring in oceanography. May be entered any quarter.
- 203 Introduction to Oceanography (5)** **Fleming**  
A comprehensive description of the oceans and their relation to man; physical, chemical, biological, and geological aspects of the sea; areal distribution and seasonal cycles of properties; currents; factors affecting populations. Demonstrations and some classes aboard ship and in laboratories.
- 360 Methods and Instruments in Oceanography (3)** **Paquette**  
Practical experience with the types of observing and sampling devices used at sea and ashore; methods of observing, recording, and presenting oceanographic data; interpretation of results; sources of basic data; means of locating positions; routine chemical analyses. Prerequisite, 203, Mathematics 252, and one year of physics.
- 361 Field Experience in Oceanography (6)** **Staff**  
Practical work on shipboard and ashore by participation in regular oceanographic survey operations on the "Brown Bear" and other vessels; chemical, physical, biological, and geological analyses; preparation of reports. To be taken at Friday Harbor during Summer Quarter only, between third and fourth year or by special arrangement. Prerequisite, 360.
- 390 General Oceanography (5)** **Barnes, Richards**  
Comprehensive treatment of physical, chemical, biological, and geological aspects of the oceans. Introductory to all courses in 400 series.
- 401 Physical Oceanography (5)** **Barnes**  
Physical properties and processes, interaction with atmosphere, theories and methods involved in ocean currents, waves, and tides. Not open to students who have taken 410. Prerequisite, 390.
- 403 Biological Oceanography (5)** **Staff**  
Physical, chemical, and biological factors characterizing the marine environment; factors controlling plant and animal populations; methods of sampling, identification, and analysis. Prerequisite, 390.
- 405 Geological Oceanography (5)** **Creager**  
Methods of marine geological exploration; physiography and structure of the ocean basins; processes of sedimentation and sediments in the marine environment. Prerequisites, 390 and Geology 101.
- 410 General Physical Oceanography (3)** **Barnes**  
Physical properties, processes, and the theory of the distribution of variables in the sea; mass and energy budgets. Prerequisite, 390 or graduate standing.
- 411 Ocean Tides and Waves (3)** **Rattray**  
Cause, nature, measurement, analysis, and prediction of tides and tidal currents and surface waves. Prerequisite, 390 or graduate standing.
- 412 Ocean Currents (3)** **Barnes**  
Characteristics of currents and of the forces that establish and modify them; methods of direct measurement and computation, use of indirect techniques; associated distribution of mass and properties. Prerequisite, 410.
- 421-422 Chemical Oceanography (3-3)** **Richards**  
Physical and chemical properties of sea water and sea products; methods of quantitative analysis. Prerequisite, Chemistry 221 or graduate standing.
- 431 Biological Oceanography of the Plankton (4)** **Staff**  
Floating plant and animal life of the sea; factors controlling population and production; regional distribution; methods of sampling, identification, and analysis; nuisance forms. Prerequisites, 403 and Zoology 112, or permission.
- 433 Plankton Ecology (6)** **Staff**  
Problems and methods of marine plankton investigations. Practical experience at sea and in the laboratory. (Offered Summer Quarter only in alternate years.) Prerequisite, 431 or Zoology 330.
- 440, 441, 442 Undergraduate Seminar (2,2,2)** **Fleming**  
Reviews of the history and literature of oceanography; description of local waters and the applications of marine sciences. Required of all oceanography majors. Prerequisite, senior standing.

- 452 Sedimentary Processes (3)** **Creager**  
Origin, transportation, and deposition of sediments; environments of sedimentation; interpretation of past climatic and physiographic conditions. Prerequisites, Geology 205, 206, and 207.
- 453 Sedimentary Techniques (2)** **Creager**  
Laboratory study and statistical analysis of physical properties of sediments; size analysis, texture, composition, porosity, permeability, and mass properties; description and interpretation of sediments. May be taken concurrently with 452. Prerequisites, 452, Geology 221 and 222.
- 461 Applications of Oceanography (3)** **Fleming**  
Analysis of special cases involving the application of oceanography to military, engineering, and industrial problems. Prerequisite, a physical or biological science major or permission.
- 499 Undergraduate Research (1-3, maximum 6)** **Staff**  
Original research on assigned topics which may involve laboratory work, field work, or literature surveys. Open to qualified seniors. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 511, 512, 513 Marine Hydrodynamics (3,3,3)** **Rattray**  
Methods for solving problems in physical oceanography. Prerequisite, a major in a physical science or permission.
- 514 Field Work in Marine Hydrodynamics (6)** **Rattray**  
Application of marine hydrodynamics principles to field measurements. (Offered Summer Quarter when demand is sufficient.) Prerequisite, a major in a physical science or permission.
- 515 Waves (2)** **Rattray**  
Application of marine hydrodynamics principles to the wave motion in the oceans. Prerequisites, 511, 512, and 513.
- 516 Ocean Circulation (2)** **Rattray**  
Hydrodynamic theories concerning the origin and characteristics of the major ocean currents. Prerequisites, 511, 512, and 513.
- 517 Oceanography of Inshore Waters (5)** **Barnes, Rattray**  
Theories and techniques of investigation and interpretation of conditions existing in inshore waters with particular reference to mixing and flushing and to areas adjacent to the state of Washington; use of dynamic models. Prerequisites, 411, 412, 511, 512, and 513.
- 518 Seminar in Physical Oceanography (3, maximum 9)** **Staff**  
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisites, 410, 411, and 412.
- 519 Interaction of the Sea and Atmosphere (5)** **Staff**  
The interchange of heat, water, and energy; study of budgets and of the mechanisms of exchange. Prerequisites, 410 and Meteorology 462.
- 520 Seminar (\*, maximum 6)** **Staff**
- 521 Seminar in Chemical Oceanography (3, maximum 9)** **Richards**  
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisite, 421-422.
- 531 Seminar in Biological Oceanography (3, maximum 9)** **Staff**  
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisites, 403 and 431.
- 532 Marine Microbiology (1-4)** **Ordal**  
Ecology and biochemistry of marine bacteria. Prerequisites, Microbiology 300 and permission.
- 551 Seminar in Geological Oceanography (3, maximum 9)** **Creager**  
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisites, 452 and 453.
- 553 Research Techniques in Marine Geology (3)** **Creager**  
Planning field programs; selection of equipment and survey procedures; collection, analysis, compilation and presentation of bathymetric and sediment data; evaluation of techniques and results. Prerequisites, 405 and 453.
- 555, 556 Advanced Marine Geology (3,3)** **Creager**  
Contemporary problems in marine geology; concepts supporting or at variance with the accepted hypotheses; discussion of recent advances. Prerequisite, 553.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## PHILOSOPHY

Acting Executive Officer: ARTHUR F. SMULLYAN, 264 Savery Hall

The Department of Philosophy offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. Students majoring in other fields will find Philosophy 100, 110, 120, 200, 215, and 267 of particular interest.

## BACHELOR OF ARTS

In the elective curriculum, the requirements are: 40 credits in philosophy, including Philosophy 110 or 215, 120, 320, 321, and 322. Humanities 103 in the General Education program may be counted toward a major.

## ADVANCED DEGREES

Students who intend to work toward the degree of Master of Arts or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

## COURSES FOR UNDERGRADUATES

- 100 Introduction to Philosophy (5)** **Staff**  
Reading and discussion of writings of the great philosophers on issues of lasting importance. Nature and limits of knowledge; the appeals to reason and experience. Relations of science and religion; naturalism and supernaturalism. Conceptions of reality: materialism, idealism, and skepticism. Conceptions of morality: the appeals to duty and happiness. Conflict of social ideals. (Not open to students who have had Humanities 103.)
- 110 Introduction to Social Ethics (5)** **Rader**  
The nature of a good social order and right social action. The rival ideals of aristocracy, fascism, liberalism, and socialism, with emphasis upon the nature and ideals of democracy.
- 120 Introduction to Logic (5)** **Keyt, Melden, Miller, Smullyan**  
Deductive and inductive logic; conditions of clear statement and valid reasoning; propositions, contradiction, definition, inference, types of argument, detection and avoidance of fallacies; probability and the methods by which theories and laws are established in daily life and in the sciences. Application of logic to other fields.
- 200 Types of Philosophy (5)** **Miller**  
An introduction to metaphysics and epistemology. A study of the contrasting positions of such contemporary philosophers as Ayer, Russell, Bergson, and Santayana.
- 215 Introduction to Ethics (5)** **Melden**  
Systematic study of typical analyses of the distinction between good and evil, right and wrong. Special attention is directed to the appeals to custom, theology, reason, human nature, and happiness as standards for the solution of moral problems. Readings in Plato, Hume, Kant, Bentham, and Mill.
- 230 Philosophic Issues in World Affairs (2)** **Rader**  
Philosophic issues in the conflict between soviet and liberal interpretations of democracy, and the bearing of these differences on world order. Ideals of the more neutralist nations. The philosophical basis of a world order.
- 267 Introduction to Philosophy of Religion (5)** **Dietrichson**  
Main features of Western religious thought. Philosophical examination of mysticism, supernaturalism and naturalism, the relationship between religion and morality. (Offered alternate years; offered 1959-60.)
- 320 History of Ancient and Medieval Philosophy (5)** **Keyt**  
The pre-Socratics, Plato, Aristotle, Plotinus, Augustine, and Aquinas.
- 321 History of Modern Philosophy (5)** **Miller**  
The development of philosophical ideas from the beginnings of the Renaissance, through the Continental Rationalists, the British Empiricists, and Kant.
- 322 History of Recent Philosophy (5)** **Staff**  
History of philosophy from Kant to Bergson.
- 347 Philosophy in Literature (5)** **Rader**  
Study of philosophical ideas expressed in great works of literature. (Offered 1959-60.)
- 424 Recent American Philosophy (3)** **Staff**  
The philosophies of Pierce, Royce, Dewey, G. H. Mead, and Santayana. Recent developments in analytic and speculative philosophy. Current issues and problems.
- 428 Chinese Philosophy (5)** **Shih**  
Development of Chinese philosophy from the sixth century to modern times. Emphasis on Confucianism, Mohism, Taoism, Legalism, the Dialecticians, Buddhism, and Neo-Confucianism; re-evaluation of them in the light of new trends of thought after contact with the West.
- 431 Philosophy of Plato (3)** **Keyt**  
A reading of selected middle and late dialogues. (Offered alternate years; offered 1960-61.)
- 433 Philosophy of Aristotle (3)** **Keyt**  
A study of the Aristotelian system with emphasis on two major works. (Offered alternate years; offered 1959-60.) Prerequisite, 320 or permission.

- 436 British Empiricism (3)** **Melden**  
A study of the development of empiricism in the writings of Locke, Berkeley, and Hume. Detailed attention will be paid to the application of the empiricist views of the origin and nature of ideas to the problems of substance, self, nature, causation, mathematics, and induction. Prerequisite, 321 or permission.
- 437 Philosophy of Hume (3)** **Melden**  
Study of the principles and methods employed by Hume in the elaboration of his system of philosophy, comprising his analyses of knowledge, the passions, and morals. (Not offered 1959-60.) Prerequisite, 321 or permission.
- 438 Philosophy of Kant (3)** **Dietrichson**  
A systematic study of *The Critique of Pure Reason*. (Not offered 1959-60.) Prerequisite, 321 or permission.
- 440 Advanced Ethics (3)** **Melden**  
A critical examination of the concepts and judgments of value, including an analytical treatment of the notions of right and wrong, obligation, good and evil, and the relationship between ethical and aesthetic value. Prerequisite, 215 or permission.
- 445 Philosophy of Art (5)** **Rader**  
The principal systems of aesthetics; interpretations of the creative activity of the artist, the work of art, contemplation and criticism of art objects, and the relationship of art to the social order.
- 448 Philosophy in Nineteenth-Century Literature (5)** **Rader**  
From Wordsworth to Hardy, including Shelley, Emerson, Whitman, Tennyson, Browning, and Melville. Emphasis upon the philosophical interpretation of nature and the place of man in the cosmos.
- 450 Epistemology (3)** **Smullyan**  
Problems in the theory of knowledge, the nature, possibility, criteria, and limitations of knowledge; critical evaluation of subjectivism and realism, dogmatism and skepticism, intuitionism, pragmatism, empiricism, rationalism, and positivism; theories of meaning, truth, and perception; synthesis of various positions around the scientific method. Prerequisite, 100 or Humanities 103.
- 453 Semantics (5)** **Miller**  
The main theories of the origin and functions of language, including its logical, descriptive, emotive, and expressive uses; attention to semantical problems of the social sciences and the humanities. Prerequisite, 120.
- 456 Metaphysics (5)** **Smullyan**  
Nature of existence; appearance and reality; substance, causation and law; pluralism and monism; universals; space and time; presuppositions of knowledge; realism, naturalism, idealism, positivism. Prerequisite, 100 or 321, or Humanities 103, or permission.
- 460 Introduction to the Philosophy of Science (5)** **Miller**  
Concepts and methods which are fundamental in mathematics and in physical and social sciences. The relations of the sciences to each other as well as to ethics, religion, and philosophy. Speculations on the nature of the world which have been suggested by past and present scientific theories. Operationist tendencies in recent interpretations of science. (Offered alternate years; offered 1960-61.) Prerequisite, 100 or 120, or Humanities 103.
- 463 Philosophy of Mind (3)** **Melden**  
Theories of the nature of mind, the relation between mind and body, the self, memory, the unconscious, introspection, and our knowledge of other minds. (Not offered 1959-60.) Prerequisite, 100 or Humanities 103.
- 465 Philosophy of History (5)** **Rader**  
Analyses of the basic concepts employed in historical interpretation and an introduction to some of the principal philosophers of history: Plato, St. Augustine, Hegel, Marx, Spengler, Toynbee, etc.
- 467 Philosophy of Religion (5)** **Dietrichson**  
Philosophical examination of three approaches to religion: reason, intuition, faith. (Offered alternate years; offered 1960-61.) Prerequisite, one course in philosophy or Humanities 103.
- 469 Existentialist Philosophy (3)** **Dietrichson**  
A study of main ideas in the existentialist philosophies of Kierkegaard, Heidegger, Sartre, and Marcel. The nonrational elements of existence, human freedom, philosophy as edifying wisdom. Prerequisite, one course in philosophy or Humanities 103.
- 470 Advanced Logic (5)** **Key, Smullyan**  
Symbolic logic; deductive systems; types of order; infinity; propositions, classes, and relations; logical paradoxes and theory of types; critical examination of logical doctrine and analytic methods bearing on philosophical questions.
- 484 Reading in Philosophy (1-4, maximum 12)** **Staff**  
Reading of approved philosophical works. Prerequisite, permission.
- 490 Philosophy of Leibniz (3)** **Melden**  
An examination of the basic principles employed by Leibniz in the development of his systematic philosophy. Attention is given to the importance of Leibniz for the historical development of logic, the theory of knowledge, the philosophy of science, and metaphysics. (Not offered 1959-60.) Prerequisite, 321 or permission.
- 491 Philosophy of Spinoza (3)** **Miller**  
A detailed analysis of the *Ethics* of Spinoza.



**COURSES FOR GRADUATES ONLY**

<b>520 Seminar in Ancient Philosophy (2)</b> (Not offered 1959-60.)	<b>Keyt</b>
<b>521 Seminar in Modern Philosophy (2)</b> (Not offered 1959-60.)	<b>Staff</b>
<b>522 Seminar in Recent Philosophy (2)</b> (Not offered 1959-60.)	<b>Staff</b>
<b>540 Seminar in Ethics (2)</b> (Offered 1959-60.)	<b>Melden</b>
<b>545 Seminar in Philosophy of Art (2)</b> (Offered 1959-60.)	<b>Rader</b>
<b>550 Seminar in Epistemology (2)</b> (Offered 1959-60.)	<b>Smullyan</b>
<b>556 Seminar in Metaphysics (2)</b> (Offered 1959-60.)	<b>Dietrichson</b>
<b>565 Seminar in Philosophy of History (2)</b> (Offered 1959-60.)	<b>Rader</b>
<b>567 Seminar in Philosophy of Religion (2)</b> (Not offered 1959-60.)	<b>Dietrichson</b>
<b>570 Seminar in Logic (2)</b> (Offered alternate years; offered 1959-60.)	<b>Keyt, Smullyan</b>
<b>584 Reading in Philosophy (1-4)</b> Intensive reading in the philosophical literature. Prerequisite, permission.	<b>Staff</b>
<b>587 Contemporary Analytic Philosophy (3)</b> (Offered 1959-60.)	<b>Melden</b>
<b>600 Research (1-6)</b> Prerequisite, permission.	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

**PHYSICAL AND HEALTH EDUCATION**

**Executive Officer for Women: RUTH M. WILSON, 105 Hutchinson Hall**

**Executive Officer for Men: R. K. CUTLER, 210 Edmundson Pavilion**

The School of Physical and Health Education functions in three main areas: the physical education activity and health instruction programs, which provide courses required of undergraduate University students (see page 53); the program in intramural sports and recreation, which provides organized competition, sports clubs, and recreational facilities which all students may use on a voluntary basis; and the prescribed professional education programs, which provide four-year curricula in physical education, recreational leadership, prephysical therapy, and teacher training in both physical education and health education. These professional curricula lead to the degree of Bachelor of Arts. The prescribed curricula satisfy the College group requirements. The degrees of Master of Science and Master of Science in Physical Education are available through graduate study. Candidates for the degree of Doctor of Philosophy in other departments may obtain a minor in physical education.

The teacher-training curricula are offered for students in both the College of Education and the College of Arts and Sciences. In addition, the School offers basic academic fields in physical education and health education as well as second teaching areas for students in the College of Education.

**BACHELOR OF ARTS**

**GENERAL CURRICULUM IN PHYSICAL EDUCATION.** The general curriculum satisfies requirements for a Bachelor of Arts degree with a major in physical education, but not for a teaching certificate.

The lower-division preprofessional requirements are:

MEN	CREDITS
Phys. Educ. activities	3
Phys. Educ. 161, 162, 163, 264, 265, 266	12
Skills and Materials	4
Anat. 301 General	9
Engl. 101, 102, 103 Composition	5
Psychol. 100 General	5
Sociol. 110 Survey	5
Speech 100 Basic Speech Improvement	5
Zool. 111 or Biol. 101J- General	5
Zool. 112 or Biol. -102J General	5
Zool. 118 and 118L, or 208 Physiology (or approved substitute)	6-5
Approved electives	32-33
ROTC	12-18
	103-109

WOMEN	CREDITS
Health Educ. 110 Health	2
Phys. Educ. 115, 121, 157 Archery, Bowling, Canoeing	3
Phys. Educ. 181, 182, 183, 281, 282, 283, 284 Backgrounds	13
Anat. 301 General	4
Chem. 100 General (or one year of high school chemistry)	4
Engl. 101, 102, 103 Composition	9
Physics (approved introductory course)	5
Psychol. 100 General	5
Sociol. 110 Survey	5
Speech 100 Basic Speech Improvement	5
Zool. 118 and 118L or 208 Physiology (or approved substitute)	6-5
Approved electives	35-36
	96

The professional requirements are:

MEN	CREDITS
Health Educ. 291 Hygiene	3
Health Educ. 429 Methods in Teaching First Aid and Safety	3
Health Educ. 465 School Environ. Health Programs	3
Phys. Educ. 190 Introduction	2
Phys. Educ. 293 Physiol. of Muscular Exercise	3
Phys. Educ. 309 School Dance Program	2
Phys. Educ. 340 Admin. of Intramural Sports	3
Phys. Educ. 345 Principles	3
Phys. Educ. 363 Teaching Sports	2
Phys. Educ. 370 Coaching of Football	2
Phys. Educ. 371 Coaching of Basketball	2
Phys. Educ. 450 School Phys. Educ. Program	3
Phys. Educ. 493 Problems in Athletics	3
Rec. Educ. 294 Intro. to Recreation	2
Rec. Educ. 324 Recreation Programs	3
	39

WOMEN	CREDITS
Health Educ. 291 Personal and General Hygiene	3
Health Educ. 292 First Aid and Safety	3
Phys. Educ. 190 Introduction	2
Phys. Educ. 293 Physiol. of Muscular Exercise	3
Phys. Educ. 375 Methods in Phys. Educ. I	7
Phys. Educ. 376 Methods in Phys. Educ. II	7
Phys. Educ. 377 Methods in Phys. Educ. III	6
Rec. Educ. 344 Camp Programs	3
Home Ec. 300 Nutrition	2
Phys. Educ. electives	2
	38

**CURRICULUM IN RECREATIONAL LEADERSHIP.** The minimum number of required credits to be earned in the various subjects which make up the curriculum are as follows: communications, 3; English, 9; history and government, 5; psychology, 10; speech, 8; science, 10; plus additional requirements for men or women as indicated below.

#### MEN

Additional credit requirements for men are as follows: education, 5; sociology, 15; business administration, 5; physical education and sports activities, health education, and professional physical education, 36; recreation theory, 18; and cultural skills such as literature, music, art, drama, librarianship, photography, and certain outdoor education courses, 25. When provision has been made for the choice of electives in particular subjects, these electives must be within the range of certain courses recommended by the School and must be chosen in consultation with an adviser.

#### First Year

FIRST QUARTER	CREDITS
Phys. Educ. 161 Aquatics	2
Phys. Educ. activity	1
Engl. 101 Composition	3
Science electives	5
Sociol. 110 Survey	5
ROTC	2-3
	18-19

SECOND QUARTER	CREDITS
Phys. Educ. 265 Low- Organized Games	2
Phys. Educ. activity	1
Engl. 102 Composition	3
Science electives	5
Speech 100 Basic Speech Improvement	5
ROTC	2-3
	18-19

THIRD QUARTER	CREDITS
Phys. Educ. 163 Team Sports	2
Phys. Educ. activity	1
Music 107 Survey	5
Psychol. 100 General	5
Approved electives	3
ROTC	2-3
	18-19

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Rec. Educ. 254 Resources	1	Phys. Educ. 162 Gym-nastics	2	Phys. Educ. 266 Individual Sports	2
Rec. Educ. 294 Intro. to Recreation	2	Phys. Educ. 290 Officiating	2	Rec. Educ. 334 Recreation Management	2
Art 100 Introduction	5	Rec. Educ. 324 Recreation Programs	3	Art 292 Art Education	2
Sociol. electives	5	Drama 437 Creative	3	Drama electives	3
Approved electives	3	Hist. or pol. sci. electives	5	Sociol. electives	5
ROTC	2-3	ROTC	2-3	ROTC	2-3
	18-19		17-18		16-17

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Educ. 309 School Dance Program	2	Health Educ. 291 Hygiene	3	Phys. Educ. 340 Admin. of Intramural Sports	3
Rec. Educ. 354 Recreation Practicum	2	Phys. Educ. 358 Teaching Gymnastics	2	Phys. Educ. 363 Teaching Sports	2
Rec. Educ. 374 Social Recreation	2	Phys. Educ. electives	2-3	Phys. Educ. electives	3-5
Librnsip. 452 Storytelling	3	Cultural skills electives	5	Rec. Educ. 344 Camp Programs	3
Communications electives	3-5	Psychol. electives	5	Bus. Adm. electives	5
Cultural skills electives	5		17-18		16-18
	17-19				

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Rec. Educ. 454 Field Work	3	Phys. Educ. electives	2-3	Health Educ. 429 Methods in Teaching First Aid and Safety	3
Speech 332 Group Discussion	5	Approved electives	15	Phys. Educ. 295 or 364 Teaching Aquatics	2
Educ. electives	5		17-18	Approved electives	12
Approved electives	3-5				17
	16-18				

Recreation Education 504 and 524 are highly recommended electives for the second and third quarters of the fourth year.

WOMEN

Additional credit requirements for women are as follows: art, 7; business administration, 4; drama, 6; education, 3; health education, 5; librarianship, 3; music, 6; outdoor education, 6; physical education activity, 3; professional physical education, 15-16; recreational theory, 13; social work and sociology, 17; and two areas of specialization to be selected from art, dance, drama, music, outdoor education, sports, 20-27. The choice of particular courses within the various areas of study is to be determined in consultation with an adviser.

First Year

	CREDITS
Health Educ. 110 Health	2
Phys. Educ. activity	3
Phys. Educ. *181, 182, *183, *281, 282, 283, 284 Backgrounds	7-13
Phys. Educ. 190 Introduction	2
Engl. 101, 102, 103 Composition	9
Psychol. 100 General	5
Science or elective	5-10
Sociol. 110 Survey	5
Speech 100 Basic Speech Improvement	5
	40

\* Dependent upon area of specialization

Second Year

	CREDITS
Health Educ. 292 First Aid and Safety	3
Rec. Educ. 294 Intro. to Recreation	2
Rec. Educ. 324 Recreation Programs	3
Rec. Educ. 344 Camp Programs	3
Acct. 150 Fundamentals	4
Anat. 301 General or elective	4
Art 100 Introduction	5
Art 290 or 291, or 292 Art Educ.	2
Psychol. 101 Adjustment or 306 Child Psychology	5
Sociol. 240 Group Behavior	5
Approved electives and/or area specialization	10-11
	46-47

Third Year

	CREDITS
Phys. Educ. 375 Methods in Phys. Educ. I or Educ. 378C, D Phys. Educ. for the Elem. School	7-6
Drama 437 Creative	3
Educ. 377X-377Y Music for Elem. Teachers	3-3
Forestry 301 Survey or 350 Wildlife Management	3
Sociol. electives	5
Approved electives and/or area specialization	21-22
	45

Fourth Year

	CREDITS
Rec. Educ. 426 Field Work	5
Commun. 303 Public Relations	3
Drama 426 H.S. Play Production	3
Educ. 455 Auditory and Visual Aids	3
Forestry 356 Forest Recreation	3
History	5
Librnsip. 452 Storytelling	3
Soc. Work 521 Social Group Work	2
Speech 332 Group Discussion	5
Approved electives and/or area specialization	12
	44

## AREAS OF SPECIALIZATION

Art, 10 credits—109 and select 7 credits from 105, 151, 201, 300, 302, 357 or Home Economics 329.

Dance, 14 credits—Physical Education 351, 355, 459-460, 377 or 309 and 4 credits of physical education electives.

Drama, 10 credits—select 10 credits from 307, 403, 405, 406, 414.

Music, 13 credits—108; 110A, three quarters; 110C, three quarters; 100, three quarters or 180, or 140, three quarters; one music elective, 2 credits.

Outdoor Education, 10 credits—to be determined in consultation with adviser.

Sports, 17 credits—Physical Education 157, 267, 181, 183, 281 or equivalent; 293; 304 or 305-306; 376 or 295 and 5 credits of physical education electives.

## CURRICULUM IN PREPHYSICAL THERAPY FOR WOMEN. The requirements are:

First Year		CREDITS	Second Year		CREDITS
Health Educ. 110	Health	2	Health Educ. 292	First Aid and Safety	3
Phys. Educ. 121, 124, 157	Bowling, Fencing, Canoeing, or 162 Elem. Swimming	3	Phys. Educ. 281, 283, 284	Backgrounds	5
Phys. Educ. 190	Introduction	2	Phys. Educ. 293	Physiol. of Muscular Exercise	3
Phys. Educ. 182, 183, 282	Backgrounds	6	*Anat. 301	General	4
Chem. 100 or 110	General and 120 Organic and General	8-9	Micro. 301	General (or approved substitute)	5
Engl. 101, 102, 103	Composition	9	Psychol. 100	General	5
Math. 120	Introduction	2	Psychol. 101	Adjustment	5
Physics 170 and 170L	Introduction to Health Sciences Physics and Lab	6	Psychiatry 267	Introduction to Mental Hygiene	2
Speech 100	Basic Speech Improvement	5	*Zool. 118 and 118L or 208	Physiology	6-5
Sociol. 110	Survey	5	Approved electives		9-10
		48-49			47
			*Or Conjoint 317-318	Elem. Anat. and Physiol.	12
					45
Third Year		CREDITS	Fourth Year		CREDITS
Phys. Educ. 322	Kinesiology	3	Health Educ. 465	School Environ. Health Programs	3
Phys. Educ. 375	Methods in Physical Education I	7	Phys. Educ. 345	Principles	3
Phys. Educ. 376	Methods in Physical Education II	7	Phys. Educ. 435	Adapted Activities	3
Phys. Educ. 377	Methods in Physical Education III	6	Phys. Educ. N466 (3 quarters)	Coaching	0
Psychol. 305	Abnormal or 309 Exceptional Children	5-3	Phys. Educ. 480	Principles of Movement	3
Approved electives		17-19	Pub. Health 461	School and Commun. Health	5
		45	Approved electives		28
					45

**TEACHER-TRAINING CURRICULA.** The two teacher-training curricula offered by the School of Physical and Health Education may be taken through either the College of Arts and Sciences or the College of Education. Since the admission requirements of the two colleges differ, interested students should check the requirements listed in this bulletin (see page 41) and in the *College of Education Bulletin*.

The major course requirements in these curricula are exactly the same regardless of the college in which the student is registered.

**Curricula for Teacher Training in Physical Education.** Students who wish to emphasize high school physical education teaching should follow these curricula which meet preprofessional and professional course requirements for the Bachelor of Arts degree. The curriculum for men includes courses necessary for teacher certification in the state of Washington, second teaching areas in social studies and health education, and all group requirements. Students may choose electives to complete an additional area of concentration.

The prescribed curriculum for women does not include the courses necessary for teacher certification. These courses, as well as those for a second area of concentration, must be included in the electives.

All certification requirements are listed in the *College of Education Bulletin*.

All electives must be chosen in consultation with an adviser.

MEN

First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Educ. activity . . . . .	1	Phys. Educ. activity . . . . .	1	Phys. Educ. activity . . . . .	1
Phys. Educ. 161 Aquatics . . .	2	Phys. Educ. 162 Gym-		Phys. Educ. 163 Team	
Phys. Educ. 190 Intro-		nastics . . . . .	2	Games . . . . .	2
duction . . . . .	2	Engl. 102 Composition . . .	3	Art 100 Introduction	
Engl. 101 Composition . . . .	3	Speech 100 Basic Speech		(or equiv.) . . . . .	5
Music 108 Orchestra . . . . .	3	Improvement . . . . .	5	Engl. 103 Composition . . .	3
or 217 Appreciation:		Zool. 112 or Biol. -102J		Soc. 110 Survey . . . . .	5
Opera . . . . .	2	General . . . . .	2	ROTC . . . . .	2-3
Zool. 111 or Biol. 101J-		ROTC . . . . .	5		18-19
General . . . . .	5		18-19		
ROTC . . . . .	2-3				
	17-18				

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Educ. 264 Boxing		Health Educ. 291 Hygiene . .	3	Phys. Educ. 266 Individ-	
and Wrestling . . . . .	2	Phys. Educ. 265 Low-		ual Sports . . . . .	2
Rec. Educ. 294 Intro-		Organized Games . . . . .	2	Phys. Educ. 293 Physiol.	
duction . . . . .	2	Educ. 209 Educ. Psychol. . .	3	of Muscular Exercise . . .	3
Psychol. 100 General . . . . .	5	Psychol. 306 Child Psychol.		Anat. 301 General . . . . .	4
Zool. 118 and 118L		or Educ. 402 Child		Educ. 370 Teaching	
Physiol. and Lab. . . . .	6	Study . . . . .	3-5	Procedures . . . . .	5
ROTC . . . . .	2-3	Approved electives . . . . .	4	Approved electives . . . . .	2
	17-18	ROTC . . . . .	2-3	ROTC . . . . .	2-3
			17-20		18-19

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Educ. 322 Kinesi-		Phys. Educ. 358 Teaching		Phys. Educ. 309 School	
ology . . . . .	3	Gymnastics . . . . .	2	Dance Program . . . . .	2
Phys. Educ. 345 Principles . .	3	Phys. Educ. 370 Coaching		Phys. Educ. 340 Admin.	
Phys. Educ. 371 Coaching		of Football . . . . .	2	of Intramural Sports . . .	3
of Basketball . . . . .	2	Phys. Educ. 372 Coaching		Phys. Educ. 363 Teaching	
Educ. 370E Elem. Math. . . .	5	Track and Field . . . . .	2	Sports . . . . .	2
Educ. 373 Wash. State		Rec. Educ. 324 Recrea-		Educ. 339 Teachers' Course	
Manual . . . . .	2	tion Programs . . . . .	3	in Phys. Educ. . . . .	2
Approved electives from:		Educ. 374 Reading Instr. . .	5	Educ. 390 Evaluation . . . .	3
Rec. Educ. 254 Recrea-		Approved elective from:		Approved electives from:	
tion Resources, 354 Rec-		Phys. Educ. 290 Offici-		Phys. Educ. 336 Training	
reation Practicum, 374		ating, Health Educ. 292		and Conditioning, 373	
Social Recreation . . . . .	3	First Aid and Safety . . . .	2-3	Coaching of Baseball, Rec.	
	18		16-17	Educ. 334 Management	
				and Operation of Recrea-	
				tion, 344 Camp Programs . .	5
					17

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Health Educ. 429 Methods		Health Educ. 465 School		Phys. Educ. 364 Teaching	
in Teaching First Aid		Health Educ. Program . . . .	3	Aquatics . . . . .	2
and Safety . . . . .	3	Phys. Educ. 447 Tests		Phys. Educ. 493 Problems	
Phys. Educ. 361 Teaching		and Measurements . . . . .	3	in Athletics . . . . .	3
Boxing and Wrestling . . . .	2	Phys. Educ. 450 School		Hist. 464 Wash. and	
Educ. 371E, X, or S		Phys. Educ. Program . . . .	3	Pac. NW. . . . .	5
Directed Teaching (may		Public Health 461 School		Approved electives from:	
be taken Autumn, Winter,		and Commun. Health . . . .	5	Phys. Educ. 295 Swim-	
or Spring) . . . . .	8	Educ. 360 Principles . . . .	3	ming and Water Safety,	
Educ. 372E Professional			17	Phys. Educ. 435 Adapted	
Lab. Experiences . . . . .	3			Activities, Rec. Educ.	
	16			454 Field Work . . . . .	7
					17

WOMEN

First Year

FIRST QUARTER	CREDITS
Health Educ. 110 Health Education . . . . .	2
Phys. Educ. 121, 124, 157 Bowling,	
Fencing, Canoeing . . . . .	3
Phys. Educ. 182, 181 or 283, 183, 282	
Backgrounds . . . . .	8
Phys. Educ. 190 Introduction	
Chem. 100 General (or 1 yr. high school	
chem.) . . . . .	4
Engl. 101, 102, 103 Composition . . . . .	9
Physics 170 and 170L Intro. to Health	
Sciences Physics and Lab. . . . .	6
Sociol. 110 Survey . . . . .	5
Speech 100 Basic Speech Improvement . . .	5
Approved electives and teacher training	
requirements . . . . .	4
	48

Second Year

SECOND QUARTER	CREDITS
Health Educ. 291 Personal and General	
Hygiene (if not accompanied by health	
educ. second area) . . . . .	3
Health Educ. 292 First Aid and Safety . .	3
Phys. Educ. 181 or 283, 281 and 284	
Backgrounds . . . . .	5
Phys. Educ. 293 Physiol. of Muscular	
Exercise . . . . .	3
Phys. Educ. 304 or 305-306 Officiating . .	2
Rec. Educ. 344 Camp Programs . . . . .	3
Anat. 301 General . . . . .	4
Psychol. 100 General . . . . .	5
Zool. 118 and 118L Physiol. & Lab. . . . .	6
Approved electives and teacher education	
requirements . . . . .	11
	45

Third Year	CREDITS
Phys. Educ. 375 Methods in Phys. Educ. I	7
Phys. Educ. 376 Methods in Phys. Educ. II	7
Phys. Educ. 377 Methods in Phys. Educ. III	6
Phys. Educ. N466 Coaching (2 quarters)	0
Home Ec. 300 Nutrition	2
Approved electives and professional education requirements	23
	45

Fourth Year	CREDITS
Health Educ. 453 (if not accompanied by health educ. area) Health Teaching	3
Phys. Educ. 322 Kinesiology	3
Phys. Educ. 345 Principles	3
Phys. Educ. 435 Adapted Activities	3
Phys. Educ. 450 School Phys. Educ. Program	2
Phys. Educ. N466 Coaching (1 quarter)	0
Phys. Educ. 480 Principles of Movement	3
Approved electives and professional education requirements	28
	45

**Curriculum for Teacher Training in Health Education.** Students who wish to emphasize school health education may follow this curriculum, which meets professional and preprofessional course requirements for the Bachelor of Arts degree. Electives taken in the curriculum must include the courses necessary for teacher certification in the state of Washington (see page 180), as well as those required for a second area of study. All electives must be chosen in consultation with an adviser.

A health education curriculum which emphasizes public health is offered through the Department of Public Health and Preventive Medicine (see page 202).

#### MEN AND WOMEN

First Year	CREDITS
Health Educ. 110 or 175 Health	2
Phys. Educ. activities	3
Chem. 100 or 110 General and 120 Organic and General	8-9
Engl. 101, 102, 103 Composition	9
Sociol. 110 Survey	5
Speech 100 Basic Speech Improvement	5
Approved electives	13-15
ROTC	6-9
	48-57

Second Year	CREDITS
Biol. 101J-102J General	10
Health Educ. 291 Hygiene	3
Health Educ. 292 First Aid and Safety	3
*Anat. 301 General	4
Educ. 209 Educ. Psychol.	3
Psychol. 100 General	5
Psychol. 306 Child Psychol.	5
*Zool. 118 and 118L or 208 Physiol.	6-5
Approved electives	7-8
ROTC	6-9
	52-55

\*Conjoint 317-318 or Anat. 301 and Zool. 118 and 118L or Zool. 208

Third Year	CREDITS
Educ. 370 Teaching Procedures	5
Educ. 370E Elem. Methods	5
Educ. 373 Wash. State Manual	2
Educ. 374 Reading Instr.	5
Educ. 390 Evaluation	3
Home Ec. 300 Nutrition	2
Micro. 301 (or approved substitute)	5
Psychiatry 267 Introduction to Mental Hygiene or 450 Personality Develop., or Educ. 408 Mental Hygiene for Teachers	2-3
Public Health 420 Principles I	2
Sociol. 353 Social Factors in Marriage, or Home Ec. 356 Family Relationships	3
Approved electives	11-12
	45-47

Fourth Year	CREDITS
Health Educ. 453 Health Teaching	3
Health Educ. 465 School Environ. Health Programs	3
Conjoint 496 Concept of the Child or Educ. 402 Child Study	3
Educ. 340 Teachers' Course in Health and Phys. Educ. for Women	2
Educ. 360 Principles	3
Educ. 371 E, X, or S Directed Teaching	3
Educ. 372 E, X, or S Professional Lab. Experiences	3
Hist. 464 Wash. and Pac. NW.	5
Public Health 421, 422, 423, Principles II, III, IV	9
Public Health 461 School and Commun. Health	5
Public Health 464 Commun. Health Educ.	47

Recommended electives are:

#### MEN AND WOMEN

	CREDITS
Health Educ. 429 Teaching First Aid and Safety	2
Phys. Educ. 293 Physiol. of Muscular Exercise	3
Phys. Educ. 322 Kinesiology	3
Phys. Educ. 435 Adapted Activities	3
Anthro. 202 Social Customs or 100 Introduction	5
Art 100 Introduction, or 205 Lettering or 290 Art Education	2-5
Commun. 480 Propaganda	3
Journ. 200 Newswriting or 404 Magazine Article Writing	3
Music 107 Survey	5
Pharmacy 115 Home Remedies	2

	CREDITS
Physics 100 Survey or 170 and 170L Intro. to Health Sciences Physics and Lab. ....	5-6
Pol. Sci. 201 Modern Govt. or 328 United Nations and Special Agencies ...	5
Psychol. 245 Individual Differences, 306 Child, 307 Adolescence ....	2-5
Public Health 426 Biostatistics, 450 Measure, and Control Air Pollution, 463 Commun. Organ. for Health Educ. ...	2-3
Radio-TV 373 Television Writing or 450 Television Programming ....	3
Sociol. 240 Group Behavior, 352 Family, 371 Criminology, 472 Juvenile Delinquency ....	5
Speech 120 Public Speaking or 332 Group Discussion ....	5

Additional courses in health education are given in the Schools of Home Economics, Nursing, and Medicine.

## ADVANCED DEGREES

Students who intend to work toward the degree of Master of Science or Master of Science in Physical Education must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. There is no foreign language requirement for the Master of Science in Physical Education.

For a minor in physical education for the master's degree, the candidate must present a minimum of 26 preparatory credits in physical education, one course in physiology, and at least 12 credits in advanced courses.

Candidates for the degree of Doctor of Philosophy in other departments may obtain a minor in physical education.

## COURSES FOR UNDERGRADUATES

### HEALTH EDUCATION

- 110 Health Education (Women) (2)** **Gunn, Horne, Waters**  
Health problems of freshman women. Required of all freshman women; exemption without credit by examination. See page 53.
- 175 Personal Health (Men) (2)** **Staff**  
Health information that affords a basis for intelligent guidance in the formation of health habits and attitudes. Required of all freshman men; exemption without credit by examination. See page 53.

### PHYSICAL EDUCATION ACTIVITIES

- 101 through 255 Physical Education Activities (Men) (1 each)** **Staff**  
101, adapted activities; 106, handball; 107, basketball; 108, tennis; 109, softball; 110, golf (fee \$1.50 per quarter); 111, track; 112, crew (class), prerequisite, swimming; 114, boxing; 115, gymnastics; 117, wrestling; 118, volleyball; 119, swimming; 121, touch football; 122, badminton; 123, archery; 125, skiing (fee); 126, speedball; 127, bowling (fee); 128, weight training; 129, sailing; 131, beginning, 134, intermediate folk and square dancing; 151, modern dance; 154, social dance; 157, canoeing (fee, \$2.50 per quarter); 141, freshman, 241, varsity basketball; 142, freshman, 242, varsity crew, prerequisite, swimming; 143, freshman, 243, varsity football; 144, freshman, 244, varsity track; 145, freshman, 245, varsity swimming; 146, freshman, 246, varsity baseball; 147, freshman, 247, varsity tennis; 148, freshman, 248, varsity golf; 149, freshman, 249, varsity skiing; 150, freshman, 250, varsity volleyball; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.
- 111 through 170; 211 through 270 Physical Education Activities (Women) (1 each)** **Staff**  
111, adapted activities; 112, basic activities (general); 113-114, basic activities (applied); 115, archery; 118, badminton; 119, body conditioning; 121, bowling (fee); 124, fencing; 126, golf (fee, \$1.50 per quarter); 128, riding (fee); 129, sailing; 131, ski conditioning; 132 elementary skiing (fee); 133, stunts and tumbling; 135, tennis; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, folk and square dance; 149, international folk dance; 151, modern dance; 154, social dance; 155, tap dance; 157, canoeing (fee, \$2.50 per quarter); 160, adapted swimming; 161, beginning swimming; 162, elementary swimming; 215, intermediate archery; 218, intermediate badminton; 221, intermediate bowling (fee); 222, advanced bowling (fee); 224, intermediate fencing; 228, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dance; 251, intermediate modern dance; 252, advanced modern dance; 257, intermediate canoeing (fee, \$2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, rhythmic swimming; 266, diving; 267, lifesaving.

### PROFESSIONAL AREAS

#### HEALTH EDUCATION

- 291 Personal and General Hygiene (Men and Women) (3)** **Gunn, Mills, Reeves**  
Advanced course designed for the professional student in health and physical education areas. Prerequisite, 110, 175, or equivalent, and sophomore standing.
- 292 First Aid and Safety (Men and Women) (3)** **Kidwell, MacLean, Reeves, Stevens**  
The student may meet requirements for both Standard and Advanced American Red Cross First Aid Certification. Includes safety education in schools. Prerequisite for men, junior standing.
- 429 Methods in Teaching First Aid and Safety (Men and Women) (3)** **MacLean, Reeves, Stevens**  
American Red Cross, Standard, Advanced, and Instructor's First Aid Certification awarded. Prerequisite, senior standing.

- 451 Workshop in Health Education for the Classroom Teacher (Men and Women) (2½)** **Waters**  
Health instruction in elementary schools, including subject matter, source material, and methods of instruction. (Offered Summer Quarter only.)
- 453 Methods and Materials in Health Teaching (Men and Women) (3)** **Waters**  
Health instruction in elementary, junior and senior high schools, including subject matter, source material, and method. Prerequisites, 345, Public Health 461, and Zoology 118 or 208 or 358 or permission.
- 465 School Environmental Health Programs (Men and Women) (3)** **Mills, Reeves**  
Schoolroom construction; lighting, heating, ventilation; sanitation of spaces; selection and location of equipment; medical inspection and supervision; communicable disease; the school lunch; fatigue, rest, and play. Prerequisites, Health Education 291, Public Health 461, or equivalents.

## PHYSICAL EDUCATION

- 161 Skills and Materials in Aquatics (2)** **Torney**
- 162 Skills and Materials in Gymnastics (2)** **Hughes**
- 163 Skills and Materials in Team Sports (2)** **Hendershott**
- 264 Skills and Materials in Boxing and Wrestling (2)** **Mills, Stevens**
- 265 Skills and Materials in Low-Organized Games (2)** **Kunde**
- 266 Skills and Materials in Individual Sports (2)** **Cipriano**
- 181, 182, 183, 281, 282, 283, 284 Physical Education Backgrounds (Women) (2,2,2,2,2,1)**  
**Broer, Fox, Horne, Kidwell, MacLean, Rulifson**  
Fundamental information for methods and materials in the presentation of field hockey, soccer, speedball, fundamentals of movement, gymnastics, archery, badminton, golf, tennis, apparatus, stunts and tumbling, rhythm fundamentals, folk and square dance, tap dance, modern dance, and aquatics. Basic skills with emphasis for professional training.
- 190 Introduction to Physical and Health Education (Men and Women) (2)** **Horne, Mills**  
Orientation to these fields, professional opportunities; problems encountered; qualifications and training for teaching, recreational leadership in communities and organizations, coaching (men), and physical therapy (women).
- 290 Officiating (Men) (2)** **Mills**  
Techniques of officiating football, basketball, baseball, track and field, swimming, tennis, volleyball, softball, and speedball.
- 293 Physiology of Muscular Exercise (Men and Women) (3)** **Mills, Reeves**  
Muscular efficiency, fatigue, recovery, chemical changes and neuromuscular control, with special reference to games, sports, corrective work, and body mechanics. Prerequisite, Zoology 118, or 208, or 358.
- 295 Functional Swimming and Water Safety (Men and Women) (2)** **Buckley, MacLean**  
(W.S.I. certification). A course designed primarily to prepare students for employment as teachers or administrators in the aquatic programs of camps, schools, beaches, recreation departments, the Armed Forces, and service organizations. Prerequisites, 119 for men; 267 for women, and American Red Cross lifesaving card or permission for men and women.
- 304, 305-306 Officiating (Women) (2,1-1)** **Fox, Horne, Rulifson**  
Techniques for officiating in volleyball, basketball; opportunity for national and local ratings. Prerequisites, junior standing or permission; 305- for -306.
- 309 The School Dance Program (Men and Women) (2)** **Wilson**  
Practice in basic skills in folk, square, and social dancing; methods and opportunity for presentation, including "calling"; source materials; organization of coeducational dance program. Prerequisite, junior standing or permission.
- 311 Rhythmic Activities for Small Children (Women) (2)** **Staff**  
Activities suited to the kindergarten and primary child. Educational value, significance in child growth and development, and methods of presentation. (Offered Summer Quarter only.) Prerequisite, junior standing.
- 312 Elementary School Athletic Program (Women) (3)** **Rulifson**  
Program planning, small group play, and team game activities for elementary grades. (Offered Summer Quarter only.)
- 313 Elementary School Self-Testing and Individual Activities (Men and Women) (2½)** **Staff**  
Knowledge and skills in activities involving self-testing elements; activities developing strength, coordination, flexibility; modified classroom program; marching, gymnastics, stunts, tumbling, apparatus, body mechanics, adapted activities. (Offered Summer Quarter only.)
- 322 Kinesiology (Men and Women) (3)** **Cutler**  
Analysis of leverage in body movements and problems of readjustment in relationship to body mechanics and to physical education activities. Prerequisites, 293 and Anatomy 301.
- 336 Athletic Training and Conditioning (Men) (1)** **Peterson**  
Prerequisite, 292 or permission.
- 340 Administration of Intramural Sports (Men) (3)** **Stevens**



- 345 Principles of Physical Education (Men and Women) (3)** **Torney**  
Social, biological, and educational foundations; the place of physical education in the school program. Prerequisites, Zoology 118, or 208, or 358, Sociology 110, and Psychology 100.
- 351 Theater Dance (Men and Women) (2)** **de Vries**  
Development of dance skills and movement techniques as they apply to choreography; presentation of dramatic problems of dance. Prerequisites, 151, 251, 252, or 283, or permission.
- 355 Modern Dance Workshop (Men and Women) (2, maximum 6)** **de Vries**  
Practice in modern dance; analysis of choreography; creative work. Prerequisites, 151 and 318, or permission.
- 358 Methods of Teaching Gymnastics (Men) (2)** **Hughes**  
Prerequisite, 162 or permission.
- 359 Workshop in Gymnastics (Men and Women) (3)** **Hughes**  
Lectures, practice, and supervised teaching in gymnastics. Prerequisite, 358 or equivalent.
- 361 Methods of Teaching Boxing and Wrestling (Men) (2)** **Mills, Stevens**  
Prerequisite, 264 or permission.
- 363 Methods of Teaching Sports (Men) (2)** **Peek**  
Methods of teaching volleyball, basketball, soccer, softball, and flag football. Prerequisites, 161, 162, 163, 264, 265, 266.
- 370 Coaching of Football (Men) (2)** **Owens**
- 371 Coaching of Basketball (Men) (2)** **Grayson**
- 372 Coaching of Track and Field (Men) (2)** **Hiserman**
- 373 Coaching of Baseball (Men) (2)** **Parker**
- 375 Methods in Physical Education I (Women) (7)** **Staff**  
General methodology, methods in team and individual sports. Prerequisites, 181, 182, 183, or permission.
- 376 Methods in Physical Education II (Women) (7)** **Broer, MacLean**  
Methods and materials in gymnastics, marching, stunts and tumbling, apparatus, aquatics. Prerequisites, 267, 281, 284, 375, or permission.
- 377 Methods in Physical Education III (Women) (6)** **deVries, Horne, Kidwell**  
Methods and materials in ballroom, folk, square, tap, modern dance. Prerequisites, 282, 283, 375, or permission.
- 435 Adapted Activities (Men and Women) (3)** **Cutler, Waters**  
Programs for atypical cases from the standpoint of individual needs. Prerequisites, 293, 322, and Zoology 118, or 208, or 358.
- 447 Tests and Measurements (Men and Women) (3)** **Cutler**  
Their place in health and physical education; criteria for selection; formulation of a testing and measuring program.
- 450 The School Physical Education Program (Men and Women) (men, 3; women, 2)** **Peek, Wilson**  
Problems of organization and administration. Prerequisites for men, 345, senior standing, or permission; for women, 375 and permission.
- 459-460 Dance Production (Women) (2-2)** **de Vries**  
Thematic materials for dance in education, writing dance scenario, mechanics of presenting a dance program, choreography, selection of music, music augmentation, costuming, staging, production management. Laboratory experiences. Prerequisites, 151 and 251, or 283.
- N466 Coaching (Women) (0)** **Kidwell, Staff**  
Prerequisite, permission.
- 480 Principles of Movement (Women) (3)** **Broer, Fox**  
The interpretation of the physical principles which make for efficient movement through the integration of physics, anatomy, kinesiology, and sport and dance techniques. Prerequisites, 301, 322, 356, 363, 364, Anatomy 301, and Physics 170 and 170L, or permission.
- 493 Problems in Athletics (Men) (3)** **Torney**  
The place of interschool athletics in education. Control, finance, eligibility, safety measures, publicity, and public relations. Qualifications and duties of coaches, managers, and officials. Prerequisites, 345 and 450.
- 495 Fitness Workshop (Men and Women) (3)** **Fox**  
(Offered Summer Quarter only.)

## RECREATION EDUCATION

- 254 Recreation Resources (Men) (1)** **Kunde**  
Directed observations of recreational resources including general and community, public school, youth serving agencies, hospitals, institutional and industrial organizations.
- 294 Introduction to Recreation (Men and Women) (2)** **Kunde**  
Nature, function, and scope of organized recreation; historical background, philosophy, theories of play; leadership implications; organized play in the United States. Prerequisites, Sociology 110 and Psychology 100.

- 324 Recreation Programs (Men and Women) (3)** **Kunde**  
Lectures, demonstrations, and reading assignments for orientation in recreation skills and techniques suitable for various age groups; classifying, adapting, directing, experiencing, and utilizing recreation program materials. Prerequisites, 292, 294, and 6 credits in physical education major activities or the equivalent.
- 334 Management and Operation of Recreation (Men) (2)** **Kunde**  
Practices and procedures in management and operation of areas and facilities. Duties and responsibilities, personnel regulations, and staff organization. Motivating and conducting a diversified program. Prerequisite, 294.
- 344 Organization and Administration of Camp Programs (Men and Women) (3)** **Kunde, Stallings**  
The educational and social significance of camping; organization of activities and problems of administration. Prerequisites, junior standing, Psychology 100, and Sociology 110, or permission.
- 354 Recreation Practicum (Men) (2)** **Kunde**  
Directed experience in recreational activities and program services for the enhancement of leadership techniques. Prerequisites, 294 and permission.
- 374 Social Recreation Leadership (Men) (2)** **Kunde**  
Methods in utilizing music, drama, dancing, and suitable activities in organizing programs for social recreation.
- 384 Workshop in Camp Counseling (Men and Women) (3)** **Hughes**  
On-the-job experience in camp counseling. Students will be quartered at Camp Waskowitz, act in the capacity of camp counselors for select groups, and assist in the direction of evening and Sunday educational and social activities. (Offered Summer Quarter only.)
- 426 Field Work in Recreation (Women) (5)** **Kidwell**  
Supervised work experiences in recreational fields such as hospital, industrial, public, and semiprivate agencies, etc. Practice in planning programs. Prerequisites, senior standing, major in recreational leadership, a position of leadership for six weeks in camp, playground area, or the equivalent amount of time in an organized recreation program.
- 454 Recreation Field Work (Men) (3)** **Kunde**  
The fulfillment of stipulated projects under close supervision, approximating an internship in recreation. Prerequisites, 294, 324, 334, 354, or permission.

## COURSES FOR GRADUATES ONLY

### HEALTH EDUCATION

- 503 Seminar in Health Education (Men and Women) (3)** **Waters**  
Prerequisites, 453, 465, and Physical Education 345.
- 508 Administration of the School Health Program (Men and Women) (3)** **Reeves**  
This course is designed to show the interrelated functions of school health services, safe and healthful school environment, health of the school personnel, the school day as related to the pupil's total health, and health and safety instruction in developing a total school health program. This study involves a consideration of health needs, of school age groups, legal regulations, budgetary needs, personnel requirements, facility and resource needs, and administration policies as they relate to effective organization of school health programs. Prerequisites, Health Education 291, 465, Public Health 461 or equivalent, or permission.
- 600 (See Physical Education 600.)** **Staff**
- 700 Thesis (Men and Women) (\*)** **Staff**

### PHYSICAL EDUCATION

- 501 Seminar in Physical Education (Men and Women) (3)** **Broer, Torney, Wilson**  
Prerequisites, 345 and 450.
- 502 Problems in Physical Education (Men and Women) (2½)** **Waters**  
(Offered Summer Quarter only.) Prerequisites, 345 and 450, or permission.
- 506 The Curriculum (Men and Women) (3)** **Kunde**  
Selection and organization of program content in relation to characteristics and needs of pupils and local conditions. Prerequisite, 345 or permission.
- 507 Supervision in Physical Education (Men and Women) (2½)** **Peek**  
(Offered Summer Quarter only.) Prerequisites, 345 and 450, or permission.
- 547 Seminar in Research Procedures (Men and Women) (3)** **Broer, Fox**  
Prerequisites, 447 and Mathematics 281, or equivalent.
- 600 Research (Men and Women) (2-5)** **Broer, Fox, Kunde, Torney, Staff**  
A. Health education  
B. Physical education  
C. Physiology of exercise  
D. Recreation education  
E. Tests and measurements
- 700 Thesis (Men and Women) (\*)** **Staff**

### RECREATION EDUCATION

- 504 Administration of Recreation (Men and Women) (5)** **Kunde**  
Prerequisites, 324, Physical Education 345, or permission.

**524 Seminar in Community Resources and Organization for Recreation (Men and Women) (3)**

**Kunde**  
Functional analysis of integrated community resources and organization for recreation services. Experience in recreation fact finding, analysis, and evaluation. Study of pertinent problems and needs in the field. Prerequisite, permission.

**600 (See Physical Education 600.)****Staff****700 Thesis (Men and Women) (\*)****Staff****PHYSICAL THERAPY, PREPROFESSIONAL PROGRAM****Adviser, 121 Miller Hall**

The two-year prephysical therapy program in the College of Arts and Sciences is designed to prepare students for admission to the curriculum in Physical Therapy in the School of Medicine.

In this program the applicant must complete the following required courses: Anatomy 301 (General Anatomy); Chemistry 100 or 110 (General Chemistry) and 120 (General and Organic Chemistry); Mathematics 120 (Introduction to Mathematical Thinking); Microbiology 301 (General Microbiology); Physics 170 and 170L (Introduction to Health Science Physics and Laboratory); Psychology 100 (General Psychology) and 101 (Psychology of Adjustment); Psychiatry 267 (Introduction to Mental Hygiene); Sociology 110 (Survey of Sociology); Speech 100 (Basic Speech Improvement); Zoology 208 (Elementary Human Physiology). The student should choose electives designed to broaden his background in human relationships and understanding. A cumulative grade-point average of 2.50 is a prerequisite for acceptance into the curriculum.

A complete description of the four-year program in physical therapy is given in the *School of Medicine Bulletin*.

**PHYSICS****Executive Officer: RONALD GEBALLE, 215 Physics Hall**

The Department of Physics offers courses leading to the degrees of Bachelor of Science, Bachelor of Science in Engineering Physics, Master of Science, and Doctor of Philosophy. Undergraduate majors obtain a basic preparation in principal fields of physics and a wide choice of electives in other subjects, and they may further elect to follow a program of advanced studies which prepares them for professional and graduate careers.

In collaboration with the College of Engineering, a curriculum in engineering physics is offered, which adds basic engineering training to a thorough preparation in physics. In addition, the Department offers a first teaching area for students in the College of Education.

Students majoring in physics or other physical sciences take Physics 121, 122, 123 with concurrent registration in Physics 131, 132, 133. Other students enroll in Physics 101, 102, 103 and, concurrently, Physics 107, 108, 109.

No grade less than C in any required physics course is acceptable toward a physics major.

Entrance requirements for physics majors include high school physics, trigonometry, and  $1\frac{1}{2}$  units of algebra. High school chemistry, a fourth term of algebra, and mathematical analysis are strongly recommended. Students who enter without the required preparation may be delayed in their progress toward graduation.

A student in any of the physics curricula may elect at the start of his senior year to be a candidate for the departmental award of Physics Honors if he has a grade-point average of at least 3.30 in physics courses and is approved by the Department. He will then undertake an undergraduate research problem, on the completion of which the Department will certify and record this distinction.

## BACHELOR OF SCIENCE

Two courses of study are available as options, both of which require generally identical courses during the first two years. Option A provides a basic training in physics for those who plan to terminate study at graduation. Option B provides a fuller program of advanced undergraduate studies for those who plan to continue with graduate training.

**OPTION A.** For this curriculum, 41 credits in physics courses are required. The remainder are to be acquired in accordance with the general college group requirements. The required physics courses are: 121, 122, 123, 131, 132, 133, 221, 222, 225, 226, 320, 323, 371, 372. Those seeking a somewhat fuller preparation may wish to take 325, 326, 327, and replace 320, 323 with the sequence 461, 462, 463.

**OPTION B.** An outline and recommended schedule of the required courses are given below. In addition to required mathematics and chemistry courses, a student must elect a minimum of 15 credits of courses in the humanities group, and also 15 credits in the social sciences group. Strongly recommended electives are foreign language, particularly German, Russian, or French, and Mathematics 374 and 401.

### First Year

FIRST QUARTER	CREDITS
Physics 121 General	3
Physics 131 General Lab.	2
Chem. 110 General	3
Math. 153 Anal. Geom.	
and Calc.	5
Engl. 101 Composition	3
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 17-20

SECOND QUARTER	CREDITS
Physics 122 General	3
Physics 132 General Lab.	2
Chem. 150 General	4
Math. 251 Anal. Geom.	
and Calc.	5
Approved electives	2
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 17-20

THIRD QUARTER	CREDITS
Physics 123 General	3
Physics 133 General Lab.	2
Chem. 160 General	3
Math. 252 Anal. Geom.	
and Calc.	5
Engl. 102 Composition	3
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 17-20

### Second Year

FIRST QUARTER	CREDITS
Physics 221 Mechanics	3
Eng. 103 Composition	3
Math. 253 Anal. Geom.	
and Calc.	3
Approved electives	7
ROTC	2-3
	<hr/> 16-19

SECOND QUARTER	CREDITS
Physics 222 Mechanics	3
Physics 225 Electric	
Circuits	4
Math. 324 Adv. Calc. I	3
Approved electives	6
ROTC	2-3
	<hr/> 16-19

THIRD QUARTER	CREDITS
Physics 226 Electric	
Circuits	4
Health Educ. 110 or 175	
Health	2
Math. 325 Adv. Calc. II	3
Approved electives	7
ROTC	2-3
	<hr/> 16-19

### Third Year

FIRST QUARTER	CREDITS
Physics 325 Electricity	
and Magnetism	3
Math. 321 Differential	
Equations	3
Math. 427 Applied Anal.	3
Approved electives	7
	<hr/> 16

SECOND QUARTER	CREDITS
Physics 326 Electricity	
and Magnetism	3
Physics 371 Properties	
of Matter	3
Math. 428 Applied Anal.	3
Approved electives	7
	<hr/> 16

THIRD QUARTER	CREDITS
Physics 327 Electricity	
and Magnetism	4
Physics 372 Properties	
of Matter	3
Math. 429 Applied Anal.	3
Approved electives	6
	<hr/> 16

### Fourth Year

FIRST QUARTER	CREDITS
Physics 461 Atomic and	
Nuclear	3
Physics 471 Atomic Lab.	3
Physics 481 Math. Physics	3
Approved electives	7
	<hr/> 16

SECOND QUARTER	CREDITS
Physics 462 Atomic and	
Nuclear	3
Physics 472 Atomic Lab.	3
Physics 482 Math. Physics	3
Approved electives	7
	<hr/> 16

THIRD QUARTER	CREDITS
Physics 463 Atomic and	
Nuclear	3
Physics 473 Atomic Lab.	3
Physics 483 Math. Physics	3
Approved electives	7
	<hr/> 16

Seniors who wish to qualify for Honors in Physics will elect Physics 499 in their senior year. Students who do not intend to continue with graduate study may, on approval of the Department, substitute electives in other fields for Physics 481, 482, 483. For students without high school chemistry, Chemistry 100, 150, and 160 are alternative to 110, 150, and 160.

Deviations from the above curriculum can be arranged only in special circumstances and by special action of the Department.

## BACHELOR OF SCIENCE IN ENGINEERING PHYSICS

Students who wish to combine an engineering background with full training in physics as a preliminary either to graduate work in nuclear engineering or to employment in industrial and government laboratories may elect the prescribed curriculum in engineering physics. Students may enter this program either by following the prescribed program for the Bachelor of Science, Option B, with a suitable choice of electives in engineering, or by transferring from an engineering major to the College of Arts and Sciences on or before completion of the sophomore year. In either case, a student must include 15 credits of courses in the humanities and social sciences groups. Physics 481, 482, 483 and Mathematics 427, 428, 429 (Topics in Applied Analysis) are optional.

The scholastic qualifications for this degree are the same as for the Bachelor of Science.

The engineering electives prescribed for students entering this curriculum as freshmen are as follows: second-year students take General Engineering 101, 102 (Engineering Drawing), 103 (Applied Descriptive Geometry), and Mechanical Engineering 201, 202, 203 (Metal Casting, Welding, Metal Machining). In the third year, two electives are chosen from among Mechanical Engineering 260 (Mechanism), Metallurgical Engineering 441 (Engineering Physical Metallurgy), and Mathematics 374 (Principles of Digital Computers and Coding). Likewise, two fourth-year engineering electives are to be chosen from among Electrical Engineering 333 (Basic Electronics I) and 334 (Electronics Laboratory), 335 (Basic Electronics II) and 336 (Electronics Laboratory), Nuclear Engineering 484 (Introduction to Nuclear Engineering), or approved electives.

A student who has completed one or two years of engineering (including Physics 217, 218, 219) and who wishes to undertake advanced work as a physics major will have to satisfy the graduation requirement of the College of Arts and Sciences regarding English composition, normally by taking English 102 and 103. Depending on the courses he has taken previously, he may have to add Physics 221, 222, and 225 to the prescribed courses for the third year. Engineering electives will be selected as described in the previous paragraph. The College entrance requirement in foreign language is waived for students who transfer after at least one year in the College of Engineering and obtain a degree in engineering physics.

## ADVANCED DEGREES

The Department of Physics offers programs leading to the degrees of Master of Science and Doctor of Philosophy. Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Specific departmental requirements are described briefly below. More complete information may be obtained by writing to the Department.

Undergraduate preparation is expected to include upper-division courses in electricity and magnetism, mechanics, the properties of matter, advanced calculus and mathematical physics, atomic physics, and nuclear physics. Deficiencies may cause a delay of as much as a year. A reading knowledge of German, French, or Russian is desirable.

**MASTER OF SCIENCE.** A minimum of 36 approved credits must be submitted of which 18 must be in courses numbered 500 or above. These 18 credits must include a minimum of 3 credits in Physics 520 or 600 (for both of which the sponsorship of an instructor is necessary), and a minimum of 12 credits in other physics graduate courses. No thesis is required. Each candidate must take a yearly written comprehensive examination until such time as his final examination, generally oral, has been passed.

Students in other fields desiring a minor in physics for a master's degree must submit 9 credits in courses numbered 300 or above and 9 credits in courses numbered 400 or above.

**DOCTOR OF PHILOSOPHY.** The Department requires basic training equivalent to the courses 505, 506, 509, 510, 513, 514, 515, 517, 518, 524, 525, and 528, as well as Mathematics 527, 528, and 529 (Methods of Mathematical Physics). Additional courses of interest will be selected by the student and his supervisory committee. A grade-point average of less than 3.00, unless there are compensating qualifications, will prevent the student from becoming a candidate for this degree.

Each Spring Quarter, a comprehensive examination is given to each student who has not passed his general examination. The former is mainly written and is designed to indicate the student's growth of understanding. The latter is an individual oral examination given by the student's supervisory committee, generally after about two years of graduate study and satisfaction of the language requirement. Completion of this examination signifies admission to candidacy and an intensification of research effort.

The Department recognizes German, French, and Russian as suitable foreign languages. Others may be substituted with the approval of the supervisory committee and the Graduate School.

A candidate for this degree is required to conduct an original and independent investigation in one of the fields of physics. Results of this research are submitted as a thesis. In his final examination, the candidate presents these results orally to the Department and is examined in his field of research.

A minor for a doctor's degree requires the equivalent of a bachelor's degree in physics and three graduate courses.

## COURSES FOR UNDERGRADUATES

- 100 Survey of Physics (5)** **Staff**  
A nontechnical treatment of the principal fields of physics, including mechanics, electricity, magnetism, and atomic and nuclear phenomena, for those with no previous training in physics. Identical with Physical Science 101.
- 101, 102, 103 General Physics (4,4,4)** **Kenworthy**  
Concurrent registration in 107, 108, 109 recommended with 101, 102, 103 and may be required by individual departments. 101: mechanics. Prerequisites, trigonometry and one year of high school physics or its equivalent by permission. 102: sound and electricity. No credit in 102 if 112 has been taken. Prerequisite, 101. 103: heat, light, and modern physics. No credit in 103 if 113 has been taken. Prerequisite, 102 or concurrent registration in 102.
- 107, 108, 109 General Physics Laboratory (1,1,1)** **Sanderman**  
107: mechanics laboratory to be taken concurrently with 101. 108: sound, electricity, and magnetism laboratory to be taken concurrently with 102. 109: heat and light laboratory to be taken concurrently with 103.
- 121, 122, 123 General Physics (3,3,3)** **Clark**  
For physical science majors. Development of the basic principles of physics with special emphasis on mechanics, electricity and magnetism, and modern physics. Prerequisites for 121, trigonometry, one year of high school physics or its equivalent by permission, and concurrent registration in 131; for 122, 121 and concurrent registration in 132; for 123, 122 and concurrent registration in 133.
- 131, 132, 133 General Physics Laboratory (2,2,2)** **Sanderman**  
Experimental topics in physics for physical science majors. Prerequisite for 131, concurrent registration in 121; for 132, 131 and concurrent registration in 122; for 133, 132 and concurrent registration in 123.
- 170 Introduction to Health Sciences Physics (5)** **Sanderman**  
Selected physical theories and principles and their applications to home and hospital situations.
- 170L Introduction to Health Sciences Physics Laboratory (1)** **Sanderman**  
For physical therapy and home economics students only. Prerequisite, concurrent registration in 170 or permission.
- 217, 218, 219 Physics for Engineers (4,4,4)** **Lord**  
217: mechanics. Principles of statics are assumed. Dynamics of both point masses and rigid bodies is developed by calculus methods. Elasticity and simple harmonic motion. Elementary hydrodynamics. Many illustrative problems are used. Prerequisites, high school physics, General Engineering 112, introductory calculus, and a concurrent calculus course. 218: electricity and magnetism. Alternating currents. Prerequisites, 217 and a concurrent calculus course. 219: heat, sound, and light. Geometrical and physical optics. Prerequisites, 217 and calculus.
- 221, 222 Mechanics (3,3)** **Staff**  
Kinematics and dynamics of a mass point; motion of a rigid body; elastic bodies and wave motion. Prerequisites, 123 or 219, Mathematics 251, and 221 for 222.

- 225, 226 Electric Circuits (4,4)** **Staff**  
Basic linear elements in D.C., A.C., and transient circuits; vacuum tube circuits; solid state devices; electrical measurements. Prerequisites, 123 or 218, Mathematics 251, and 225 for 226.
- 320 Introduction to Modern Physics (3)** **Staff**  
Emphasis is placed upon discoveries in modern physics which are particularly basic to engineering and physics, including the electrical nature of matter, elementary particles, interaction of radiation with matter, nuclear disintegrations. Solid state, semiconductors, and nuclear reactors are especially treated. Prerequisites, 123, 219, or permission.
- 323 Introduction to Nuclear Physics (3)** **Staff**  
A study of nuclear reactions, including fission, particle accelerators, and nuclear instrumentation; cosmic rays; astrophysics; applications of nuclear phenomena in atomic energy; use of tracers, etc. Prerequisite, 320 or permission.
- 325, 326, 327 Electricity and Magnetism (3,3,4)** **Staff**  
Charges at rest and in motion; dielectric and magnetic media; electromagnetic waves; physical optics. Prerequisites, 123, Mathematics 253; 325 for 326; 326 for 327.
- 350 Heat and Introduction to Thermodynamics and Kinetic Theory (3)** **Sanderman**  
Concepts of heat and energy changes; experimental laws of heat and thermal reactions; ideas of reversibility, entropy, etc.; application of general principles to specific cases. Prerequisite, 103 or 123.
- 367, 368, 369 Special Problems (\*,\*,\*)** **Staff**  
Prerequisite, permission.
- 371, 372 Properties of Matter (3,3)** **Staff**  
Equilibrium and non-equilibrium properties of gases, solids, and liquids from macroscopic and microscopic viewpoints. Prerequisites, 222 or concurrent registration in 222, and Mathematics 253; 371 for 372.
- 461, 462, 463 Introduction to Atomic and Nuclear Physics (3,3,3)** **Staff**  
Foundations of modern atomic and nuclear physics; elementary quantum theory, elementary particles; high energy physics; solid state. Prerequisites, 327 and Mathematics 321.
- 471, 472, 473 Laboratory in Atomic and Nuclear Physics (3,3,3)** **Higgs, Farwell**  
471, 472: measurements in modern atomic physics: speed of light, wave propagation, electronic charge, specific electronic charge, thermionic and photoelectric effects, particle waves, spectroscopy and atomic states, Zeeman and Raman spectra. Prerequisite, 30 credits in physics. 473: techniques in nuclear research: beta- and gamma-ray spectroscopy; charged particle reactions at intermediate energies, using cyclotron; nuclear emulsion techniques in high-energy physics; neutron physics, using nuclear reactor. Prerequisite, 323, or concurrent registration in 463, or permission.
- 481, 482, 483 Introduction to Mathematical Physics (3,3,3)** **Staff**  
Applications of vector analysis, coordinate transformations, types of fields, special solutions of field equations, variational principles and fields, boundary value problems of physics. Prerequisites, 327, 372.
- 499 Undergraduate Research (2-5, maximum 5)** **Staff**  
Supervised individual research leading to Physics Honors award. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 505, 506 Advanced Mechanics (3,3)** **Staff**  
Dynamics of a particle and of rigid bodies; generalized coordinates and Lagrangian theory; variational principles. Hamilton's equations of motion, vibration, and normal coordinates.
- 509, 510 Atomic, Molecular, and Nuclear Structure (3,3)** **Staff**  
Energy-level systems of nuclear, atomic, and molecular aggregates of elementary particles studied primarily on the vector model and other phenomenological modes of description; radioactive transitions and selection rules; atomic and molecular spectra; nuclear interactions and transitions.
- 513, 514, 515 Electricity and Magnetism (4,4,4)** **Staff**  
The properties of electric and magnetic fields as boundary value problems; application of harmonic function and conformal representation; electrodynamics and electromagnetic waves in empty space and material media.
- 517, 518, 519 Quantum Mechanics (4,4,3)** **Staff**  
Prerequisite, 513 for 518.
- 520 Seminar (1-2)** **Staff**  
Seminars in the following subjects meet regularly: cosmic rays, gaseous electronics and spectroscopy, nuclear physics, theoretical physics, and solid state physics. Prerequisite, permission.
- 524 Thermodynamics (3)** **Staff**
- 525 Statistical Mechanics (3)** **Staff**  
Prerequisite, 517.
- 528 Current Problems in Physics (2)** **Staff**  
Discussion of several active research fields; survey of the background of each field; discussion of generally accepted concepts and those at variance with experiment or untested; detailed study of at least one recent paper in the field.

<b>550 X Rays (3)</b>	<b>Staff</b>
Prerequisite, 509.	
<b>552 Conduction through Gases (3)</b>	<b>Staff</b>
Prerequisite, 509.	
<b>558 Cosmic Rays (3)</b>	<b>Staff</b>
Prerequisite, 510.	
<b>560, 561 Theoretical Nuclear Physics (3,3)</b>	<b>Staff</b>
Prerequisites, 510 and 518.	
<b>562 Theory of Spectra (3)</b>	<b>Staff</b>
Prerequisites, 509 and 518.	
<b>564 Relativity (3)</b>	<b>Staff</b>
Prerequisites, 506 and 515.	
<b>566 Theory of Collisions (3)</b>	<b>Staff</b>
Prerequisite, 518.	
<b>568 Theory of Solids (3)</b>	<b>Staff</b>
Prerequisite, 518.	
<b>570 Radiation Theory (3)</b>	<b>Staff</b>
Prerequisite, 519.	
<b>572 Foundations of Statistical Mechanics (3)</b>	<b>Staff</b>
Prerequisites, 518 and 525.	
<b>574 Atomic and Molecular Interactions (3)</b>	<b>Staff</b>
<b>576 Selected Topics in Experimental Physics (*, maximum 6)</b>	<b>Staff</b>
Prerequisite, permission.	
<b>578 Selected Topics in Theoretical Physics (*, maximum 6)</b>	<b>Staff</b>
Many-body problems, pi-meson, physics, relativistic field theories, strange particles and the theory of the "inner space," group theory and nuclear structure, and studies of the rotation group are among topics covered in recent years. Prerequisite, permission.	
<b>600 Research (*)</b>	<b>Staff</b>
Research currently is in progress in the following fields: acoustics, cosmic rays, gaseous electronics, low temperature physics, magnetic resonance phenomena, natural radioactivity, nuclear physics, solid state physics, spectroscopy, and theoretical physics. Prerequisite, permission.	
<b>700 Thesis (*)</b>	<b>Staff</b>
Prerequisite, permission.	

## POLITICAL SCIENCE

**Executive Officer: HUGH A. BONE, 206 Smith Hall**

The Department of Political Science offers courses leading to the degrees of Bachelor of Arts, Master of Arts, Master of Public Administration, and Doctor of Philosophy. It offers first and second teaching areas for students in the College of Education; it also cooperates with the College of Architecture and Urban Planning in a program leading to the degree of Master of Arts in Urban Planning.

The basic requirements for the undergraduate major are set forth in the general curriculum described below. For students who are definitely preparing to enter the government service, more detailed course recommendations are set forth in the two specialized curricula in International Relations and Public Administration. General majors are expected to have a substantial background of elective courses in the College of Arts and Sciences. However, transfer students from other colleges may be able to complete a satisfactory program without undue loss of time, and students in the School of Law may use credits for elective purposes under the conditions set forth in the Arts-Law curriculum on page 147.

The Institute of Public Affairs is a unit of the Department of Political Science, responsible for graduate professional instruction and advanced research studies in public policy and administration.

The Institute of International Affairs is affiliated with the Department of Political Science as an agency to promote public interest in international affairs. Two aspects of its program may be distinguished: (1) panel discussions and lectures by experts on international relations are sponsored throughout the year; (2) special events such as the Symposium on World Affairs, the Summer Institute, and the Northwest International Law Seminar are presented on a periodic basis.



The Bureau of Governmental Research and Services is a separate research agency under the direction of a member of the Department to provide independent research and consultative services for state and local government. It conducts the annual Institute of Government and maintains liaison, on behalf of the University, with the Association of Washington Cities.

The Washington State-Northern Idaho Citizenship Clearing House is an affiliate of the national Citizenship Clearing House operating under the direction of a member of the Department. It promotes participation in political organizations through legislative internships and the sponsorship of conferences and workshops in practical politics. The University of Washington Citizenship Clearing House is an affiliate of this group and operates several campus programs each year. The Department of Political Science faculty directs this project.

## BACHELOR OF ARTS

Maintenance of a better than C average in political science courses is expected of every political science major. Accordingly, no student whose cumulative grade-point in political science courses taken at this University is less than 2.25 may take his degree in any political science curriculum.

**GENERAL CURRICULUM.** All political science majors are *required* to earn a total of 50 credits in political science courses. These courses must include: 202; 201 or 203; 328 or 336 or 427; 411 or 412 or 413 or 418; any three from 445, 450, 460, and 470; and 15 credits in political science electives.

**CURRICULUM IN INTERNATIONAL RELATIONS.** *Recommended* courses are: 202 and 203; 411 or 418; 445, 460, and 470; at least four courses from 321, 322, 328, 336, 420, and 427; at least three courses from 323, 324, 429, 430, and 432; 425-426; Economics 200 (Introduction to Economics); Geography 100 (Introduction to Geography); and Sociology 110 (Survey of Sociology).

A reading and translating knowledge of at least one modern foreign language is strongly recommended. To develop the necessary language proficiency, not less than 30 University credits in one language, or the equivalent in high school and University work combined, will be needed.

**CURRICULUM IN PUBLIC ADMINISTRATION.** *Recommended* courses are: Political Science 201, 202, 362, 412, 427, 450, 460, 470, 471, 472, and if possible 370 or 451, 375 or 376; Accounting 150 (Fundamentals of Accounting); Economics 200 (Introduction to Economics), 201 (Principals of Economics), 301 (National Income Analysis), 350, and 451 (Public Finance and Taxation I and II); Business Statistics 201 (Statistical Analysis) or Mathematics 281 (Elements of Statistical Method); Psychology 100 (General Psychology); Sociology 310 (General Sociology) and 466 (Industrial Sociology), and History 241 (Survey of the History of the United States). The program should be supplemented by at least four other upper-division courses in the social sciences selected in consultation with an adviser.

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Candidates for these degrees must have completed an undergraduate major or the equivalent in political science.

Candidates must acquire mastery of a field of concentration in which the thesis is prepared and of additional supporting fields. The following fields may be used for both purposes: political theory; international law and relations; comparative government; public law; public administration; American government and politics; and state and local government. Combinations of some of these fields may be required.

Candidates may be permitted to substitute special regional fields for any of the above general fields under the conditions set forth below. But if this is done,

comparative government can not be offered as well. Candidates are also encouraged to minor, or offer supporting courses, in other social sciences such as history, economics, sociology, psychology, or geography.

The field of political theory is required in all programs, and courses 511, 512, and 513 are normally required. Not less than two-thirds of the minimum credits required for the degree must consist of those earned in courses numbered 500 or above.

**MASTER OF ARTS.** A total of 45 credits is normally required, including 9 allowed for the thesis. In exceptional cases, a candidate's committee may reduce the total credits including thesis to as few as 36. The candidate must present a field of concentration and two supporting fields.

If the candidate is permitted to adopt Far Eastern or Russian political science as a field of concentration, he must have a reading knowledge of the appropriate foreign language, and both of his supporting fields must be in general political science.

**MASTER OF PUBLIC ADMINISTRATION.** The Institute of Public Affairs offers a two-year professional curriculum leading to this degree. The purpose is to prepare students for administrative positions in the public service rather than to train technical specialists, teachers, or research technicians. The program consists of instruction in six basic fields: the administrative process, administrative analysis, the sociology of organizations, program design and management, public law, and the economics of public activity. An additional elective field is recommended to be chosen in accordance with the student's career interest, such as municipal affairs, natural resources, international affairs, politics, finance, or personnel. Every student is expected to complete an approved internship during the summer between the first and second years.

The public administration curriculum is limited to a small group of graduate students who show special promise of success in the public service. A broad educational background in the social sciences is desirable.

**DOCTOR OF PHILOSOPHY.** A minimum of 108 credits is required, including 27 allowed for the thesis. The candidate must present a field of concentration and four supporting fields.

If the candidate is permitted to adopt Far Eastern or Russian political science as a field of concentration, he may also present a related field of regional studies as one of his supporting fields.

## COURSES FOR UNDERGRADUATES

### INTRODUCTORY COURSES

*These courses are primarily for sophomores, but are also open to freshmen. Either 201 or 202 is normally a prerequisite for all upper-division courses.*

#### 201 Modern Government (5)

**Gottfried, Hitchner, Reshotar**

The nature and function of political institutions in the major national systems; democracy and dictatorship; introductory comparative politics of the United States, Great Britain, France, and the Soviet Union.

#### 202 American Government and Politics (5)

**Bone, Shipman, Kroll**

Popular government in the United States; the theory and practice of national institutions.

#### 203 International Relations (5)

**Riley**

An analysis of the world community, its politics and government.

### POLITICAL THEORY AND PUBLIC LAW

#### 311 Theories of Modern Government (5)

**Harbold**

The principal political ideas of recent times with particular reference to their significance for democracy and liberal values. An introduction intended especially for other than political science majors.

#### 362 Introduction to Public Law (5)

**Cole**

The general significance of the legal order; private rights and public duties; nature of the judicial process; sources of law.

- 411 The Western Tradition of Political Thought (5)** **Harbold**  
Origin and evolution of the major political concepts of the Western world, from ancient Greece to the eighteenth century, which underlie much contemporary thinking. A background in history is desirable.
- 412 American Political Thought (5)** **Harbold**  
Major thinkers and movements from the Colonial period to the present.
- 413 Contemporary Political Thought (5)** **Harbold**  
Developments in political thinking from the eighteenth century to the present, as a basis for contemporary philosophies of democracy, communism, and fascism. The background of 411 is recommended.
- 414 Oriental Political Thought (5)** **Hsiao**  
Theories of the Oriental state as exhibited in the writings of statesmen and philosophers. (Offered alternate years; offered 1959-60.)
- 418 The Evolution of Western Political Institutions (5)** **Harbold**  
The conflict between law and force in conditioning the character of modern government.
- 460 Introduction to Constitutional Law (5)** **Cole**  
Growth and development of the United States Constitution as reflected in decisions of the Supreme Court; political, social, and economic effects.

**GOVERNMENT, POLITICS, AND ADMINISTRATION**

- 350 Government and Interest Groups (5)** **Bone**  
Agrarian, labor, professional, business, and ethnic interests in politics; impact on representative institutions and governmental processes.
- 351 The American Democracy (5)** **Gottfried**  
Selected aspects and problems of contemporary American government: parties and politics; the presidency; Congress; the role of the Supreme Court; civil rights and civil liberties.
- 353 Theory and Practice of Government in the State of Washington (3)** **Staff**  
For nonmajors.
- 360 The American Constitutional System (3)** **Webster**  
Fundamental principles, function, evolution, and unwritten constitution; recent tendencies.
- 370 Government and the American Economy (5)** **Gottfried**  
Government regulation, promotion, and services affecting such principal interest groups as business, labor, agriculture, and consumers. The independent regulatory agencies, public ownership, government corporations, and the cooperative movement.
- 375 Problems of Municipal Government and Administration (5)** **Webster**  
The city charter; relationship to the state and other local units; municipal functions and services, with reference to municipalities in the state of Washington.
- 376 State and Local Government and Administration (5)** **Staff**  
Structure, functions, procedures, and suggested reorganization, with special reference to the state of Washington and its units of local government.
- 450 Political Parties and Elections (5)** **Bone**  
Organization and methods; the nature and future of party government.
- 451 The Legislative Process (5)** **Bone**  
Organization and procedure of legislative bodies, with special reference to the theory and practice of representative government, lobbying, and bicameralism.
- 452 Political Processes and Public Opinion (5)** **Gottfried**  
The foundations and environment of opinion; organization and implementation of opinion in controlling government, and public opinion as a force in the development of public policy; public relations activities of government agencies.
- 470 Introduction to Public Administration (5)** **Kroll**  
Basic relationship of administration to other agencies of government.
- 471 Administrative Management (5)** **Kroll**  
Introduction to problems of public service, emphasizing managerial supervision and control, personnel administration, budgetary and fiscal administration, administrative analysis, and program planning and reporting.
- 472 Introduction to Administrative Law (5)** **Shipman**  
The legal context of American administration, the public function, public management, administrative powers, the nature of judicial control.

**INTERNATIONAL LAW, ORGANIZATION, AND RELATIONS**

- 321 American Foreign Policy (3)** **Gottfried**  
Constitutional framework; major factors in formulation and execution of foreign policy; policies as modified by recent developments; the principal policy makers—President, Congress, political parties, pressure groups, and public opinion.
- 322 The Foreign Service (3)** **Riley**  
Department of State; diplomatic and consular services; American diplomatic practice and procedure.
- 323 International Relations of the Western Hemisphere (5)** **Mander**  
The Monroe Doctrine; Pan-Americanism; special interests in the Caribbean; hemisphere solidarity; the "Good Neighbor" policy; Latin America and World War II; Latin America and the United Nations.

- 324 Contemporary International Relations in Europe (5)** Hitchner  
European diplomacy and international relations between the two world wars; problems of European integration; contemporary developments.
- 328 The United Nations and Specialized Agencies (5)** Mander  
The structure and functions of the United Nations and specialized agencies; accomplishments; proposals for strengthening; relations of regional bodies and member states.
- 335J Japanese Foreign Policy in Asia (3)** Maki  
Analysis of modern Japanese expansion in Asia; Japanese political, diplomatic, and economic impact on Asia; the "Greater East Asia Co-Prosperity Sphere." Offered jointly with the Far Eastern and Russian Institute.
- 336 National Power and International Politics (5)** Martin  
Geographical, economic, and political foundations of the major powers as factors in international relations of the world.
- 420 Foreign Relations of the Soviet Union (5)** Reshetar  
Ideological, historical, and strategic components of Soviet foreign policy; Comintern, Cominform, and international Communist movement; Soviet policy in foreign trade, international law and organization, and in specific geographic areas.
- 425-426 International Law (3-3)** Martin  
World law as developed by custom and agreement and as exhibited in decisions of international tribunals and municipal courts.
- 427 International Government and Administration (5)** Hitchner  
Law and organization in international affairs; regional and general international institutions.
- 429 International Relations in the Far East (5)** Maki  
China, Japan, Southeast Asia; the Western Powers in Asia; the Far East in world politics.
- 430 International Relations in the Middle and Near East (5)** Mander  
Islamic backgrounds. Special countries, Egypt, Turkey, Iran, Israel, Saudi Arabia. Recent crises and their significance.
- 432 American Foreign Policy in the Far East (5)** Michael, Taylor  
Relationship to diplomacy, trade, and internal politics.

#### FOREIGN AND COMPARATIVE GOVERNMENT

- 343 Modern British Government (5)** Hitchner  
Contemporary British government and politics; current problems of the parliamentary system.
- 344 Chinese Government (5)** Michael  
Imperial government; transition period; national government; present forms of local government; constitutional draft; present political situation. (Offered alternate years; offered 1959-60.)
- 345J Japanese Government (3)** Maki  
Premodern Japanese government; characteristics of Japanese government from 1868 to 1945; governmental changes since 1945. Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.
- 346 Governments of Western Europe (5)** Hitchner  
Modern government and politics of France and Germany.
- 347 Governments of Eastern Europe (5)** Reshetar  
Survey of the Communist regimes of Poland, Hungary, Czechoslovakia, East Germany, and the Balkans.
- 441 Political Institutions of the Soviet Union (5)** Reshetar  
Ideological and historical bases of Soviet politics; Leninism-Stalinism; Communist Party organization and membership; administrative agencies; the police and army; law and the judiciary; Soviet federalism and nationality policy.
- 445 Comparative Political Institutions (5)** Martin  
Analytical study of doctrines, forms, functions, processes, and controls of all governmental systems, without regard to region or country.

#### GENERAL

- 398 Honors Course for Seniors (5)** Staff  
Open to qualified majors in the last quarter of the senior year. Prerequisite, permission of Department.
- 499 Individual Conference and Research (2-5, maximum 15)** Staff  
Open to qualified majors in the senior year. No more than one registration in 499 under the same instructor will be permitted. A second registration with a different instructor may be permitted only in very exceptional cases and with departmental approval. Prerequisite, permission of instructor.

#### COURSES FOR GRADUATES ONLY

- 506, 507, 508 Contemporary Problems, Domestic and Foreign (3,3,3)** Martin
- 511, 512, 513 Seminar in Readings in Political Science (3,3,3)** Cole  
Important writings of the masters in political science; the political classics.

- 514 Seminar in Problems of Political Theory (3)** Harbold  
Selected topics, historical and conceptual, national, regional, and universal.
- 515 Scope and Methods in Political Science (3)** Harbold  
Inquiry into the philosophic foundations of various approaches in political science and their possible contributions to an understanding of politics. Substantial background in philosophy, as well as in political science, is highly desirable.
- 520J Seminar on the Foreign Policy of the Soviet Union (3)** Reshetar  
Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.
- 521 Seminar in the Theory of International Relations (3)** Mander  
The principal theories underlying interstate relations; the sovereign state as a unit in the community of states; the theory of the state and the theory of the society of nations.
- 522, 523, 524 International Government and Organization (3,3,3)** Mander  
Constitutional organization and administrative procedures, with particular reference to the United Nations, specialized agencies, and other recent developments.
- 525, 526, 527 Seminar in Foreign Policy (3,3,3)** Martin  
The European states system; foreign policies of the major European powers; alliances and the balance of power; leading principles of American foreign policy; current problems in American diplomacy; international practice and procedure; international conferences; foreign offices.
- 530 Seminar in Regional Foreign Policy (3)** Mander  
Regionalism in the world order and economy; the "region" as a basis of foreign policy; foreign interests and policies of the major regions of the world: the U.S.S.R., Central Europe, Western Europe, the British Empire, the Middle and Near East, the Far East, and Latin America.
- 541J The Soviet Political System (4)** Reshetar  
Critical appraisal of the principal research methods, theories, and types of literature dealing with the government and politics of the Soviet Union. Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.
- 542 Seminar in Commonwealth Governments (3)** Mander  
Analysis of the governments of Canada, Australia, New Zealand, and South Africa; their relations with the United Kingdom.
- 543 Seminar in British Government (3)** Hitchner  
Advanced studies in British parliamentary government.
- 545J Seminar on Japanese Government and Diplomacy (3, maximum 6)** Maki  
Offered jointly with the Far Eastern and Russian Institute.
- 550, 551, 552 Seminar in Politics (3,3,3)** Bone  
Topical and regional studies of political associations in the United States; leading principles and motivations of political action and leadership; legislative processes; methodology and bibliography.
- 562, 563, 564 Public Law (3,3,3)** Cole  
Constitutional and legal concepts governing governmental authority and institutions and the conduct of governmental activities.
- 570-571-572 The Administrative Process (3-3-3)** Kroll  
An analysis of the administrative process relying primarily upon case materials and emphasizing policy formation, organization behavior, the nature of administrative roles, and the mechanisms of responsibility.
- 573-574-575 Public Management (3-3-3)** Shipman  
Expression of public policy through program activity, program planning, programming and scheduling, budgeting, staffing, fiscal and other operating controls, evaluations of effectiveness. Prerequisite, admission to graduate curriculum in public administration, or special approval.
- 576-577-578 Administrative Problems (3-3-3)** Shipman  
Methods employed in the analysis of administrative problems, programs, organization, process, procedure, and staffing; the design of organizations and operations. Prerequisite, admission to graduate curriculum in public administration or special approval.
- 580, 581, 582 Seminar in Metropolitan and Urban Planning Problems (3,3,3)** Webster  
The metropolitan community; nature, characteristics, functions, governmental structure, and intergovernmental relations. Urban planning; theory, law and administration, policy determination and public relations. Methods and devices for plan implementation. Drafting local ordinances for planning, zoning, subdivision control, and urban renewal.
- 600 Research (\*)** Staff
- 700 Thesis (\*)** Staff

## PREMAJOR

Advisory Office: 121 Miller Hall

The premajor category is dedicated to those students in the first or second year who have not made a definite choice of major before entering the University. These students may select, in consultation with an adviser, a program of studies

which will meet the broad general requirements of the College (see page 62) and at the same time provide an experimentation and exploration in the subject areas of the College. Each program is planned according to the individual needs of the student.

No one may continue beyond his sophomore year as a premajor.

## PSYCHOLOGY

**Acting Executive Officer: GEORGE P. HORTON, M40 Denny Hall**

The Department of Psychology offers courses leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy. The Departments of Physiology and Psychology offer a joint program in physiological psychology leading to the degree of Doctor of Philosophy. In addition, the Department offers first and second teaching areas for students in the College of Education.

The Department includes the Bailey and Babette Gatzert Institute of Child Development consisting of the Nursery School, Child Development Clinic, and Research Laboratory. Undergraduate courses are offered to those interested in the child area in general as well as those desiring to major in Nursery School and Child Study. Graduate courses are offered in child clinical psychology and related fields.

## BACHELOR OF SCIENCE

In this elective curriculum, at least 36 credits in psychology are required. Students planning to major in psychology must complete at least 15 credits in psychology with a minimum grade-point average of 3.00 before entering the Department. Courses must include: Psychology 100, 301, 400; one course from 406, 426, 441, 451, 484, 499; and 16 credits in psychology electives, preferably chosen from 308, 345, 405, 416, 427. Students majoring in psychology are required to maintain a grade-point average of 2.50 in all psychology courses taken at this University. Transfer students must complete a minimum of 15 credits in this Department.

## ADVANCED DEGREES

Students who intend to work toward the degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Admission to graduate study requires formal approval by the Department of Psychology as well as admission to the Graduate School.

## COURSES FOR UNDERGRADUATES

- |  |                              |
|--|------------------------------|
| <b>100 General Psychology (5)</b>  | <b>Staff</b>                 |
| Introduction to the principles of human behavior.  |                              |
| <b>101 Psychology of Adjustment (5)</b>  | <b>Wilson</b>                |
| Application of psychological principles to the problems of everyday life. Prerequisite, 100.   |                              |
| <b>200 Advanced General Psychology (5)</b>   | <b>Hermans</b>               |
| Fundamental principles and experimental methods of psychology, with laboratory demonstrations. For majors only. Prerequisite, 100. (Not offered 1959-60.)  |                              |
| <b>245 Individual Differences (2)</b>  | <b>Edwards</b>               |
| The interrelationships and patternings of human traits and capacities. Prerequisite, 100.  |                              |
| <b>301 Statistical Methods (5)</b>   | <b>Baer, Heathers, Smith</b> |
| Application of statistical methods to psychological problems; description of psychological data in terms of averages, measures of variability, and measures of relationships; problems of prediction; frequency distributions and elementary sampling theory. Prerequisites, 100 and Mathematics 101, or permission. |                              |
| <b>305 Abnormal Psychology (5)</b>   | <b>Strother</b>              |
| Introduction to the field of psychopathology; analysis of the forms, nature, and causes of disorders of behavior and personality. Prerequisite, 15 credits in psychology, including 101.   |                              |
| <b>306 Child Psychology (5)</b>  | <b>Bijou, Baer</b>           |
| The psychological development of the child and the antecedent conditions from infancy to adolescence. For nonmajors only. Not open to students who have taken 308. Prerequisite, 100.  |                              |

- 308 Genetic Psychology (5)** **Bijou, Baer**  
A comparative approach to problems of psychological development with special emphasis on the effects of early childhood experience on later behavior. Not open to students who have taken 306. Prerequisite, 100. For majors only.
- 309 Psychology of Exceptional Children (3)** **Bijou**  
Behavior patterns of exceptional children, such as the mentally retarded, the physically handicapped, and superior children. Prerequisite, 306 or 308, or equivalent.
- 320 Directed Observation of Early Childhood Development (3)** **Harris**  
Analysis of developmental trends and age-level expectancies of the preschool-age child with interpretations of typical behavior manifestations. Prerequisite, 100 or equivalent.
- 321 Program Planning for Young Children (5)** **Evans**  
Directed observation in the nursery school laboratory with study and analysis of the daily program. Developmental characteristics of the preschool-age child as a basis for building a nursery school curriculum. Teacher role. Prerequisite, 320 and permission.
- 322 Practicum in the Nursery School (10)** **Staff**  
Scheduled participation in the laboratory program for children. Development of skills in individual and group guidance of young children in the use of creative play materials and equipment, books, stories, music. Attendance at monthly evening parent meetings and one home visit required. Prerequisite, 321 and permission.
- 331 Applied Psychology (3)** **Culbert**  
Psychological approaches to human efficiency and happiness, with emphasis upon vocational, industrial, advertising, and consumer problems and their application to legal and medical fields. (Formerly 135.) Prerequisite, 100.
- 345 Social Psychology (3)** **Culbert, Edwards**  
Psychology of human institutions. Prerequisite, 100.
- 400 Psychology of Learning (5)** **Smith**  
Theories and experimental research in the field of human learning. Prerequisite, 301.
- 401, 402 Contemporary Psychological Theory (3,3)** **Staff**  
Current approaches to theory construction in psychology. Prerequisite, permission.
- 403 Psychology of Motivation (3)** **Smith**  
Theories and experimental research concerning the role of organic conditions and of social rewards and punishments in determining the direction and efficiency of effort. Prerequisite, 400.
- 405 Personality (5)** **Sarason**  
A survey of personality theories and research, with special emphasis on Freud, Lewin, and Miller and Dollard. Prerequisite, 15 credits in psychology, including 305, or permission.
- 406 Experimental Psychology (5)** **Locks**  
Practice in planning, conducting, and reporting laboratory research. Prerequisite, 301.
- 409AJ Training of the Mentally Retarded (5)** **Staff**  
This course covers practical problems on the care and training of mentally retarded children including those with multiple handicaps. Organization of classes for these children, regulations for state aid, and records needed will be studied. Offered jointly at Buckley, Washington, with the College of Education. Prerequisite, permission.
- 409BJ Psychology of the Mentally Retarded (5)** **Staff**  
This course presents an opportunity to study the characteristics and development of mentally retarded children. Multiple disabilities will be observed and discussed. The course aims to develop an understanding of the place these children occupy in their homes, schools, and community, and the challenges they present in each sphere of living. Offered jointly at Buckley, Washington, with the College of Education. Prerequisite, permission.
- 409CJ Training the Emotionally Disturbed (5)** **Staff**  
Special problems encountered in teaching emotionally disturbed children. Offered jointly with the College of Education. Prerequisite, permission.
- 409DJ Psychology of the Emotionally Disturbed (5)** **Staff**  
A study of the characteristics and behavior of the different types of emotionally disturbed children. The course aims to develop understanding of the problems presented by these children. Offered jointly with the College of Education. Prerequisite, permission.
- 409WJ Advanced Workshop in the Education of the Retarded (10)** **Staff**  
Seminar on education of the retarded with provision for supervised work with retarded children. Prerequisites, at least 10 credits in course work on the mentally retarded, and permission.
- 413 Tests and Measurements (5)** **Heathers**  
Standard group psychological tests and their theoretical and statistical bases; practice in administering and scoring group tests. Prerequisite, 301.
- 414, 415 Thinking and Problem Solving (3,3)** **McKeever**  
A survey of the experimental literature of concept formation and problem solving. Prerequisites, 414 for 415, psychology majors with senior or graduate standing and permission. (Formerly 448.)
- 416 Animal Behavior (3)** **Horton**  
Principles of animal behavior in relation to human behavior, with special emphasis upon the principles underlying the organism's mode of adjusting to its environment. Prerequisite, permission.

- 421 The Neural Basis of Behavior (5)** **Staff**  
Anatomical and physiological principles underlying the integrative action of the nervous system and the relationship of these principles to the problems of behavior. Prerequisite, 10 credits in biology or permission.
- 422 Physiological Psychology (5)** **Loucks**  
The physiological process in attention, emotion, fatigue, and sleep; recent research on muscle potentials and brain waves. Prerequisite, 421 or permission.
- 423 Sensory Basis of Behavior (5)** **Horton**  
Sensory and perceptual phenomena; sensory equipment; theories of sense-organ function. Prerequisites, 100 and 421, or permission.
- 426 Animal Laboratory (5)** **Smith**  
Supervised training in experimental work with animals. Prerequisites, 400 or 427, and permission.
- 427 Conditioning (5)** **Loucks**  
Experimental work on conditioning, with emphasis on specific research techniques; significance for the several fields of psychology. Prerequisite, permission.
- 435 Applied Experimental Psychology (3)** **Culbert, Horton**  
A survey of experimental studies on the relation of human abilities and limitations to problems of design and operation of industrial machines, display systems, and special devices. Prerequisite, 100 or permission.
- 441 Perception (5)** **Culbert**  
Lectures and supervised individual experiments. Prerequisites, 301 and permission.
- 445 Theories of Social Psychology (5)** **Stotland**  
Examination of theories in social psychology; individual determinants of social behavior, processes and outcomes of social interaction and their effects on the individual and group. Prerequisites, psychology majors with senior or graduate standing, or permission.
- 446 Objective Assessment of Personality (3)** **Edwards**  
Methods and techniques of observing and measuring personality, sociological, and behavioral variables of interest to the social psychologist. Problems of research design in personality and social psychology.
- 447 Psychology of Language (5)** **Culbert**  
Psychological principles applied to linguistic development and organization; relation of symbolism to human behavior. Prerequisite, permission.
- 449 Psychology of Social Movements (3)** **Culbert**  
The establishment of roles and stereotypes during the socialization of the individual; group organization, membership and leadership; social drift and control; conflict, crisis, change, and resistance to change. Prerequisite, 345.
- 450 Techniques in Social Psychology (5)** **Stotland**  
Practice and discussion of methods of systematic observation, content analysis, public opinion questionnaire construction, interviewing; experimental manipulation in social psychology. Prerequisites, psychology majors with senior or graduate standing, or permission.
- 451 Laboratory in Social Psychology (5)** **Stotland**  
Individual research projects. Prerequisite, 450.
- 462 Readings in Psychology (1-3, maximum 9)** **Staff**  
Reading in special interest areas under supervision of staff members. Discussion of reading in conference with instructor. The name of the staff member with whom research will be done should be indicated in registration. Prerequisite, permission.
- 484 Laboratory in Child Behavior (5)** **Baer**  
Practice in designing experiments with children involving the use of a variety of measuring techniques; methods of analyzing and evaluating such data; handling of children as subjects for psychological research. Prerequisite, permission.
- 490 The Ecology of Development (5)** **Baer**  
An account of the environmental control of the development of human behavior in terms of general behavior theory. Prerequisite, 308. For majors only.
- 499 Undergraduate Research (1-3, maximum 9)** **Staff**  
The name of the staff member with whom research will be done should be indicated in registration. Prerequisites, 301 and permission.

## COURSES FOR GRADUATES ONLY

- 501 Problems in Learning Theory (3)** **McKeever**  
Selected topics in the interpretation and evaluation of current theories of learning. Prerequisite, permission.
- 507-508 History of Psychology (3-3)** **Esper**  
Experimental and theoretical backgrounds of modern psychology, especially in the nineteenth century. Prerequisites, graduate standing and permission. (Formerly 407-408.)
- 509 Problems in Developmental Psychology (3)** **Bijou**  
A critical analysis of current theoretical problems, of approaches to theory formulation, and a review of some typical pieces of research in the field of child behavior and personality development. Prerequisites, 306 or 308, and permission.



- 514-515 Experimental Design (3-3)** **Edwards**  
Planning research problems; formulation of hypotheses; techniques of equating groups; sampling problems; factorial design and analysis of variance; interpretation of data. Prerequisite, 301 or permission.
- 516 Introduction to Multivariate Psychological Measurement (5)** **Horst**  
Special quantitative techniques essential to understanding of multivariate psychological measurement theory. Elementary principles of matrix algebra basic to this theory and efficient computational routines are emphasized. Prerequisites, 301 and 413, or permission.
- 517 Factor Analysis (5)** **Horst**  
Mathematical and theoretical foundations; alternative methods of analysis; computational procedures; applications to psychological problems. Prerequisite, 516 or permission.
- 518 Test Construction (5)** **Horst**  
Correlation analysis; statistical bases of test construction and of the use of test batteries; practice in test construction. Prerequisite, 517 or permission.
- 520 Seminar (2)** **Staff**  
May be repeated for credit. Prerequisite, permission.
- 523 Seminar in the History of Psychology (2)** **Esper**  
May be repeated for credit. Prerequisite, permission.
- 524 Seminar in Physiological Psychology (2)** **Horton, Loucks**  
May be repeated for credit. Prerequisite, permission.
- 525 Seminar in Genetic and Comparative Psychology (2)** **Horton**  
May be repeated for credit. Prerequisite, permission.
- 527 Seminar in Social Psychology (2)** **Edwards, Stotland**  
May be repeated for credit. Prerequisite, permission.
- 528 Seminar in Experimental Psychology (2)** **Hermans**  
May be repeated for credit. Prerequisite, permission.
- 529 Seminar in Clinical Psychology (2)** **Bijou, Strother**  
May be repeated for credit. Prerequisite, permission.
- 530 Seminar in Theory (2)** **Staff**  
May be repeated for credit. Prerequisite, permission.
- 531 Seminar in Learning and Motivation (2)** **Staff**  
May be repeated for credit. Prerequisite, permission.
- 544-545 Psychology of Social Attitudes (3-3)** **Edwards**  
Theory and techniques of attitude-scale construction; scaling by the methods of equal-appearing intervals and of summated ratings; scale analysis; applications of attitude scales in education, industry, and the social sciences; determinants of attitudes and experimental studies of attitude change. Prerequisite, 301 or permission. (Not offered 1959-60.)
- 581 Individual Testing (Children) (5)** **Sarason**  
Construction, administration, and scoring of individual mental tests used with children. Prerequisites, 306 or 308, 413, and permission.
- 582 Individual Testing (Adults) (5)** **Sarason**  
Construction, administration, and scoring of clinical psychological tests used with adults. Prerequisites, 305, 413, and permission.
- 585 Experimental Problems in Clinical Psychology (5)** **Bijou**  
Analysis of research and theories of concepts and processes of deviant behavior. Prerequisite, permission.
- 587 Clinical Pro-Seminar I: Personality Theory (5)** **Sarason**  
The theories of personality development relating to the psychodynamics of personality organization. Prerequisite, permission.
- 588 Clinical Pro-Seminar II: Psychopathology (5)** **Strother**  
Major historical and contemporary theories of psychopathology and research in the main categories of the behavior disorders. Prerequisite, 587.
- 589 Clinical Pro-Seminar III: Theories and Systems of Psychotherapy (5)** **Strother**  
A review of some of the principal theories and systems of psychotherapy. Prerequisite, 588.
- 591 Projective Personality Tests (3)** **Sarason**  
Theory of projective tests; practice in scoring and interpreting projective tests with emphasis on the Rorschach. Prerequisite, 581, 582, or permission.
- 592 Projective Personality Tests (5)** **Sarason**  
Training in interpretation of normal Rorschach records; review of literature on the use of the Rorschach in psychopathology. Prerequisite, 591 or permission.
- 596 Field Work in Clinical Psychology (3-5, maximum 36)** **Staff**  
Field training in clinics and institutions for students of clinical psychology. May be repeated for credit. Prerequisite, permission.  
A. Clerkship in child testing      B. Clerkship in adult testing      C. Externship
- 599 Survey of Clinical Psychometrics (2)** **Strother**  
The nature, development, and clinical application of psychological tests. Prerequisites, permission and registration in the School of Social Work.
- 600 Research (\*)** **Staff**  
The name of the staff member with whom nonthesis research will be done should be indicated in registration. Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## PUBLIC HEALTH AND PREVENTIVE MEDICINE

**Executive Officer: WILLIAM E. REYNOLDS, B506 Health Sciences Building**

The Department of Public Health and Preventive Medicine, a part of the School of Medicine, offers professional courses leading to the Bachelor of Science degree for students in the College of Arts and Sciences. Within the public health curriculum, students may choose an option in environmental health, biometry, or health education.

For students in the College of Education, the Department offers a health education teaching area which may be combined with an area in physical education, a science, a social science, or other second area. For combinations with physical education, counseling is provided by the School of Physical and Health Education (see page 182); for other combinations, counseling is provided by the Department of Public Health and Preventive Medicine. Requirements for all teaching areas are described in the *College of Education Bulletin*.

In cooperation with the Department of Dental Hygiene, in the School of Dentistry, a joint program is offered which leads to the degree of Bachelor of Science with a major in public health dental hygiene (see the *School of Dentistry Bulletin*). For this program, the health education option is prescribed.

### BACHELOR OF SCIENCE

A minimum of 36 credits in public health courses is necessary for the Bachelor of Science degree for students in the College of Arts and Sciences. Electives must include courses necessary to satisfy college group requirements. See page 62. While the order of the curriculum requirements in each option is not rigidly fixed, it is suggested that the courses be taken in the following sequence.

#### BIOMETRY

##### First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Engl. 101 Composition ...	3	Chem. 100 or 110		Chem. 120 Gen. and	
Math. 104 Plane Trig. ...	3	General	4-3	Organic	5
Psychol. 100 General ...	5	Engl. 102 Composition ...	3	Engl. 103 Composition ...	3
Sociol. 110 Survey ...	5	Math. 105 College Algebra	5	Health Educ. 110 or 175	
Phys. Educ. activity	1	Math. 120 Intro. to Math.		Health	2
ROTC	2-3	Thinking	2	Math. 153 Anal. Geom.	
	17-20	Phys. Educ. activity	1	and Calc.	5
		ROTC	2-3	Phys. Educ. activity	1
			14-18	ROTC	2-3
					16-19

##### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Math. 251 Anal. Geom.		Math. 252 Anal. Geom.		Math. 253 Anal. Geom.	
and Calc.	5	and Calc.	5	and Calc.	3
Physics 101 General	4	Physics 102 General	4	Physics 103 General	4
Physics 107 Lab.	1	Physics 108 Lab.	1	Physics 109 Lab.	1
Zool. 111 General	5	Zool. 112 General	5	Zool. 208 Elem. Human	
ROTC	2-3	ROTC	2-3	Physiol.	5
	15-18		15-18	Approved electives	3
				ROTC	2-3
					16-19

##### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Math. 401 Linear Algebra	5	Math. 482 Class. Meth. of		Public Health 420 Epid.	
Math. 481 Calc. of		Stat. Inf.	5	of Commun. Diseases	2
Probabilities	5	Approved electives	10	Micro. 301 General	5
Speech 120 Public			15	Approved electives	8
Speaking	5				15
	15				

## Fourth Year

FIRST QUARTER	CREDITS
Public Health 421	
Survey of Adult Health Problems	3
Public Health 470 Intro. to Biometry	3
Public Health 477 Stat. Meth. in Biol. Assay	3
Public Health 480 Problems	2-6
Biol. 451 Genetics	3
Approved elective	2
	16-20

SECOND QUARTER	CREDITS
Public Health 422	
Survey of Environ. Health	3
Public Health 472 Appl. Stat. in Health Sci.	4
Public Health 480 Problems	2-6
Approved electives	6
	15-19

THIRD QUARTER	CREDITS
Public Health 423	
Org. and Services	3
Public Health 476 Advanced Biometry	5
Public Health 480 Problems	2-6
Public Health 482 Field Practice	5
	15-19

## ENVIRONMENTAL HEALTH: (Basic Option)

## First Year

FIRST QUARTER	CREDITS
Chem. 100 or 110 General	4-3
Engl. 101 Composition	3
Health Educ. 110 or 175	
Physics 101 General	4
Physics 107 Lab.	1
Phys. Educ. activity	1
Approved electives	3
ROTC	2-3
	15-19

SECOND QUARTER	CREDITS
Chem. 150 General	4
Engl. 102 Composition	3
Physics 102 General	4
Physics 108 Lab.	1
Phys. Educ. activity	1
Approved electives	3
ROTC	2-3
	16-19

THIRD QUARTER	CREDITS
Chem. 160 General	3
Chem. 170 Qual. Analysis	3
Engl. 103 Composition	3
Physics 103 General	4
Physics 109 Lab.	1
Phys. Educ. activity	1
ROTC	2-3
	15-18

## Second Year

FIRST QUARTER	CREDITS
Chem. 221 Quant. Analysis	5
Math. 104 Plane Trig.	3
Zool. 111 General	5
Educ. 180 Drawing	3
ROTC	2-3
	16-19

SECOND QUARTER	CREDITS
Math. 105 College Algebra	5
Sociol. 110 Survey	5
Zool. 112 General	5
ROTC	2-3
	15-18

THIRD QUARTER	CREDITS
Chem. 120 Gen. and Org.	5
Zool. 208 Elem. Human Physiol.	5
Approved electives	5
ROTC	2-3
	15-18

## Third Year

FIRST QUARTER	CREDITS
B. Law 307 Bus. Law	3
Econ. 211 General	3
Speech 120 Public Speaking	5
Approved electives	5
	16

SECOND QUARTER	CREDITS
Public Health 422 Survey of Environ. Health	3
Micro. 301 General	5
Psychol. 100 General	5
Civil Engr. 350 Intro. to San. Engr.	3
	16

THIRD QUARTER	CREDITS
Public Health 420 Epid. of Commun. Disease	2
Public Health 470 Intro. to Biometry	3
Biochem. 361 Biochem.	3
Biochem. 363 Biochem. Lab.	2
H. S. S. 270 Engr. Report Writing	2
Approved electives	4
	16

## Fourth Year

FIRST QUARTER	CREDITS
Public Health 421 Survey of Adult Health Problems	3
Public Health 440 Water and Waste Sanitation	3
Public Health 450 Meas. and Control of Air Poll.	2
Public Health 464 Comm. Health Ed. Techniques	3
Public Health 480 Problems	2-6
Approved electives	3
	16-19

SECOND QUARTER	CREDITS
Public Health 441 Milk and Food Sanitation	3
Public Health 453 Indust. Hygiene	3
Public Health 480 Problems	2-6
Approved electives	3-5
	15-17

THIRD QUARTER	CREDITS
Public Health 423 Org. and Services	3
Public Health 442 Vector Control and Gen. San.	3
Public Health 480 Problems	2
Micro. 444 Med. Parasitol.	4
Approved electives	5
	17

## Summer

Recommended: 15 hours Field Practice—Public Health 482, 483, 484.

**ENVIRONMENTAL HEALTH: (Technical Option)****First Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 100 or 110		Chem. 150 General	4	Chem. 160 General	3
General	4-3	Engl. 102 Composition	3	Chem. 170 Qual. Analysis	3
Engl. 101 Composition	3	Math. 104 Plane Trig.	3	Engl. 103 Composition	3
Health Educ. 110 or 175		Physics 102 General	4	Physics 103 General	4
Health	2	Physics 108 Lab.	1	Physics 109 Lab.	1
Physics 101 General	4	Phys. Educ. activity	1	Phys. Educ. activity	1
Physics 107 Lab.	1	ROTC	2-3	ROTC	2-3
Phys. Educ. activity	1				
Approved elective	2		16-19		15-18
ROTC	2-3				
	16-20				

**Second Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 120 Gen. and		Math 153 Anal. Geom.		Math 251 Anal. Geom.	
Organic	5	and Calc.	5	and Calc.	5
Chem. 221 Quant. Analysis	5	Sociol. 110 Survey	5	Zool. 112 General	5
Math. 105 College		Zool. 111 General	5	Zool. 208 Elem. Human	
Algebra	5	ROTC	2-3	Physiol.	5
ROTC	2-3		15-18	ROTC	2-3
	15-18				15-18

**Third Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Educ. 180 Drawing	3	Public Health 422 Survey		Public Health 420 Epid.	
Math. 253 Anal. Geom.		of Environ. Health	3	of Commun. Diseases	2
and Calc.	5	Micro. 301 General	5	Biochem. 361 Biochem.	3
Physics 320 Intro. to		Physics 323 Intro. to		Biochem. 363 Biochem.	
Mod. Physics	3	Mod. Physics	3	Lab.	2
Speech 120 Public		Psychol. 100 General	5	H.-S.S. 270 Engr.	
Speaking	5		16	Report Writing	2
	16			Approved electives	6
					15

**Fourth Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Public Health 421		Public Health 441		Public Health 423	
Survey of Adult		Milk and Food		Org. and Services	3
Health Problems	3	Sanitation	3	Public Health 442 Vector	
Public Health 440		Public Health 453		Control and Gen. San.	3
Water and Waste		Indust. Hygiene	3	Public Health 480	
Sanitation	3	Public Health 480		Problems	2
Public Health 450 Meas. and		Problems	2-6	Micro. 444 Med.	
Control of Air Pollution	2	Civil Engr. 350 Intro.		Parasitology	4
Public Health 470 Intro.		to San. Engr.	3	Approved electives	3
to Biometry	2	Approved electives	3		15-19
Public Health 480			14-18		
Problems	2-6				
Approved electives	3				
	15-19				

**Summer**

Recommended: 5-15 hours Field Practice—Public Health 482, 483, 484.

**HEALTH EDUCATION: (First Area of Concentration or Basic Academic Field for Teachers)****First Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Health Educ. 110 or		Biol. -102J General	5	Engl. 103 Composition	3
175 Health	2	Engl. 102 Composition	3	Physics 100 Survey	5
Biol. 101J- General	5	Sociol. 110 Survey	5	Psychol. 100 General	5
Engl. 101 Composition	3	Phys. Educ. activity	1	Phys. Educ. activity	1
Speech 100 Basic Speech		Approved elective	2	Approved elective	2
Improvement	5	ROTC	2-3	ROTC	2-3
Phys. Educ. activity	1		16-19		16-19
ROTC	2-3				
	16-19				

## Second Year

FIRST QUARTER	CREDITS
Health Educ. 429 First Aid and Safety	3
Anthro. 100 Intro. to Study of Man or 201 Physical	5
Art 100 Intro. to Art (or approved sub.)	2-5
Educ. 209 Educ. Psychol.	3
Approved electives	0-3
ROTC	2-3
	16-19

SECOND QUARTER	CREDITS
Chem. 100 or 110 General	4-3
Home Ec. 300 Nutrition	2
Music 107 Survey (or approved sub.)	5
Approved electives	4-5
ROTC	2-3
	15-18

THIRD QUARTER	CREDITS
Chem. 120 General	5
Home Ec. 356 Family Relationships or Sociol.	3-5
Zool. 208 Elem. Human Physiol.	5
Approved electives	0-2
ROTC	2-3
	15-18

## Third Year

FIRST QUARTER	CREDITS
Public Health 461 School and Community Health Prog.	5
Educ. 370 Intro. to Teaching Procedures	5
Speech 332 Group Discussion	5
	15

SECOND QUARTER	CREDITS
Educ. 370E Intro. to Methods	5
Hist. 464 Hist. of Wash. and Pacific Northwest	5
Micro. 310 General	5
	15

THIRD QUARTER	CREDITS
Public Health 420 Epid. of Commun. Diseases	2
Public Health 423 Org. and Services	3
Conjoint 496 Concept of the Child or Educ. 402 Child Study and Develop.	3
Educ. 374 Reading Instr.	5
Approved electives	2
	15

## Fourth Year

FIRST QUARTER	CREDITS
Health Educ. 453 Methods and Materials	3
Public Health 421 Survey of Adult Health Problems	3
Educ. 390 Evaluation	3
Educ. 373 Wash. State Manual	2
Psychiatry 450 Personality Develop.	2
Approved electives	3
	16

SECOND QUARTER	CREDITS
Public Health 422 Survey of Environ. Health	3
Public Health 464 Health Educ. Techniques	3
Educ. 360 Principles	3
Educ. 372X or S Professional Lab. Experiences	3
Approved electives	3
	15

THIRD QUARTER	CREDITS
Public Health 482 Field Practice	6
Educ. 371X or S Directed Training	8
	14

## HEALTH EDUCATION: (Public Health Emphasis)

## First Year

FIRST QUARTER	CREDITS
Health Educ. 110 or 175	2
Biol. 101J- General	5
Engl. 101 Composition	3
Speech 100 Basic Speech Improvement or 120 Public Speaking	5
Phys. Educ. activity	1
ROTC	2-3
	16-19

SECOND QUARTER	CREDITS
Biol. -102J General	5
Engl. 102 Composition	3
Sociol. 110 Survey	5
Approved electives	3
ROTC	2-3
	16-19

THIRD QUARTER	CREDITS
Engl. 103 Composition	3
Psychol. 100 General	5
Phys. Educ. activity	1
Approved electives	7
ROTC	2-3
	16-19

## Second Year

FIRST QUARTER	CREDITS
Health Educ. 429 First Aid and Safety	3
Anthro. 100 Intro. to Study of Man or 201 Physical	5
Approved electives	7
ROTC	2-3
	15-18

SECOND QUARTER	CREDITS
Chem. 100 or 110 General	4-3
Approved electives	12
ROTC	2-3
	15-19

THIRD QUARTER	CREDITS
Chem. 120 Gen. and Organic	5
Zool. 208 Elem. Human Physiol.	5
Approved electives	5
ROTC	2-3
	15-18

## Third Year

FIRST QUARTER	CREDITS
Public Health 461 School and Community Health Prog.	5
Public Health 470 Intro. to Biometry	3
Speech 332 Group Discussion	5
Approved elective	2
	15

SECOND QUARTER	CREDITS
Home Ec. 300 Nutrition	2
Home Ec. 356 Family Relationship	3
Micro. 301 General	5
Approved electives	5
	15

THIRD QUARTER	CREDITS
Public Health 420 Epid. of Commun. Diseases	2
Public Health 423 Org. and Services	3
Public Health 492 International Health	2
Conjoint 496 Concept of the Child or Educ. 402 Child Study and Develop.	3
Approved electives	5
	15

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Health Educ. 453 Methods and Materials	3	Public Health 422 Survey of Environ. Health	3	Public Health 482 Field Practice	6
Public Health 421 Survey of Adult Health Problems	3	Public Health 463 Comm. Org. for Health Ed.	3	Public Health 483 Field Practice	6
Public Health 485J Prob. in School Health	2	Public Health 464 Health Educ. Techniques	3	Public Health 484 Field Practice	3
Psychiatry 450 Personality Develop.	2	Public Health 480 Problems	3		15
Approved electives	5	Approved electives	4		
	15		16		

## COURSES FOR UNDERGRADUATES

- Conjoint 295 Introduction to Normal Growth and Development (2)** **Deisher, Staff**  
Study of the child from the standpoint of normal growth and development and nutritional and emotional needs. Offered jointly by the Departments of Pediatrics and Public Health and Preventive Medicine. Prerequisite, permission.
- Conjoint 296 Introduction to Normal Growth and Development (2)** **Deisher, Staff**  
This course is an introduction to normal growth and development of children from school age through adolescence, including presentation of case material. Offered jointly by the Departments of Pediatrics and Public Health and Preventive Medicine. Prerequisite, Conjoint 295.
- 420 Epidemiology of Communicable Diseases (2)** **Reynolds**  
The principles of epidemiology applied to the control of communicable diseases of man. Prerequisite, Microbiology 301 or permission.
- 421 Survey of Adult Health Problems (3)** **Staff**  
A study of the epidemiology and prevention of major adult health problems including occupational diseases, chronic and degenerative diseases, nutritional disorders, and accidents.
- 422 Survey of Environmental Health (3)** **Hatlen**  
A study of the nature and control of the predominant environmental factors involved in the transmission of communicable diseases. Particular attention is given to the following factors: food, milk, water supply, waste disposal, arthropod vectors, rodents, housing, schools and recreational facilities.
- 423 Public Health Organizations and Services (3)** **Wilkey**  
A study of the organizations and services of both governmental and voluntary health agencies on national, state, and local levels.
- 440 Water and Waste Sanitation (3)** **Hatlen**  
Advanced study of the sanitary control of water supplies and sewage and refuse disposal, with emphasis on the knowledge and skills utilized by the sanitarian. Prerequisite, 422 or permission.
- 441 Milk and Food Sanitation (3)** **Hatlen**  
Advanced study of the sanitary control of the production, processing, and distribution of milk and food. Prerequisite, 422 or permission.
- 442 Vector Control and General Sanitation (3)** **Hatlen**  
Advanced study of the control of rodents and arthropod vectors of disease; the control of environmental utilities, including plumbing, swimming pools, bathing beaches, recreation areas, housing, schools, and other topics of general sanitation. Prerequisite, 422 or permission.
- 450 Measurement and Control of Air Pollution (2)** **Kusian**  
Description of methods for air pollution research and control, including field survey techniques, stack sampling, continuous monitoring, and use of control equipment. Administrative problems are also discussed. For public health majors; others by permission.
- 453 Industrial Hygiene Techniques (3)** **Kusian**  
Field and industrial laboratory testing procedures for chemical and physical hazards as employed by industrial health workers. Prerequisite, permission.
- 460J Field Training in Health Education (5)** **Vavra**  
Four and one-half weeks of full-time supervised work experience in the health education division of a local official health agency. Offered jointly with the College of Education. (Offered Summer Quarter only.) Prerequisite, permission.
- 461 School and Community Health Programs (5)** **Mills, Reeves**  
Organizational structure, function, and services of official and nonofficial community and school health agencies, with particular attention to the interrelated roles of teachers, physicians, nurses, and sanitarians. Prerequisite, junior standing.
- 463 Community Organization for Health Education (3)** **Vavra**  
Trends and problems in community health education, including community organization. Prerequisite, 423 or 461, or permission.
- 464 Community Health Education Techniques (3)** **Vavra**  
Practice in the techniques of working with groups; preparation and use of visual educational materials. Prerequisite, 423 or 461, or permission.

- 470 Introduction to Biometry (3)** **Reynolds**  
Statistical methods used in the compilation, interpretation, and presentation of vital data. Prerequisite, permission.
- 472 Applied Statistics in Health Sciences (2-4)** **Bennett**  
Application of statistical techniques to biological and medical research; design and interpretation of experiments. Prerequisite, permission.
- 476 Advanced Biometry (5)** **Reynolds**  
Medical and public health record systems, life table techniques and their application to chronic diseases; population studies and estimates; statistical methods in epidemiology; sample surveys. Prerequisites, 470 and 472.
- 477 Statistical Methods in Biological Assay (3)** **Bennett**  
Methods appropriate to estimation of the dose-effect relationship; biological standardization; microbiological assay; design of experiments. (Offered when demand is sufficient.) Prerequisite, permission.
- 480 Public Health Problems (\*, maximum 6)** **Staff**  
Special assignments in the field of public health. Prerequisite, permission.
- 482 Field Practice in Public Health (2-6)** **Staff**  
An assignment to a local health department for supervised application of public health practices. Prerequisite, permission.
- 483 Field Practice in Public Health (6)** **Staff**  
An assignment to a local health department for practice in program planning. Prerequisite, permission.
- 484 Field Practice in Public Health (3)** **Staff**  
An assignment to a local health department for training in the utilization of community resources. Prerequisite, permission.
- 485J School Health Problems (2)** **Leahy, Vavra**  
Analysis of and planning for school health programs based on developmental needs of the school-age child. Offered jointly with the School of Nursing. Prerequisite, permission.
- 492J Problems in International Health (2)** **Leahy, Reynolds**  
Conference and discussion based on a survey of international health organizations and the services offered by regions and countries. Offered jointly with the School of Nursing. Open to any senior or graduate student. Prerequisite, permission.
- Conjoint 496 Concept of the Child (3)** **Deisher, Staff**  
An advanced course for students who desire a more complete understanding of the child from the standpoints of pediatrics, public health, psychiatry, psychology, nutrition, social work and nursery education. Offered by the Departments of Pediatrics and Public Health and Preventive Medicine. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
Prerequisite, permission.

## COURSE FOR GRADUATES ONLY

- 502J Applied Group Development Principles (3)** **Burke, Vavra**  
A study of the factors that contribute to productive group effort with application of group development principles for professional health personnel. Offered jointly with the School of Nursing. Prerequisites, Speech 332 or equivalent, and background in the health field, and permission.

## RADIO-TELEVISION

(See Communications, page 88.)

## ROMANCE LANGUAGES AND LITERATURE

Executive Officer: HOWARD L. NOSTRAND, 217 Denny Hall

The Department of Romance Languages and Literature offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy.

For undergraduate students, the Department offers an elective curriculum with a major in French, Italian, or Spanish. First and second areas of concentration for the Provisional General Teaching Certificate are offered in French and Spanish. Candidates for the certificate may major in this Department under either the College of Arts and Sciences or the College of Education. Curricula in Latin-American studies and in an area study of France are provided by the Division of General Studies (see page 121).

The Department offers courses in English, which require no knowledge of a

foreign language. These courses (see page 213) are recommended to students in other departments.

The first two high school years of French, Italian, or Spanish correspond to courses 101-102, 103; the third high school year corresponds to courses 201, 202, 203. Students with less than two high school years of study of a Romance language are placed according to the following pattern:

1. With one semester ( $\frac{1}{2}$  unit), a student should enter the most elementary course offered (French, Italian, Spanish 101-, or Spanish 110-), for which he would receive full credit for a beginning college course in a language.
2. With two semesters (1 unit) a student would enter:  
French or Italian -102 ( $2\frac{1}{2}$  credits only will then be counted for this 5-credit course); or with high school grades of A or B, 103;  
Spanish 121-; or with high school grades of A or B, 103 or 112.
3. With three semesters ( $1\frac{1}{2}$  units) a student would enter:  
French or Italian 103;  
Spanish 121-, 103, or 112.

A student with any doubt about placement should consult his adviser or the Department office *before* registering to avoid the possibility of entering a course for which he will not receive credit, or a course he could omit.

Any of the prerequisites for courses in this Department may be waived at the instructor's discretion. Students with A or high B standing are encouraged to skip one or more quarters between 101- and 301.

## BACHELOR OF ARTS

The general requirements for an undergraduate major in a Romance language are proficiency in the language and knowledge of the literature and culture of France, the Hispanic peoples, or Italy, as outlined in syllabi obtainable from the Department.

In all curricula, credits may be arranged for study abroad, preferably during the junior year, subject to the regulations governing transfer credit and provided the student's plan is approved in advance by the Registrar's Office and by the departments in which he is studying. Summer study abroad is encouraged.

The Department recommends that students majoring in a Romance language elect the natural and social science sequences in the General Education program to fulfill the group requirements, and the art and philosophy sequences in that program to acquire a background for literature (see page 118).

**FRENCH MAJOR.** A minimum of 43 credits (or equivalent) in French beyond the level of 103, plus Romance 401. Required are: French 201, 202, and 203 (or a third high school year of French); 301, 302, and 303; 304, 305, and 306; 327 or 328 or 329 or 330; 358; 409; 12 elective credits in literature courses numbered above 400; and some additional directed reading.

**SPANISH MAJOR.** A minimum of 43 credits (or equivalent) in Spanish beyond the level of 103, plus Romance 401. Required are: 201, 202, and 203 (or a third high school year of Spanish); 212; 301, 302, and 303; 304, 305, and 306; 327 or 328 or 329 or 330; 409; 9 elective credits in literature courses numbered above 400; and some additional directed reading.

**ITALIAN MAJOR.** A minimum of 38 credits (or equivalent) in Italian beyond the level of 103, plus Romance 401. Required are: Italian 212, 213, and 214; 421, 422, and 423. Beyond these courses, an individualized program may include supervised study and exercises in the language laboratory.

## ADVANCED DEGREES

The Department offers both the Master of Arts and the Doctor of Philosophy degrees. Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.



## COURSES

(For courses in English translation, see page 213.)

## ROMANCE LINGUISTICS AND LITERATURE, GENERAL AND COMPARATIVE

- 401, 402 Introduction to Romance Linguistics (2,2)** **Dorfman**  
An introduction to basic concepts of general and comparative linguistics and their application to the evolution of the Romance languages. The first quarter is devoted mainly to phonology; the second, to morphology. The courses may be taken in reverse order. Prerequisite, junior standing or the equivalent of one college year of a Romance language or Latin.

## Courses for Graduates Only

- 505, 506, 507 Romance Linguistics (2,2,2)** **Dorfman**  
Principles of comparative linguistics; a brief history of the Romance languages and detailed investigation of their linguistic evolution.
- 521, 522, 523 Phonemic Analysis and Description (2,2,2)** **Dorfman**  
Phonology as functional phonetics; brief history of the phoneme idea; comparison of the variant phonemic systems in the Romance languages and other linguistic structures; functional and structural analysis of linguistic expression.
- 531 Problems in Romance Linguistics (2-5, maximum 10)** **Staff**
- 572J, 573J Romance Language Teachers' Seminar (2½,2½)** **Simpson**  
The teaching of foreign languages. Conducted as a workshop. Opportunity for directed practice teaching of elementary school children. (Offered Summer Quarter only.) Offered jointly with the College of Education.
- 581, 582, 583 Methodology and Bibliography of Research (2,2,2)** **Nostrand, Weiner**  
Bibliographical resources for Romance literatures; recurrent types of research problems and the accumulating methodology; standards of evidence; the evaluation and organization of evidence; the philosophies of literary history and its relation to bibliography and criticism.
- 584, 585, 586 Seminar in Romance Culture (3,3,3)** **Staff**  
Individual and collective research in the evolution of concepts common to Romance literature. Open to graduates of this and other departments.
- 590 Research in Comparative Romance Literature (2-5, maximum 20)** **Staff**
- 599 Research in Romance Linguistics (2-5, maximum 15)** **Staff**
- 700 Thesis (\*)** **Staff**

## CATALAN

## Course for Graduates Only

- 535 Catalan Language and Literature (5)** **Simpson**  
Survey of the political and literary history of Catalonia. Readings and reports on modern Catalan literary works. (Offered when demand is sufficient.)

## FRENCH

- 101-102, 103 Elementary (5-5-5)** **Staff**  
No credit will be granted for 101- until -102 (or a more advanced course as approved by the Department) has been completed satisfactorily. Oral practice in the language laboratory is required of all students in these courses. Prerequisites, for -102, 101- or second high school semester with grade of C or D; for 103, -102 or second high school semester with grade of A or B, or third high school semester or equivalent.  
In addition to the regular courses described above, sections with the *audio-visual* approach will be offered. The description for these sections is as follows: Introduction to the speaking and reading of French emphasizing the oral approach. Color slides are used to link the French words to their meanings as understood by a French person.
- 130 Conversational French (2½-4, maximum 8)** **Hanzeli**  
For participants in the Living-Language Group program only. (Offered Summer Quarter only.) Prerequisite, 103.
- 201, 202, 203 Intermediate (3,3,3)** **Staff**  
Systematic review of grammar. Oral practice. Readings in French literature. Prerequisite for 201, 103 or four high school semesters, or equivalent. Students especially interested in scientific French may do outside reading in their own field as partial fulfillment of the course requirements.
- 209 Introductory Phonetics (2)** **Creore, David**  
Analysis of French sounds, intonation, rhythm. Training in correct and natural pronunciation. Prerequisite, 102.
- 210 Elementary French Conversation (2)** **Staff**  
Training in speaking and understanding the spoken language, through dictation, practice in the language laboratory, drill in speech patterns and dialogue. Prerequisites, 103 or equivalent.
- 301, 302, 303 Advanced Composition (2,2,2)** **David**  
Functional grammar review; written and oral composition. This course is scheduled so that it may be taken concurrently with 304, 305, 306. Prerequisite, 203 or equivalent.

- 304, 305, 306 Survey of French Literature (3,3,3)** Keller, Simpson, Nostrand  
Masterpieces from early times to the present. This course is scheduled so that it may be taken concurrently with 301, 302, 303. Prerequisite, 203 or equivalent.
- 307, 308 Themes (2,2)** Staff  
Writing of original compositions. Prerequisite, 302 or permission.
- 327, 328, 329 Advanced Conversation (2,2,2)** Staff  
Prerequisite, 301 or permission.
- 330 Conversational French (2 1/2-4, maximum 12)** Hanzeli  
For participants in the Living-Language Group program only. (Offered Summer Quarter only.) Prerequisite, 203 or permission.
- 358, 359 Advanced Syntax (2,2)** Chessex  
Syntax from the teacher's standpoint. Should precede Education 329.
- 390 Supervised Study (2-5, maximum 20)** Staff  
Prerequisite, permission of Executive Officer.
- 409 Advanced Phonetics (3)** Creore, David  
Training in diction and oral expression; interpretation of literary texts; phonetics as a teaching device. Prerequisite, 209 or permission of instructor.
- 421, 422, 423 Prose (3,3,3)** Keller, Hanzeli, Simpson  
421: Classical prose. (Offered 1960-61.)  
422: Eighteenth-century prose. (Offered 1961-62.)  
423: Contemporary prose. (Offered 1960-61.)  
Prerequisite, 203 or equivalent.
- 424, 425, 426 Modern Prose Fiction (3,3,3)** Simpson, C. Wilson, Weiner  
424: The novel, 1800-1850. (Offered 1959-60.)  
425: The novel, 1850-1900. (Offered 1960-61.)  
426: The novel, 1900-1950. (Offered 1961-62.)  
Prerequisite, 203 or equivalent.
- 430 Advanced Conversational French (1-3, maximum 6)** Hanzeli  
Continuation of 330. Advanced conversational problems primarily for teachers. For participants in the Living-Language Group program only. (Offered Summer Quarter only.)
- 431, 432, 433 Lyric Poetry (3,3,3)** Creore, Nostrand, Weiner  
431: Renaissance poetry. (Offered 1960-61.)  
432: Romantic poetry. (Offered 1960-61.)  
433: Parnassians, symbolists, and contemporary poetry. (Offered 1961-62.)  
Prerequisite, 203 or equivalent.
- 441, 442, 443 Drama (3,3,3)** Chessex, Creore  
441: Classical tragedy. (Offered 1960-61.)  
442: Romantic drama. (Offered 1961-62.)  
443: Modern drama. (Offered 1960-61.)  
Prerequisite, 203 or equivalent.
- 444, 445, 446 Drama (3,3,3)** Chessex, Hanzeli, Creore  
444: Molière. (Offered 1961-62.)  
445: Eighteenth-century comedy. (Offered 1959-60.)  
446: Modern comedy. (Offered 1960-61.)  
Prerequisite, 203 or equivalent.
- 451, 452, 453 Moralists and Essayists (3,3,3)** Keller, Hanzeli, David  
451: Montaigne. (Offered 1960-61.)  
452: From Montesquieu to Comte. (Offered 1959-60.)  
453: Essayists of the twentieth century. (Offered 1961-62.)  
Prerequisite, 203 or equivalent.

### Courses for Graduates Only

- 105-106 Elementary (5-5)** Staff  
Designed for the rapid acquisition of a reading knowledge of French. No auditors. Prerequisite, graduate standing or permission.
- 207 Readings in the Humanities and Social Sciences (3)** Staff  
Class reading in contemporary French periodicals and books, with individual reading and conferences. No auditors. Prerequisites, -106 and graduate standing, or permission.
- 501 Studies in Renaissance Prose (5)** Keller  
Rabelais and Montaigne. (Offered 1960-61.)
- 502 Studies in Renaissance Poetry (5)** Creore  
The Pléiade. (Offered 1959-60.)
- 504 Contemporary French Literature (5)** David  
Parties and schools of thought after World War I. Special emphasis will be laid on "intelligence" and related concepts such as the "heart" and "honor". (Offered 1960-61.)
- 513 Old French Literature (5)** Simpson  
Literary backgrounds; reading and discussion of selected texts. (Offered when demand is sufficient.)

- 531 Literary Problems (2-5, maximum 20)** **Staff**  
Field (see A-F below) must be specified in registering. For individual conferences under this number (but not for group projects) permission of the Executive Officer is required.  
A. Middle ages D. Eighteenth century  
B. Renaissance E. Nineteenth century  
C. Classic period F. Twentieth century
- 541, 542, 543 History of the French Language (2,2,2)** **Dorfman**  
A survey of the phonological, morphological, and syntactical development of the French language from its origins to the present. (Offered alternate years; offered 1960-61.)
- 571, 572 French Literary Criticism (5,3)** **Weiner, Nostrand**  
Major philosophies of criticism and their exponents. The influences which affected standards, purposes, and methodologies. 571: nineteenth and early twentieth centuries. 572: twentieth century.
- 580 Explication de Texte (3)** **David**  
Close study of short pieces of French prose and poetry. The method consists of a literary analysis of the text from the different viewpoints: biographical, historical, etc. Lectures, discussion, and student *explications*. (Offered 1959-60.)
- 600 Research (2-5, maximum 20)** **Staff**
- 700 Thesis (\*)** **Staff**

## ITALIAN

- 101-102, 103 Elementary (5-5,5)** **Staff**
- 210, 211 Elementary Italian Conversation (2,2)** **Staff**  
Prerequisite, 103 or permission for 210; 210 or permission for 211.
- 212, 213, 214 Readings in Modern Italian Literature (3,3,3)** **Budel**  
Prose and poetry of the nineteenth and twentieth centuries. Oral practice and language laboratory exercises. Functional review of grammar. Prerequisite, 103 or permission.
- 390 Supervised Study (2-5, maximum 20)** **Staff**  
Prerequisite, permission of Executive Officer.
- 421, 422, 423 Survey of Italian Literature (3,3,3)** **Budel**  
From the thirteenth to twentieth century.

## Courses for Graduates Only

- 512, 513 Dante (3,3)** **Budel**  
Dante and the *Dolce stil nuovo*: *La vita nuova*, *Le rime*. The Dante of the *Divina commedia*. Dante's literary aesthetics: *De vulgari eloquentia*, *Il convivio*. (Offered 1960-61.)
- 531 Literary Problems (2-5, maximum 20)** **Budel**  
Field (see A-F below) must be specified in registration. For individual conferences under this number (but not for group projects), permission of the Executive Officer is required.  
A. Middle ages and fourteenth century D. Eighteenth century  
B. Renaissance E. Nineteenth century  
C. Baroque F. Twentieth century
- 541, 542, 543 History of the Italian Language (2,2,2)** **Budel, Dorfman**  
A survey of the phonological, morphological, and syntactical development of the Italian language from its origin to the present. (Offered when demand is sufficient.)
- 551, 552, 553 Seminar in Humanist and Renaissance Prose and Poetry (3,3,3)** **Budel**  
(Offered 1959-60.)  
551: Humanism and Early Renaissance: Petrarca, Boccaccio; Pulci, Poliziano, Lorenzo il Magnifico, Boiardo, Sannazaro, Marsilio Ficino, Pico della Mirandola.  
552: High Renaissance: Castiglione, Ariosto, Machiavelli, Folengo, Bembo, Trissino.  
553: Late Renaissance: Michelangelo, Tasso, Bandello, Pietro Aretino; Renaissance literary theory from Coluccio Salutati to Scaligero.
- 561, 562, 563 Italian Literature of the Nineteenth and Twentieth Centuries (3,3,3)** **Budel**  
(Offered 1960-61.)
- 600 Research (2-5, maximum 20)** **Staff**
- 700 Thesis (\*)** **Staff**

## PORTUGUESE

- 101-102, 103 Elementary (5-5,5)** **C. Wilson**
- 390 Supervised Study (2-5, maximum 20)** **C. Wilson**  
Prerequisite, permission of Executive Officer.
- 541, 542, 543 History of the Portuguese Language (2,2,2)** **Dorfman**  
A survey of the phonological, morphological, and syntactical development of the Portuguese language from its origins to the present. Prerequisite, Romance 401 or equivalent. (Offered 1960-61.)

**PROVENÇAL****Course for Graduates Only**

- 534 Old Provençal (3)**  
(Offered when demand is sufficient.)

**Simpson****RUMANIAN****Courses for Graduates Only**

- 536 Rumanian Language (5)** **Staff**  
Rumanian grammar; readings in the language and lectures on its history. (Offered when demand is sufficient.)

- 537 Rumanian Literature (5)** **Staff**  
History of Rumanian literature from the sixteenth century; the contemporary novel; the poetry of Mihail Eminescu. (Offered when demand is sufficient.)

**SPANISH**

- 101-102, 103 First-Year Speaking Spanish (5-5,5)** **Staff**  
Recommended for prospective majors and minors and those who wish to work toward a speaking knowledge of the language. The methods and objectives are primarily oral-aural. Work for the course includes oral practice in the language laboratory. Prerequisite for -102, 101- or equivalent; for 103, a grade of A, B, C in -102, or A or B in the second high school semester, or any passing grade in the third high school semester. See 121-.

- 110-111, 112 First-Year Reading Spanish (5-5,5)** **Staff**  
A beginning course for nonmajors, in which the acquisition of a reading knowledge is stressed. Prerequisite for -111, 110- or equivalent; for 112, -111, or grade of A or B in the second high school semester, or any passing grade in the third high school semester, or equivalent.

- 121- Basic Grammar Review (5-)** **Staff**  
Refresher course; should be taken instead of 103 by students who received a grade of D in -102, or C or D in the second high school semester. No student may receive credit for both 103 and 121-; nor will credit be granted for 121- until 201 or equivalent has been completed.

- 130 Conversational Spanish (2½-4, maximum 8)** **Ayllon**  
For participants in the Living-Language Group program only. (Offered Summer Quarter only.) Prerequisite, 103.

- 201, 202, 203 Intermediate (3,3,3)** **Staff**  
Modern texts, composition, and functional grammar. Prerequisite for 201, 103, 112 or 121-, or four high school semesters, or equivalent.

- 210, 211 Elementary Spanish Conversation (2,2)** **Staff**  
Prerequisites, 103, 112 or 121-, or equivalent for 210; 210 or permission for 211.

- 212, 213, 214 Modern Readings (2,2,2)** **Staff**  
Reading for the acquisition of an extensive vocabulary. Prerequisite, 203 or permission.

- 301, 302, 303 Advanced Composition and Conversation (3,3,3)** **Staff**  
Prerequisite, 203 or equivalent.

- 304, 305, 306 Survey of Spanish Literature (3,3,3)** **Staff**  
From early times to the present. Prerequisite, 212 or permission.

- 327, 328, 329 Advanced Conversation (2,2,2)** **Staff**  
Prerequisite, 302 or equivalent, or permission.

- 330 Conversational Spanish (2½-4, maximum 12)** **Ayllon**  
For participants in the Living-Language Group program only. (Offered Summer Quarter only.) Prerequisite, 203 or equivalent.

- 390 Supervised Study (2-5, maximum 20)** **Staff**  
Prerequisite, permission of Executive Officer.

- 409 Phonetics, Pronunciation, Intonation (3)** **Vargas-Baron**  
Analysis of sounds; training in correct and natural pronunciation. Prerequisite, 301 or equivalent.

- 430 Advanced Conversational Spanish (1-3, maximum 6)** **Ayllon**  
Continuation of 330. Advanced conversational problems primarily for teachers. For participants in the Living-Language Group program only. (Offered Summer Quarter only.)

- 441, 442, 443 Drama (3,3,3)** **W. Wilson, McDonald**  
Historical development of the drama in Spain from its beginnings down to the present time. Selected texts; collateral reading and reports. (Offered 1960-61.) Prerequisite, 203 or equivalent.

- 451, 452, 453 Spanish Literature Since 1700 (3,3,3)** **McDonald**  
(Offered alternate years; offered 1959-60.) Prerequisite, 203 or equivalent.

- 461, 462, 463 Spanish Literature of the Golden Era (3,3,3)** **W. Wilson**  
Poetry, drama, historical narrative, prose fiction. (Offered alternate years; offered 1960-61.) Prerequisite, 203 or equivalent.

- 471 Individual Spanish Authors (3)** **Staff**  
This course is devoted to one representative Spanish author of any period, according to the needs of the students. (Offered when demand is sufficient.) Prerequisite, 203 or equivalent.
- 481, 482, 483 Spanish-American Literature (3,3,3)** **Vargas-Baron, Alcala**  
General survey of the literature of Spanish America.  
481: The colonial period and early years of independence.  
482: The middle years of the nineteenth century.  
483: The twentieth century.  
(Offered alternate years; offered 1959-60.) Prerequisite, 203 or equivalent.
- 485 Romanticism, Realism, and Naturalism in Spanish America (3)** **Vargas-Baron**  
A study of leading Romantic and Costumbrista authors (1810-1890). (Offered alternate years; offered 1960-61.) Prerequisite, 203 or equivalent.
- 486 The Modernista Movement in Spanish-American Literature (3)** **Vargas-Baron**  
A study of the leading poets, essayists, and novelists of South America (1890-1920). (Offered alternate years; offered 1960-61.)
- 487 The Contemporary Spanish-American Novel (3)** **Vargas-Baron**  
(Offered alternate years; offered 1961-62.)

### Courses for Graduates Only

- 511 The Poema de Mio Cid (3)** **Sousa**  
(Offered alternate years; offered 1961-62.)
- 512 Epic Poetry (3)** **Sousa**  
The epic material in old Spanish literature and its later treatment in poetry and drama. Special investigations and reports. (Offered alternate years; offered 1961-62.)
- 513 The Spanish Ballad (3)** **Ayllon**  
The origin and evolution of the Spanish ballad. (Offered alternate years; offered 1960-61.)
- 515 The Contemporary Spanish-American Short Story (3)** **Alcala**  
Leading short story writers in Spanish America. (Offered 1960-61.)
- 521 The Renaissance in Spain (5)** **Ayllon**  
(Offered alternate years; offered 1960-61.)
- 531 Literary Problems (2-5, maximum 20)** **Staff**  
Field (see A-H below) must be specified in registering. For individual conferences under this number (but not for group projects) permission of the Executive Officer is required. Maximum credit to be 5 in any one subdivision.  
A. Middle ages  
B. Renaissance  
C. Golden age  
D. Eighteenth century  
E. Nineteenth century  
F. Twentieth century  
G. Spanish colonial literature  
H. Latin America
- 541, 542, 543 History of the Spanish Language (2,2,2)** **Sousa**  
A survey of the phonological, morphological, and syntactical development of the Spanish language from its origins to the present. (Offered 1959-60.)
- 571 The Modern Essay (3)** **Vargas-Baron, Alcala**  
Leading essayists of Spain and Spanish America. (Offered 1960-61.)
- 572 Modern Poetry (3)** **Vargas-Baron, Alcala**  
Romanticism and later movements in Spanish and Spanish-American poetry. (Offered 1960-61.)
- 600 Research (2-5, maximum 20)** **Staff**
- 700 Thesis (\*)** **Staff**

### COURSES IN ENGLISH TRANSLATION

#### FRENCH

- 319 Nineteenth-Century Novel in English (3)** **Keller**
- 320 Contemporary Novel in English (3)** **Woiner**
- 416 Rabelais and Montaigne in English (3)** **Keller**
- 417 Racine and Moliere in English (3)** **Chessex**
- 418 Literature of the Enlightenment in English (3)** **Hanzeli**  
Voltaire, Rousseau, Diderot.

#### ITALIAN

- 318 Italian Literature in English (5)** **Budel**
- 384 Renaissance Literature of Italy in English (2)** **Budel**  
Lectures and collateral reading. May be counted as an elective in an English major or minor.
- 481, 482 Dante in English (2,2)** **Budel**  
May be counted as an elective in an English major or minor.

## ROMANCE LITERATURE

- 460 The Literature of the Renaissance in English (5)** **Keller**  
The place of the Renaissance in the formation of modern attitudes and values. The principal intellectual trends are studied through the literature, particularly the writings of Erasmus, Castiglione, Vives, Rabelais, Montaigne, and Bacon.

## SPANISH

- 315 Latin-American Authors in English (5)** **Vargas-Baron**  
An approach to Latin-American civilization and its characteristic values, through lectures and the reading and discussion of several outstanding literary works in translation.
- 318 Don Quijote in English (3)** **McDonald**
- 345 Spanish Literature of the Renaissance in English (3)** **Ayllon**  
A study of prose and poetry in Spain during the Renaissance which emphasizes the picaresque novel, the theatre, and the secular and religious poets.
- 420 Contemporary Spanish Essay and Drama in English (3)** **Alcala**  
Contemporary Spanish essay and drama: Unamuno, Ortega, and Lorca, their critique of modern culture; Existentialist anticipations; mass man and dehumanized art.

## SCANDINAVIAN LANGUAGES AND LITERATURE

**Executive Officer: SVERRE ARESTAD, 215 Denny Hall**

The Department of Scandinavian Languages and Literature offers courses leading to the degrees of Bachelor of Arts and Master of Arts. For undergraduate students, it offers an elective curriculum with a major in Norwegian or Swedish, as well as courses in Danish and literature courses in English.

In all Scandinavian languages, courses 101-102 and 103 may be taken with 104-105 and 106 to make 5-credit courses.

## BACHELOR OF ARTS

At least 36 credits in the major language are required, of which 15 must be in upper-division courses.

**NORWEGIAN MAJOR.** Required courses are: Norwegian 101-102, 103, 104-105, 106, 220, 221, 222, 300, 301, 302, 450, and 490. Other courses may be substituted with the approval of the adviser.

**SWEDISH MAJOR.** Required courses are: Swedish 101-102, 103, 104-105, 106, 220, 221, 222, 300, 301, 302, 409, 450, and 490. Other courses may be substituted with the approval of the adviser.

## MASTER OF ARTS

Students who intend to work toward this advanced degree must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. To meet the language requirement, French or German is recommended. Candidates must obtain 20 credits in courses numbered 500 and above.

## COURSES FOR UNDERGRADUATES

## DANISH

- 101-102, 103 Elementary Danish (3-3,3)** **Staff**  
Fundamentals of oral and written Danish.
- 104-105, 106 Danish Reading (2-2,2)** **Staff**  
Should accompany 101-102, 103.
- 220, 221, 222 Introduction to Danish Literature (2,2,2)** **Arestad**  
Modern drama and prose fiction. Prerequisite, -102 or equivalent.
- 300, 301, 302 Modern Danish Literature (3,3,3)** **Arestad**  
Reading of representative works from nineteenth- and twentieth-century Danish literature. Prerequisite, 222 or equivalent.
- 490 Supervised Reading (\*, maximum 5)** **Arestad**  
Prerequisite, permission.

## NORWEGIAN

- 101-102, 103 Elementary Norwegian (3-3,3)** Arestad, Staff  
Fundamentals of oral and written Norwegian.
- 104-105, 106 Norwegian Reading (2-2,2)** Staff  
Should accompany 101-102, 103.
- 220, 221, 222 Introduction to Norwegian Literature (2,2,2)** Arestad  
Modern drama and prose fiction. Prerequisite, -102 or equivalent.
- 223, 224, 225 Conversational Norwegian (2,2,2)** Staff  
Prerequisite, -102 or equivalent.
- 226, 227, 228 Norwegian Composition (1,1,1)** Staff  
Prerequisite, -102 or equivalent.
- 300, 301, 302 Modern Norwegian Literature (\*, maximum 3, \*, maximum 3, \*, maximum 3)** Arestad  
Reading of representative works of Ibsen, Bjørnson, Lie, Garborg, Hamsun, Undset, Bojer, Dunn, and others. Prerequisite, 222 or equivalent.
- 303, 304, 305 Advanced Conversational Norwegian (2,2,2)** Staff  
Prerequisite, 225 or equivalent.
- 306, 307, 308 Advanced Norwegian Composition (1,1,1)** Staff  
Prerequisite, 228 or equivalent.
- 450 History of Norwegian Literature (3)** Arestad  
Prerequisite, 222 or equivalent.
- 490 Supervised Reading (\*, maximum 5)** Arestad  
Prerequisite, 302 or permission.

## SWEDISH

- 101-102, 103 Elementary Swedish (3-3,3)** Johnson, Staff  
Fundamentals of oral and written Swedish.
- 104-105, 106 Swedish Reading (2-2,2)** Staff  
Should accompany 101-102, 103.
- 220, 221, 222 Introduction to Swedish Literature (2,2,2)** Johnson  
Modern Swedish drama and prose fiction. Prerequisite, -102 or equivalent.
- 223, 224, 225 Conversational Swedish (2,2,2)** Staff  
Prerequisite, -102 or equivalent.
- 226, 227, 228 Swedish Composition (1,1,1)** Staff  
Prerequisite, -102 or equivalent.
- 300, 301, 302 Modern Swedish Literature (2,2,2)** Johnson  
Representative works of Strindberg, Fröding, Heidenstam, Lagerlöf, Söderberg, Lagerkvist, Moberg, and other recent and contemporary writers. Prerequisite, 222 or equivalent.
- 303, 304, 305 Advanced Conversational Swedish (2,2,2)** Staff  
Prerequisite, 225 or equivalent.
- 306, 307, 308 Advanced Swedish Composition (1,1,1)** Staff  
Prerequisite, 228 or equivalent.
- 409 Recent Swedish Literature (3)** Johnson  
Drama, poetry, prose fiction. Prerequisite, 302 or equivalent.
- 450 History of Swedish Literature (3)** Johnson  
Prerequisite, 222 or equivalent.
- 455 History of the Swedish Language (3)** Johnson  
Prerequisite, 222 or equivalent.
- 490 Supervised Reading (\*, maximum 6)** Johnson  
Prerequisite, permission.

## SCANDINAVIAN COURSES IN ENGLISH

- 230 Scandinavian Culture and Institutions (2)** Arestad
- 299 Outline of Modern Scandinavian Culture (1)** Arestad  
(Offered 1959-60.)
- 309, 310, 311 The Scandinavian Novel in English (2,2,2)** Arestad, Johnson  
From the sagas through representative novels of Strindberg, Jacobsen, Hamsun, Lagerlöf, Nexö, Undset, Dunn, Gunnarsson, and Laxness.
- 382 Twentieth-Century Scandinavian Drama in English (2)** Johnson  
Outstanding twentieth-century plays, with introductory consideration of Ibsen and Strindberg.
- 480 Ibsen and His Major Plays in English (2)** Arestad
- 481 Strindberg and His Major Plays in English (2)** Johnson

## COURSES FOR GRADUATES ONLY

500, 501, 502 Old Icelandic (2,2,2)	Johnson
507 Ibsen (*, maximum 5)	Arestad
508 The Scandinavian Novel (*, maximum 5)	Arestad
510, 511, 512 Strindberg (2,2,2)	Johnson
515 Modern Danish and Norwegian Poetry (3)	Arestad
516 Modern Danish and Norwegian Drama (3)	Arestad
517 Modern Swedish Poetry (3)	Johnson
518 The Swedish Novel (3)	Johnson
700 Thesis (*)	Staff

## SOCIAL WORK, PREPROFESSIONAL PROGRAM

Adviser: **RICHARD G. LAWRENCE, 103 Social Work Hall**

A major leading to the Bachelor of Arts degree in the field of social welfare is available through the Division of General Studies, College of Arts and Sciences (see page 121).

Seniors planning to prepare for professional social work should make application to the School of Social Work early in the Winter Quarter preceding the Autumn Quarter in which they wish to begin their graduate education. See *School of Social Work Bulletin* for a complete description of professional courses and admission requirements.

## COURSES FOR UNDERGRADUATES

- 300 Survey of Social Service Programs (3)** **Lawrence, Mundt, Staff Lecturers**  
A survey of social service programs in the United States. Exploration of principles and practices in the use of these programs to meet human needs.
- 400 Field of Social Welfare (5)** **Lawrence**  
The origin, development, and present status of social service programs, with particular emphasis on the relationship of program resources, human needs, and the methods through which services are provided.
- 401 Principles of Interviewing (2)** **Mundt, Reiss**  
The interview as a basic method of helping people. Analysis of interviews from case records, with the objectives of identifying the processes and techniques of skillful interviewing; ways in which the purpose and setting of the interview influences its nature and course.

## SOCIOLOGY

Executive Officer: **ROBERT E. L. FARIS, 108A Smith Hall**

The Department of Sociology offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. In addition, it offers first and second teaching areas for students in the College of Education.

The Washington Public Opinion Laboratory and the Office of Population Research are both part of the Department of Sociology. The Public Opinion Laboratory is available to graduate students and faculty. Its projects are primarily in long-term basic research. Faculty advisers from various sections of the University participate in these projects. The Office of Population Research has been designed to expand the research and student-training programs in the fields of demography and human ecology as well as to carry on basic research. As a part of the training program, laboratory facilities and research fellowships are available to qualified students.

The Department cooperates with other departments and schools in a program leading to the degree of Master of Arts in Urban Planning (see the *Graduate School Bulletin*).



## BACHELOR OF ARTS

In this elective curriculum, at least 40 credits in sociology are required. Courses must include: Sociology 110 or 310, 223, 230 or 430 or 331, 240, and 352 or 450. Students should choose sociology electives from among the following fields of specialization: sociological theory; research methods and social statistics; ecology and demography; social interaction; social institutions; social organization; and social disorganization.

A 2.00 grade-point average in sociology courses is required for graduation in this curriculum.

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. The Department of Sociology requires all graduate students to complete undergraduate requirements for a major in sociology before becoming candidates for these degrees. Students whose undergraduate work in sociology seems inadequate may be required to pass a qualifying examination before being admitted to graduate courses.

Requirements for both advanced degrees include work in some of these fields of specialization: sociological theory; research methods and social statistics; ecology and demography; social interaction; social institutions; social organization; and social disorganization.

**MASTER OF ARTS.** Candidates must complete an approved program in advanced sociology courses and a minor in a related field or a program of related courses. At least 9 of the sociology credits must be in courses numbered 500 and above. A reading knowledge of a foreign language is required. Candidates must take a final examination in two fields of sociology and a separate examination in the minor given by the department in which the minor courses are taken. The master's thesis must be submitted seven weeks before the degree is to be granted.

**DOCTOR OF PHILOSOPHY.** Candidates must complete a program of courses approved by the Department. Half of the credits, including the thesis, must be in courses numbered 500 and above. The residence requirement is three years, two of them at the University of Washington. One of the two years must be spent in continuous full-time residence.

A reading knowledge of two foreign languages is required.

A completed thesis must be submitted seven weeks before the degree is conferred.

A general, written examination will cover four fields of specialization, one of which must be research methods and social statistics. A minor sequence or a program of related courses in addition to the fields, is also required.

A final oral examination is given on the completion of all requirements, including the thesis.

## COURSES FOR UNDERGRADUATES

- |            |   |                                  |
|------------|---|----------------------------------|
| <b>110</b> | <b>Survey of Sociology (5)</b><br>Basic principles of social relationships. Primarily for freshmen and sophomores. Not open to students who have taken 310.   | <b>Larsen, Staff</b>             |
| <b>223</b> | <b>Social Statistics (5)</b><br>Methods and sources for quantitative investigation. Prerequisite, 110 or 310.   | <b>Miyamoto, Costner, Watson</b> |
| <b>230</b> | <b>Introduction to Human Ecology (5)</b><br>Factors and forces which determine the distribution of people and institutions. Primarily for freshmen and sophomores. Not open to students who have taken 430. Prerequisite, 110 or 310. | <b>Cohen, Schmid, Watson</b>     |
| <b>240</b> | <b>Group Behavior (5)</b><br>Socialization of the individual; social processes; and interactions of persons in groups. Prerequisites, 110 or 310, and Psychology 100.   | <b>Miyamoto</b>                  |

- 270 Survey of Contemporary Social Problems (5)** **Staff**  
Analysis of the processes of social and personal disorganization and reorganization in relation to poverty, crime, suicide, family disorganization, mental disorders, and similar social problems. Prerequisite, 110 or 310.
- 310 General Sociology (5)** **Larsen, Staff**  
Major concepts and the scientific point of view in dealing with social phenomena. Primarily for juniors and seniors. Not open to students who have taken 110.
- 331 Population Problems (5)** **Watson**  
Major quantitative and qualitative problems of population in contemporary society. Prerequisite, 110 or 310.
- 352 The Family (5)** **Staff**  
The family as a social institution; personality development within the family; marriage adjustment; changing family patterns; disorganization and reorganization. Prerequisite, 110 or 310.
- 362 Race Relations (5)** **Barth**  
Interracial contacts and conflicts. Prerequisite, 110 or 310.
- 365 Urban Community (5)** **Cohen**  
Comparative and analytic study of organization and activities of urban groups. Prerequisite, 110 or 310.
- 371 Criminology (5)** **Hayner, Schrag**  
Factors associated with crime and delinquency. Criminological theories. Survey of correctional facilities and programs. Visits to agencies and institutions. Prerequisite, 110 or 310.
- 389 Reading in Selected Fields (2-5, maximum 15)** **Staff**  
Open only to qualified undergraduate students by permission.
- 410 History of Sociological Thought (5)** **Catton**  
Contributions of individual theorists (from Comte to the present) to a coherent body of testable hypotheses; emphasis on cumulative development of concepts and principles, emergence of sociology as a science, probable future developments. Prerequisite, 110 or 310.
- 411, 412, 413 Systematic Sociology (3,3,3)** **Dodd**  
Prerequisite, permission.
- 414 Sociological Theory (5)** **Lundberg**  
Modern scientific theory applied to social behavior; sociology as a natural science. Prerequisite, 20 credits in social science.
- 415 Theory of Social Organization (5)** **Catton**  
Prerequisite, 110 or 310.
- 420 Methods of Sociological Research (5)** **Faris**  
A general survey of the principal methods of research used in sociology, and of special issues and problems in methodology. Prerequisite, 223 or equivalent.
- 421 Methodology: Case Studies and Interviewing (3)** **Larsen**  
Prerequisites, 223 and 420.
- 423 Advanced Social Statistics (5)** **Costner**  
Application of statistical methods to the analysis of sociological data. Prerequisite, 223.
- 425J Graphic Techniques in the Social Sciences (5)** **Schmid**  
Theory and practice of presenting statistical data in graphic form. Construction of bar, line, pictorial, and other types of charts and graphs, and areal distribution maps, etc., used for research and publicity purposes in sociology, geography, economics, education, and community planning. Offered jointly with the Department of Geography. Prerequisite, 223 or approved equivalent.
- 426 Methodology: Quantitative Techniques in Sociology (3)** **Costner**  
Measures of relationships among variables and among attributes; calculation techniques; application to typical sociological problems; interpretation. Prerequisites, 223 and 423, or equivalents.
- 427 Statistical Classification and Measurement (3)** **Costner**  
Application of statistical principles and methods to problems of classification and measurement in social research. Prerequisite, 423 or equivalent.
- 428-429 Sampling and Experimentation (3-3)** **Costner**  
Application of statistical principles and methods to problems of sampling and experimentation in social research. Prerequisite, 423 or equivalent.
- 430 Human Ecology (5)** **Cohen, Schmid**  
Factors and forces which determine the distribution of people and institutions. Primarily for juniors and seniors. Not open to students who have taken 230. Prerequisite, 110 or 310.
- 440 Primary Interaction and Personal Behavior (5)** **Faris**  
Social sources of cooperative motives; social basis of the self; nature of primary groups; institutional roles; exceptional and unconventional roles; methodology. Prerequisite, 240 or equivalent.
- 442 Public Opinion (3)** **Larsen**  
The nature of public opinion; formation and measurement of public opinion; the operation of public opinion polls. Prerequisite, 240 or equivalent.

- 443 Mass Communication (3)** **Larsen**  
Control, structure, and functioning of mass media of communications as a force in social life; methods of research. Prerequisite, 240 or equivalent.
- 445 Social Movements (3)** **Miyamoto**  
Social movements as collective enterprises to establish new social orders; types, formation, and organization of movements. Prerequisite, 240 or equivalent.
- 447 Social Control (5)** **Lundberg**
- 448 Sociometric Analysis and Group Structure (5)** **Schrag**  
Analysis of the theory and techniques used in the description and experimental investigation of group structure and process. Study of formation, organization, cohesion, and disorganization of social groups through sociometric techniques. Prerequisites, 223, 240, and senior standing.
- 450 Contemporary American Institutions (5)** **Wager**  
Origins and developments of major social institutions. Sociology of economic structure, political organization, religion, education, recreation, and other institutionalized patterns. Prerequisite, 110 or 310.
- 451 Social Change and Trends (5)** **Wager**  
Forces causing social change; basic trends in American life. Prerequisite, 15 credits in social science.
- 453 Social Factors in Marriage (3)** **Leik**  
Review and analysis of empirical research in courtship and marriage, marital adjustment, and specific areas of marriage and family life. Prerequisites, 223 and 352.
- 455 Housing in the American Community (5)** **Cohen**
- 458 Institutional Forms and Processes (5)** **Faris**  
The process of institutionalization and the general nature of institutions; relationship of institutions to persons; institutions and social control; social change and institutional disorganization. Prerequisite, 110 or 310 and upper-division standing.
- 460 Social Differentiation (5)** **Barth**  
Analysis of societal organization based on sex, age, residence, occupation, community, class, caste, and race. Prerequisite, 110 or 310.
- 463 American Negro Community (3)** **Barth**  
Internal structure of class and caste patterns; resultant personality and institutional development. Prerequisite, 110 or 310.
- 466 Industrial Sociology (5)** **Wager**  
Analysis of work plants such as factory, office, and store; work group processes and applied problems. Prerequisite, 110 or 310.
- 467 Industry and the Community (3)** **Wager**  
Nature of the economy. Theories of industry-community relations. Varieties and types of relations between industry and community. Process of power. Impact of technological change. Levels of worker participation in the community. Integration of industry and other communal institutions. Prerequisite, 110 or 310.
- 468 Sociology of Occupations and Professions (5)** **Wager**  
Frameworks for study of occupations and professions; occupational structure and mobility in American society and relation to adult socialization and career development; occupational and professional associations and society. Prerequisites, 240 and 15 hours of social science.
- 472 Juvenile Delinquency (5)** **Hayner, Schrag**  
Factors in delinquency. Juvenile courts, detention, probation. Programs of treatment and prevention. Volunteer services. Prerequisite, 371 or equivalent.
- 473 Corrections (5)** **Hayner, Schrag**  
Social control of crime. Police, courts, institutions and correctional agencies for adult offenders. Individual and group therapies. Captive communities. Prerequisite, 371 or equivalent.
- 474 Probation and Parole (3)** **Hayner**  
Probation and parole systems. Roles of judges, parole board members, and professional personnel. Criteria for parole selection. Attitudes toward probationers and parolees. Prerequisite, 473 or equivalent.
- 499 Undergraduate Research (2-5, maximum 15)** **Staff**  
Open only to qualified undergraduate students by consent of instructor.

## COURSES FOR GRADUATES ONLY

- N510, N511, N512 Departmental Seminar (0,0,0)** **Staff**  
Monthly meetings with reports on independent research by graduate students and staff members.
- 521, 522, 523 Seminar in Methods of Sociological Research (3,3,3)** **Lundberg**  
Prerequisites, 223, 414, and 420, or equivalents.
- 528 Seminar in Selected Statistical Problems in Social Research (3)** **Staff**  
Prerequisite, 426.
- 530 Advanced Human Ecology (3)** **Schmid**  
Prerequisites, 230 or 430, and 15 credits in social science.

- 531 Demography (3)** **Schmid**  
Research problems in population and vital statistics. Prerequisites, 331 and 15 credits in social science or permission.
- 540 Seminar in Social Interaction (3)** **Miyamoto**  
Evaluation of studies in social interaction. Analyzes types of interaction, interaction models, and such major variables as roles, self-conception, and the influence of norms. Prerequisite, 440 or equivalent.
- 541 Seminar on Small Group Research (3)** **Miyamoto**  
Theories, methodology, and studies in the area of small group research. Covers such topics as interaction channels, group cohesion, group locomotion, and consensus in groups. Prerequisite, permission.
- 543 Communications Seminar (3)** **Larsen**  
Sociological research in mass communication. Emphasis on the role of groups in providing norms and networks in the flow of information and influence from the mass media. Prerequisite, 443 or equivalent.
- 550, 551, 552 Marriage and the Family (3,3,3)** **Leik**  
Analysis of marriage and family patterns and problems, with initial emphasis on research findings and methods. Individual research on selected projects. Prerequisite, 352 or equivalent.
- 566, 567 Industrial Sociology Seminar (3,3)** **Wager**  
Research training in industrial sociology. Readings and field projects. Prerequisite, 466 or equivalent.
- 571 Correctional Communities (3)** **Hayner**  
Prerequisite, 371 or equivalent.
- 572 Analysis of Criminal Careers (3)** **Hayner**  
Personal and social factors in criminal maturation and reformation. Prerequisite, 371 or equivalent.
- 573 Crime Prevention (3)** **Hayner**  
Prerequisite, 371 or equivalent.
- 574 Seminar in Methods of Criminological Research (3)** **Schrag**  
Provides training in the technical analysis of published research in criminology; designs and processes studies in parole prediction, prediction of prison adjustment, and prediction of treatment effect. Prerequisite, permission.
- 599 Reading in Selected Fields (2-5, maximum 15)** **Staff**  
Open only to qualified graduate students by permission.
- 600 Research (2-5)** **Staff**  
Original field projects carefully planned and adequately reported. Certain projects can be carried on in connection with the Public Opinion Laboratory or the Office of Population Research. Open only to qualified graduate students by permission.
- 700 Thesis (\*)** **Staff**

## SPEECH

**Executive Officer: HORACE G. RAHSKOPF, 209 Parrington Hall**

The Department of Speech offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy. In addition, it offers first and second teaching areas and a basic academic field for students in the College of Education.

The main purposes of the Department are to improve the use of speech for individual, social, and professional purposes and to provide a broad understanding of the nature of speech. In addition to courses which give basic general training and an over-all view of the field, the work is organized in the following areas: voice and phonetics, public address, argument and discussion, oral interpretation of literature, teaching of speech, radio-TV speech, speech correction, and hearing.

Related courses are given in many other parts of the University. Courses in drama, communications, education, English, biology, philosophy, psychology, and sociology are of particular importance to speech students.

## BACHELOR OF ARTS

In this elective curriculum, at least 40 credits in approved courses are required. These must include: Speech 100, 120, 140, 230, 310, 400, and a minimum of three credits in an approved workshop course in public performance or clinical practice such as 339, 349, 474, or 484. The student must pass proficiency tests in speaking and oral reading. In addition, he will elect certain of his courses in

humanities, social sciences, and sciences with approval of the Department. During the junior and senior years, he may specialize in one or more of the areas of speech study. A grade-point average of 2.20 is required for entrance to a major in the Department of Speech, and students majoring in speech are required to maintain a grade-point average of 2.50 in all speech courses.

## ADVANCED DEGREES

Students who intend to work toward an advanced degree in speech must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin* and present a background of undergraduate study acceptable to the Department.

**MASTER OF ARTS.** Candidates must complete 36 credits of approved course work of which 12 credits should be in a minor or supporting courses from closely related areas. Thesis research may be in any subdivision of the field.

**DOCTOR OF PHILOSOPHY.** Two major areas of concentration are available: (1) public address and rhetoric including argumentation and discussion, and (2) speech correction and hearing including experimental phonetics.

## COURSES FOR UNDERGRADUATES

### GENERAL

- 100 Basic Speech Improvement (5)** **LaRusso in Charge**  
Training in the fundamentals of good speech, such as orderly thinking, emotional adjustment, adequate voice, distinct articulation, and effective oral use of language. Speech as man's primary means of communication, with emphasis on the more informal uses of speech in daily life. Frequent conferences with instructor.
- 400 Backgrounds in Speech (5)** **Nilsen, Rahskopf**  
The nature of speech as an activity of daily life and as a field of study.
- 499 Undergraduate Research (2-5)** **Staff**  
Prerequisite, permission. Field must be indicated in registration.  
A. Voice and phonetics  
B. Public address  
C. Oral interpretation  
D. Radio-TV speech  
E. Speech correction and hearing

### VOICE AND PHONETICS

- 110 Voice Improvement (2)** **Tiffany in Charge**  
Study and application of principles basic to good voice quality, vocal variety, and the effective use of the voice in reading and speaking. Group and individual listening and speaking projects make use of laboratory and recording facilities. Two class meetings and one laboratory hour per week.
- 111 Articulation Improvement (2)** **Tiffany in Charge**  
Introductory study of the sounds of American English and application of this study to individual problems in articulation and pronunciation. Analysis and correction of dialect and substandard speech patterns. Group and individual listening and speech projects with laboratory and recording facilities. Two class meetings and one laboratory hour per week.
- 211 Phonetics (3)** **Tiffany**  
The use of the phonetic alphabet as a tool in speech improvement and language learning. Emphasis on ear training.
- 310 Voice Science (5)** **Tiffany**  
Study of the basic speech mechanism in action, and description of speech sounds. Emphasis is placed upon articulatory phonetics with a brief introduction to acoustic phonetics.
- 411 Anatomy of the Vocal Organs and Ear (5)** **Palmer**  
Structure and function of the organs concerned with phonation, articulation, and hearing. Not open to students who have credit for 495. Prerequisite, 5 credits in anatomy, physiology, or zoology, or permission.
- 415 Advanced Voice and Phonetics (5)** **Tiffany**  
Detailed description of the sound system of English with particular emphasis on variations of speech sounds in context and applications of acoustic phonetics. Prerequisites, 111, 310 or permission.

### PUBLIC ADDRESS

- 120 Introduction to Public Speaking (5)** **Nilsen in Charge**  
Audience analysis, choice and organization of material, oral style, and delivery. Frequent speeches before the class, followed by conferences with instructor.

- 320 Public Speaking (5)** **Franzke**  
Continuation of 120, with emphasis on organization and delivery. Practice in preparation and presentation of a variety of types of public speeches based on study of their structure and form. Not open to students having taken 220 prior to Autumn Quarter, 1957. Prerequisite, 120 or permission.
- 327 Extempore Speaking (3)** **Franzke**  
Primarily for students in engineering and industrial design. Not open to other students in the College of Arts and Sciences nor to those who have taken 120.
- 420 Advanced Problems in Speaking (5)** **Baskerville**  
Purposes, proof, organization, style, and delivery in public address, with emphasis on the speaker's personal problems. Prerequisite, 120.
- 425, 426 Public Speaking in America (5,5)** **Baskerville**  
Historical and critical study of principal speakers and speeches and of their relationship to American political, social, and intellectual life. 425: revolutionary period to late nineteenth century; 426: late nineteenth century to the present. (Offered alternate years; 425 offered 1960-61; 426 offered 1959-60.)

### ARGUMENT AND DISCUSSION

- 230 Essentials of Argument (5)** **Pence**  
Argument as a technique in the investigation of social problems; evidence, proof, refutation, persuasion; training in argumentative speaking.
- 235 Parliamentary Procedure (3)** **Franzke**  
Methods of organizing and conducting public meetings, based on *Robert's Rules of Order*.
- 332 Principles of Group Discussion (3 or 5)** **Crowell, Nilsen**  
Discussion as an everyday community activity, with emphasis on the informal cooperative problem-solving methods of committee, conference, and round-table groups. Only 3 credits can be obtained through extension; 5 credits in residence. Prerequisite, 100 or 230, or permission.
- 339 Public Discussion Workshop (1-3, maximum 9)** **Strother**  
Discussion of selected public questions before audiences on and off campus. No more than 3 credits may be earned in one year, and these should normally be distributed through at least two consecutive quarters. The student should confer with the workshop director before completing registration. Prerequisite, permission.
- 430 Advanced Argument (5)** **Pence**  
Continuation of 230 with emphasis on audience analysis problems and on advanced forensic theory and practice. Prerequisite, 230 or permission.
- 432 Problems of Discussion Leadership (3)** **Crowell**  
A critical analysis of leadership in committee and conference, with emphasis on the development of speech effectiveness in the cooperative achievement of goals. Prerequisite, 332.
- 436 Methods of Public Discussion (5)** **Franzke**  
Includes practice in the use of the panel, symposium, lecture forum and debate forum. Prerequisite, 120 or 230.

### ORAL INTERPRETATION OF LITERATURE

- 140 Oral Interpretation (5)** **Grimes in Charge**  
Development and use of fundamental techniques for analysis and reading aloud of prose and poetry. (Formerly 240.)
- 340 Oral Interpretation of Prose (3)** **Grimes**  
Development of ability to communicate precise, full meaning of literary prose from the printed page to an audience. Prerequisite, 140.
- 345 Choral Speaking (3)** **Grimes**  
Group speaking as a classroom method in teaching speech and literature; selection and use of prose and poetry materials for group utterance. (Offered alternate years; offered 1960-61.) 140 is recommended.
- 349 Oral Interpretation Workshop (1-3, maximum 9)** **Grimes**  
Selection, integration, and presentation of materials for specific occasions, purposes, and audiences, with performance before audiences on and off campus. No more than 3 credits may be earned in one year and these should normally be distributed through at least two consecutive quarters. The student should confer with the workshop director before completing registration. Prerequisites, 140 and permission.
- 440 Oral Interpretation of Poetry (3)** **Grimes**  
Problems of interpretation pertaining to oral presentation of various types of poetry. Prerequisite, 140 or 340.

### TEACHING OF SPEECH

- 357 Debate and Discussion Problems in High School and College (2½)** **Staff**  
Evaluation of debate and discussion in high school and college and consideration of methods of directing them; specific consideration of debate questions in current use; bibliographies, analyses, and briefs. (Offered Summer Quarter only.)
- 359 Speech in the Classroom (3)** **Nelson**  
The place of speech in education and the use of speech projects in teaching. Primarily for nonmajors and minors. Not open to students who have taken Education 144O.

## RADIO-TV SPEECH

- 260 Radio-TV Speech (3)** **Bird, Hogan**  
The development and practice of speech techniques in radio and television broadcasting. Three lecture and discussion periods and two one-hour laboratory periods each week. Prerequisite, 110 and 111, or permission.
- 361 Advanced Radio-TV Speech (3)** **Bird, Hogan**  
Analysis of audience situations, group discussions, and audience participation programs. Prerequisite, 260 or permission.

## SPEECH CORRECTION

- N79 Speech Clinic (0)** **Palmer**  
Open to any University student with hearing difficulties or speech problems such as stuttering, lisping, or similar defects. Meetings are arranged after interview with the instructor for individual or group instruction.
- 170 Directed Observation—Speech and Hearing Therapy (1)** **Staff**  
For premajors desiring general orientation in speech and hearing therapy.
- 470, 471 Speech Correction (3 or 5, 5)** **Carroll, Hanley**  
Nature, etiology, and therapy of disorders of speech. 470: introduction, developmental, and functional disorders, cleft palate. 471: dysphasia, dysarthria, dysphonia, stuttering. 470 prerequisite for 471 except by permission. Only 3 credits can be obtained through extension; 5 credits in residence in 470.
- 473 Diagnostic Methods in Speech Correction (5)** **Wingate**  
Prerequisite, 471.
- 474 Clinical Practice in Speech Correction (1-5, maximum 15)** **Palmer**  
Total undergraduate credits in 474 and 484 together cannot exceed 20 credits. Prerequisites, 471 and 473, which may be taken concurrently.
- 475 Stuttering (2)** **Wingate**  
Nature, etiology, and treatment of stuttering. Prerequisite, 470 or permission.
- 476 Language Development of the Child (3)** **Wingate**  
Principles of growth and development with emphasis on normal and abnormal speech and language development. (Offered alternate years; offered 1960-61.)
- 478 Interview Techniques for Speech and Hearing Rehabilitation (3)** **Wingate**  
(Offered alternate years; offered 1959-60.)

## HEARING

- 480 Introduction to Hearing (3 or 5)** **Hanley**  
Description of normal audition; elementary structure and function of the hearing mechanism; types of deficient hearing and their effects on speech. Only 3 credits can be obtained through extension; 5 credits in residence.
- 481, 482 Principles and Methods of Aural Rehabilitation (5,5)** **Palmer**  
481: comprehensive study of the principles of aural rehabilitation, with emphasis on the nature of the problems involved and the needs of individuals with hearing loss. 482: continued study of principles with emphasis upon the techniques of speech reading, auditory training, speech therapy for the hard of hearing as well as the instrumentation utilized. Prerequisite, 480. 481 prerequisite for 482 except by permission.
- 484 Clinical Practice in Aural Rehabilitation (1-5, maximum 15)** **Palmer, Staff**  
Total undergraduate credits in 474 and 484 together cannot exceed 20 credits. Prerequisites, 480 and 481.
- 485 Medical Background for Audiology (2)** **Staff**  
Diseases and injuries of the ear resulting in reduced audition. (Offered alternate years; offered 1960-61.)
- 487 Audiometry (3)** **Hanley**  
Theory and practice of audiometry and other methods of measuring hearing. Not open to students who have credit for 489.
- 488 Hearing Aid Evaluation and Selection (2)** **Hanley**  
Types and characteristics of group and individual hearing aids; special tests and fitting procedures. (Offered alternate years; offered 1960-61.) Prerequisite, 487 or permission.

## COURSES FOR GRADUATES ONLY

- N500 Departmental Seminar (0)** **Staff**  
Reports of research by graduate students and staff members.
- 501 Introduction to Graduate Study in Speech (2)** **Crowell**
- 510 Experimental Phonetics (3)** **Tiffany**  
Application of experimental methods to research in voice and phonetics; critical review of research literature. Prerequisite, 415 or permission.
- 521 Studies in Greek and Roman Rhetoric (5)** **Rahskopf**  
Critical analysis of writings on rhetoric by Plato, Aristotle, Cicero, Quintilian, and others.

- 522 Studies in Medieval and Renaissance Rhetoric (5)** **LaRusso**  
A critical analysis of selected persons, works, and topics related to the development of rhetorical theory during the Middle Ages and the Renaissance. (Offered alternate years; offered 1959-60.) Prerequisite, 521.
- 523 Studies in Modern Rhetoric (5)** **Pence**  
Critical analysis of writings on rhetoric by Cox, Wilson, Bacon, Campbell, Blair, Whately, and others. (Offered alternate years; offered 1960-61.) Not open to students who received credit for 522 prior to Spring Quarter, 1957.
- 525 Rhetorical Criticism (3)** **Baskerville**  
The history and method of rhetorical criticism. Application of critical standards to notable British and American speeches. (Offered alternate years; offered 1960-61.) Prerequisite, 425 or 426.
- 529 Seminar in Rhetoric and Public Address (3, maximum 6)** **Staff**  
(Offered alternate years; offered 1959-60.) Prerequisite, permission.
- 530 Experimental Problems in Public Address (3-5)** **Pence**  
Analysis of theoretical considerations in audience and listening behavior; application of measurement techniques. (Offered alternate years; offered 1959-60.) Prerequisites, 430 or equivalent, and permission.
- 540 Studies in Oral Interpretation (3)** **Grimes**  
Critical analysis of writings by Sheridan, Walker, Rush, Delsarte, Bell, Curry, Emerson, and others. (Offered alternate years; offered 1959-60.) Prerequisite, 440.
- 550 Studies in Speech Education (3)** **Nelson**  
Philosophical, curricular, and methodological problems of speech instruction. (Offered alternate years; offered 1960-61.)
- 570, 571, 572, 573 Organic Disorders of Speech (3,3,3,3)** **Carroll**  
Etiology, diagnosis, and therapy. 570: morphogenic disorders, especially cleft palate and dental malocclusions. Not open to students who took 574 prior to Autumn Quarter, 1956. (Offered alternate years; offered 1960-61.) 571: dysarthria, especially cerebral palsy. (Offered alternate years; offered 1959-60.) 572: aphasia. (Offered alternate years; offered 1960-61.) 573: pathologic disorders of voice. (Offered alternate years; offered 1959-60.) Prerequisite for each course, 471 or permission.
- 574 Advanced Clinical Practice in Speech Correction (1-5, maximum 10)** **Palmer**  
Prerequisite, 474
- 575 Seminar in Stuttering Therapy (3)** **Carroll**  
(Offered alternate years; offered 1960-61.) Prerequisite, 475 or permission.
- 578 Psychogenic Factors in Speech and Hearing Disorders (2)** **Wingate**  
Psychogenic factors as etiological agents in speech and hearing disorders. (Offered alternate years; offered 1959-60.) Prerequisite, Psychology 305 or permission.
- 580 Advanced Audiology (5)** **Hanley**  
Methods, techniques, and instruments used in the measurement of auditory function especially as related to perception of speech. Review of research literature. (Offered alternate years; offered 1960-61.) Prerequisite, 480 or permission.
- 584 Advanced Clinical Practice in Aural Rehabilitation (1-5, maximum 10)** **Palmer, Staff**  
Prerequisite, 484.
- 587 Advanced Audiometry (2)** **Hanley**  
Special diagnostic and predictive tests of auditory functions; clinical practice. (Offered alternate years; offered 1959-60.) Prerequisite, 487.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## ZOOLOGY

**Executive Officer: ARTHUR W. MARTIN, 142 Johnson Hall**

The Department of Zoology offers programs leading to the degrees of Bachelor of Arts, Bachelor of Science, Master of Science, and Doctor of Philosophy. Undergraduate students working toward a bachelor's degree are offered two curricula: an elective curriculum, for those who want a broad liberal arts education; and a prescribed curriculum, for those who are preparing for graduate study or a professional career. In conjunction with the Department of Botany, a first teaching area in biology is offered for students in the College of Education, in addition to a second teaching area in zoology.

Biology 101J-102J and Zoology 114, 118, 118L, and 208 are given to meet the needs of other students and will not be counted toward departmental majors. All biology courses except 101J-102J may be used for zoology credit. Fisheries 301 (Anatomy of Fishes), 402 (Economically Important Fishes), and 403 (Identification of Fishes) may be used for zoology credit upon request.



The Department should be notified of intention to take a degree in zoology not later than the end of the junior year.

## BACHELOR OF ARTS

In the elective curriculum, at least 36 credits in zoology are required. Courses must include: Zoology 111, 112, 400, 453-454 or 456, and Biology 451. Additional requirements are: a year of college chemistry; a year of college-grade foreign language; and 15 credits in social science.

## BACHELOR OF SCIENCE

In the prescribed curriculum, at least 45 credits in zoology are required. Courses must include: Zoology 111, 112, 400, 433, 434, 453-454, and 456; Biology 451 (Genetics); Botany 112 (Elementary Botany); a year of college physics; Chemistry 160 (General), 170 (Qualitative Analysis), 231, 232 (Organic Chemistry), 241, 242 (Organic Chemistry Laboratory) and a year of college French or German. The group requirements of the College of Arts and Sciences must also be fulfilled.

A year of college mathematics and a reading knowledge of a second modern foreign language are highly recommended.

Students in this curriculum must present an over-all grade-point average of 2.50 and a 3.00 grade-point average in all courses in zoology.

## ADVANCED DEGREES

Students who intend to work toward the advanced degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

## COURSES FOR UNDERGRADUATES

### BIOLOGY

#### 101J-102J General Biology (5,5)

Staff

Principles of biology applying to all living forms, illustrated by representatives of major plant and animal groups; man's place in nature. Offered jointly with the Department of Botany. Recommended for education students and those not majoring in the biological sciences.

#### 401 Cytology (3)

Hsu

Structure and function of the cell. Prerequisites, Botany 112 or Zoology 112 and permission.

#### 401L Cytology Laboratory (2)

Hsu

Must be accompanied by 401. Prerequisite, permission.

#### 451 Genetics (3 or 5)

Roman

The principles underlying inheritance in animals and plants. Prerequisite, 10 credits in biological science.

#### 452 Cytogenetics (3 or 5)

Roman

Chromosomal behavior in relation to genetics. Prerequisites, 451 and permission.

#### 453 Topics in Genetics (2, maximum 6)

Roman

Current problems and research methods. Prerequisites, 451, organic chemistry, and permission.

#### 454 Evolutionary Mechanisms (3)

Kruckeberg

Mutation, isolation, and natural selection as determinants of evolutionary change; emphasis on plants. (Offered alternate years; offered 1959-60.) Prerequisites, 451 and permission.

#### 472 Principles of Ecology (3)

Edmondson

Population biology, competition, predation, symbiosis, sociality, and relationship of community to environment. Prerequisites, Zoology or Botany 112, and 10 credits of upper-division biological science.

#### 472L Ecology Laboratory (2)

Edmondson

Must be accompanied by 472. Prerequisite, permission.

#### 473 Limnology (5)

Edmondson

Biological, physical, and chemical features of lakes and other inland waters. Prerequisites, Zoology or Botany 112, one year of college chemistry, and upper-division standing.

## ZOOLOGY

- 111, 112 General Zoology (5,5)** **Staff**  
Physical basis of life, structure, function, development, inheritance, evolution, and ecology of animals. 111: invertebrate phyla through molluscs. 112: annelids through chorates; 111 prerequisite for 112.
- 114 Evolution (2)** **Hatch**  
A general survey of the evolution of animals, including man. For nonmajors.
- 118 Survey of Physiology (5)** **Staff**  
Elementary human physiology. For nonmajors.
- 118L Elementary Physiology Laboratory (1)** **Staff**  
Prerequisites, 118 concurrently and permission.
- 204 Forestry Zoology (5)** **Hatch, Richardson**  
Evolution of animals to the level of the arthropods and chordates; emphasis on these as the groups of animals of greatest practical importance in the forest fauna. Prerequisites, Botany 114, 115, and 216.
- 208 Elementary Human Physiology (5)** **Floreys**  
Each organ system is described and its function illustrated in the laboratory. Prerequisite, freshman chemistry.
- 330 Natural History of Marine Invertebrates (5)** **Illg, Ray**  
A field and laboratory course emphasizing the habits, habitats, identification, and inter-relationships of marine animals. Prerequisite, permission.
- 358 Vertebrate Physiology (6)** **Martin**  
Introductory course in vertebrate physiology for majors in biological sciences. Prerequisites, 112 or Biology -102J, and high school or college chemistry.
- 362 Natural History of Vertebrates (5)** **Snyder**  
A field and laboratory course on the natural history of fishes, amphibians, reptiles, birds, and mammals. Prerequisites, 112 or 10 credits in biological sciences and permission.
- 381 Microtechnique (4)** **Hsu**  
Critical evaluation of each step in microslide preparation. Prerequisites, 112 and permission.
- 400 General Physiology (5)** **Floreys**  
Cell environment, metabolism and growth, irritability, general phenomena of organ function. Prerequisites, Chemistry 232, Physics 103 and 109 (or high school physics) and 10 credits in biological sciences.
- 402 History of Zoology (3)** **Hatch**  
Prerequisite, 20 credits in zoology or permission.
- 403 Comparative Vertebrate Histology (5)** **Staff**  
Microscopic anatomy of the tissues and organs of vertebrates. Prerequisite, 112. (Not offered 1960-61.)
- 423 Protozoology (5)** **Osterud**  
Introduction to the biology of the Protozoa, with emphasis on morphology, taxonomy, and life histories of free-living forms. Prerequisite, 112 or permission.
- 432 Marine Invertebrate Zoology (8)** **Staff**  
Morphology and phylogeny of marine invertebrates. (Offered at Friday Harbor Summer Quarter only.) Not open to students who have had 433, 434. Prerequisite, 112.
- 433, 434 Invertebrate Zoology (5,5)** **Illg, Ray**  
Morphology and phylogeny of invertebrates exclusive of terrestrial arthropods. Not open to students who have had 432. Prerequisites, 111 and 112.
- 435 Parasitology (5)** **Osterud**  
A general course covering the principles of parasitism and the major groups of animal parasites. Prerequisite, 112, or permission.
- 444 Entomology (5)** **Hatch**  
Structure, classification, and economic relationships of insects. Prerequisite, 112 or permission.
- 453-454 Comparative Anatomy of Chordates (5-5)** **Snyder**  
Phylogeny of the chordates and evolution of their organ systems. Structural modifications are correlated with function. Prerequisites, 111, 112, and 456, or permission.
- 456 Vertebrate Embryology (5)** **Fernald**  
A descriptive and comparative study of development of chordates. Prerequisite, 112.
- 457 Experimental Morphogenesis (3)** **Fernald**  
An experimental analysis of mechanics of development on the morphological level. Prerequisite, 456.
- 457L Experimental Morphogenesis Laboratory (2)** **Fernald**  
Prerequisite, permission.
- 463 Natural History of Amphibia and Reptiles (5)** **Staff**  
Systematics, distribution, and speciation. Prerequisites, 111 and 112.
- 464 Natural History of Birds (Ornithology) (5)** **Richardson**  
(Offered alternate years; offered 1960-61.) Field glasses furnished. Prerequisites, 111 and 112.

- 465 Natural History of Mammals (5)** **Staff**  
Methods of field observation; classification, behavior, ecology, and speciation. Prerequisites, 111 and 112.
- 475 Vertebrate Zoogeography (3)** **Staff**  
Principles governing animal distribution, morphology, and physiology. Prerequisite, 5 credits in natural history or permission.
- 498 Special Problems in Zoology (1-5, maximum 15)** **Staff**  
Prerequisites, 30 credits in zoology and permission.

## COURSES FOR GRADUATES ONLY

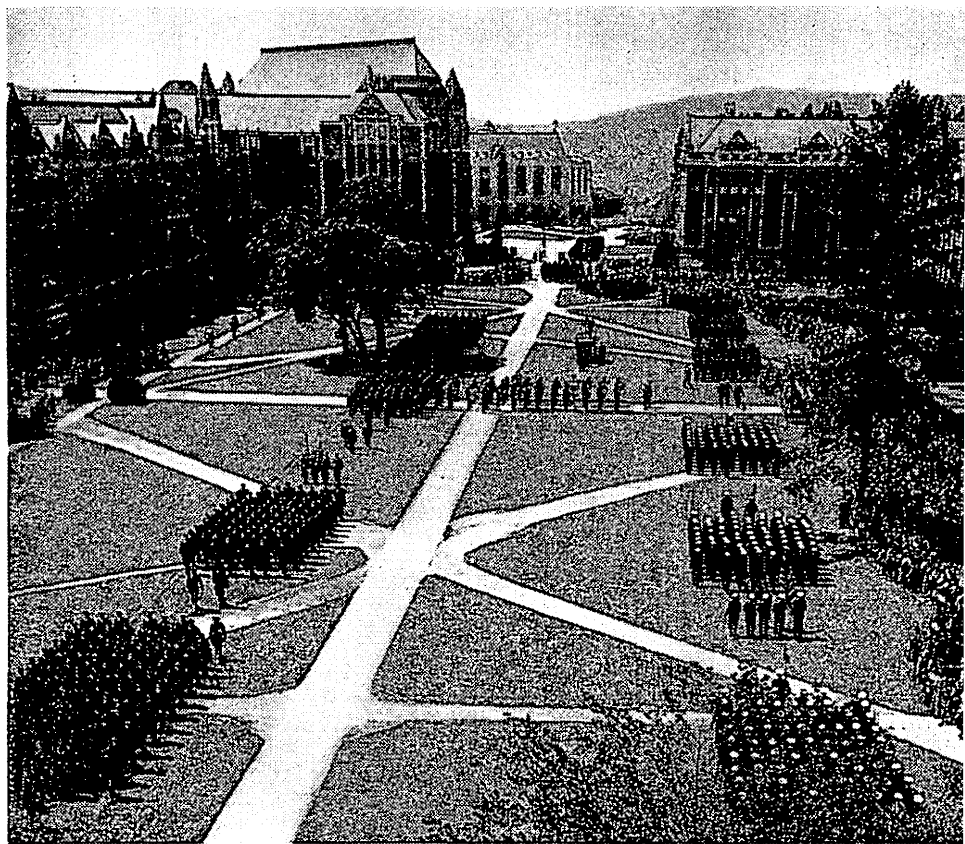
### BIOLOGY

- 501 Advanced Cytology (5)** **Hsu**  
Prerequisite, permission.
- 508 Cellular Physiology (3)** **Whiteley**  
The cell membrane and permeability, cytoplasmic physiology, intracellular energetics and biosynthesis, physiology of cell division, cell movement. Prerequisite, Zoology 400 or permission.
- 508L Cellular Physiology Laboratory (2)** **Whiteley**  
Prerequisite, concurrent registration in Biology 508 or 509, and permission.
- 509 Cellular Physiology (3)** **Whiteley**  
Chemistry and physiology of the interkinetic and dividing nucleus, nucleocytoplasmic interactions, physiology of differentiated cells. Prerequisite, Zoology 400 or permission. (Biology 508 and 509 may be elected separately, or in either sequence.)
- 551 Genetics of Microorganisms (3)** **Roman**  
Prerequisite, 451 or permission.
- 552 Genetics of Microorganisms Laboratory (3)** **Stadler**  
Methods of studying inheritance in fungi, bacteria, and viruses. Prerequisite, 551 or permission.
- 573 Topics in Limnology (2)** **Edmondson**  
Prerequisite, permission. May be repeated for credit.

### ZOOLOGY

- 506 Topics in Experimental Embryology (2, maximum 6)** **Staff**  
Prerequisite, permission.
- 516 Chemical Embryology (3)** **Whiteley**  
Prerequisite, permission.
- 516L Chemical Embryology Laboratory (2)** **Whiteley**  
Must be accompanied by 516.
- 517 Chemical Embryology (3)** **Whiteley**  
Prerequisite, permission.
- 517L Chemical Embryology Laboratory (2)** **Whiteley**  
Must be accompanied by 517.
- 520, 521, 522 Seminar (1,1,1)** **Staff**
- 533 Advanced Invertebrate Zoology (6)** **Staff**  
The rich and varied invertebrate fauna of the San Juan Archipelago is studied, emphasizing systematics and ecology, with opportunity for developing individual research problems. (Offered at Friday Harbor Summer Quarter only.) Prerequisite, 10 credits in invertebrate zoology or equivalent.
- 534 Topics in Advanced Invertebrate Zoology (2)** **Illg**  
Advanced considerations in morphology, ecology, phylogeny of invertebrates; emphasizing current developments. Prerequisites, 434 or equivalent, and permission.
- 536 Advanced Invertebrate Embryology (6)** **Staff**  
Morphological and experimental studies of development of selected types of marine invertebrates. (Offered at Friday Harbor Summer Quarter only.) Prerequisites, 433, 434, and 456.
- 537 Comparative Invertebrate Physiology (3)** **Florey**  
Selected chapters of comparative physiology of nerve, muscle, circulation, respiration, renal function, and hormone action. Prerequisites, 400 and 434 or permission.
- 537L Comparative Invertebrate Physiology Laboratory (2)** **Florey**  
Exercises in kymographic, oscilloscopic and other recording of mechanical, electrical, and metabolic phenomena of invertebrate organ function. Must be accompanied by 537. Prerequisite, permission.
- 538 Advanced Invertebrate Physiology (6)** **Staff**  
Physiological bases of ecology, evolution, and tolerance to stress, as illustrated by many diverse forms. (Offered at Friday Harbor Summer Quarter only.) Prerequisites, chemistry through organic and 10 credits in invertebrate zoology, or equivalent.
- 554 Advanced Vertebrate Morphology (3)** **Snyder**  
Current problems and trends in vertebrate anatomy emphasizing functional relationships. Prerequisites, -454, 456, and permission.

- 558 Comparative Vertebrate Physiology (6)** **Martin**  
Advanced studies with particular reference to cold-blooded vertebrates and to birds. Prerequisite, 400 or equivalent.
- 581 Systematic Zoology (4)** **Illg**  
History, principles, and procedures of zoological taxonomy; review of biological bases of phylogeny; history and principles of zoological nomenclature. Prerequisite, permission.
- 598 Seminar in General and Comparative Physiology (2)** **Floreay**  
Study and discussion of classical and current literature in the field of general and comparative physiology. Prerequisites, 400, 433, 434, and permission.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**



## RESERVE OFFICERS TRAINING PROGRAMS

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# RESERVE OFFICERS TRAINING PROGRAMS

**T**HE DEPARTMENTS of Air Science, Military Science and Tactics, and Naval Science were established under the provisions of the National Defense Act of June 4, 1920, and function under directives from the United States Department of Defense. The Secretaries of the services are responsible for the operation of the ROTC programs. At the University, the programs are coordinated by the office of the Dean of the College of Engineering.

The Departments of Air Science and Military Science and Tactics provide two years of basic military training for male students and an additional two years of advanced training for a selected group of male students. The advanced programs prepare students to receive regular or reserve commissions in the United States Army and Air Force. The Department of Naval Science offers a four-year program which prepares selected male students for regular or reserve commissions in the United States Navy or Marine Corps. Students who take advanced training in the Air Force or Army ROTC program, and students in the Naval ROTC program, must agree in writing to accept a commission, if offered, to serve on active duty, subject to the call of the Secretary of their service, for such period of time as is required by regulations at the time of their commission, and to serve with the reserve forces for the period thereafter, which is required by law.

ROTC courses are included in the freshman and sophomore curricula of all male students (see page 52). The first six quarters of study in either of the three departments satisfy the military training requirements of the University, but students who attain junior or senior standing in the Naval ROTC program, and those who enter the advanced Air Force or Army ROTC program, must complete the program as a condition of graduation unless excused or released by authority of the commander of the service concerned.

## AIR SCIENCE

**Professor of Air Science: Col. WILLIE O. JACKSON, JR., Air Science Building**

Eligibility to enroll in the Basic Course, Air Force Reserve Officers Training Corps, is limited to students who are citizens of the United States and have not yet reached their twenty-third birthday at the time of initial enrollment. Students

enrolled in the Air Force ROTC may be deferred from the draft subject to the approval of the Professor of Air Science.

First-year Air Force ROTC cadets are given an introductory course in Foundations of Air Power, a general survey of air power, designed to provide the student with an understanding of the elements of air power and basic aeronautical science. This sequence of courses requires classroom attendance two hours each week. First-year cadets are also introduced to the principles of leadership and command through practice of basic elements of drill one hour each week. In the second year of the basic program, a year-long survey of the development of aerial warfare, with emphasis on principles of war, concepts of employment of forces, and changing weapon systems is given. Practice in leadership, drill, and exercise of command extends throughout the two years of the basic program and continues two additional years for students in the advanced program.

After completing the basic program, students may apply for entrance to the Advanced Air Force ROTC, which is designed to select and train college men as future Air Force officers. A limited number of outstanding students, including veterans, are selected for the advanced program, and each student selected must:

1. Successfully complete the two-year Basic Air Force ROTC program or, if a veteran, complete as much of the basic program as determined by the Professor of Air Science.
2. Execute a written agreement with the government to complete the advanced program, contingent upon remaining in the University, and to attend a summer training camp at the time specified.
3. Request immediate discharge from any reserve or National Guard organization other than the Air Force Reserve (according to law, discharge from any reserve unit must be granted).
4. Agree to complete all requirements for appointment as a second lieutenant before his twenty-eighth birthday. This age requirement is reduced to twenty-six and one-half years for flying personnel.
5. Successfully complete general survey and screening tests as prescribed.
6. Be selected by the Professor of Air Science and the President of the University.
7. Complete the advanced program as a prerequisite for graduation from the University.

The two-year advanced course requires classroom attendance four hours a week, plus one hour of practice in the leadership laboratory. In the first year of the advanced course, cadets study the knowledge and skills required of a junior officer in the Air Force with special emphasis on staff duties and leadership. This includes Air Force leadership doctrine, staff organization and functions, communicating, instructing, problem solving techniques, leadership principles and practices, and the military justice system. Between the junior and senior years, advanced-course cadets are required to attend a four-week summer camp. During the senior year, cadets participate in a study of global relations of special concern to the Air Force officer with attention to such aspects as weather, navigation, geography, international relations and their service as commissioned officers.

Advanced Air Force ROTC students are paid subsistence allowances of approximately \$27.00 a month. While attending summer camp they are paid at the rate of \$75.00 a month and are furnished travel to and from the camp, subsistence, housing, uniforms, and medical services.

Students in the basic program are furnished complete uniforms of the type worn by Air Force personnel. Students in the advanced program are furnished officers' uniforms which become their personal property when commissioned. They are normally required to wear the uniform on drill days; wearing it to ROTC classes other than drill is optional. The Air Force furnishes all textbooks used in air science courses. At the time of registration each student must make a \$25.00

deposit, which, except for a \$2.50 laundry and cleaning charge to students in the basic program, is refunded when the uniform and textbooks are returned undamaged.

Inquiries about enrollment or other information should be addressed to the Professor of Air Science, Air Science Hall, on the campus.

## COURSES FOR UNDERGRADUATES

### FOUNDATIONS OF AIRPOWER

#### 131, 132, 133 Air Science 1—Basic (2,2,2)

**Staff**

A general survey of air power designed to provide the student with an understanding of the elements and potentials of air power. It includes fundamentals of air power; military air powers of the world; military research and development; air vehicle industries; airlines and airways; leadership laboratory; a general survey of aeronautical science; general aviation; elements of an aircraft; aerodynamics; guidance, control, navigation, propulsion systems; leadership laboratory; a general survey of space flight; military instruments of national security; professional opportunities in the United States Air Force; leadership laboratory.

#### 231, 232, 233 Air Science 2—Basic (2,2,2)

**Staff**

A survey of the development of aerial warfare with emphasis on principles of war, concepts of employment of forces, changing weapon systems. Treatment of aerial warfare is undertaken to include targets, weapons, aircraft, and missiles; bases and facilities, aerial operations. Cadet noncommissioned officer training.

### AIR FORCE OFFICER DEVELOPMENT

#### 301, 302, 303 Air Science 3—Advanced (3,3,3)

**Staff**

Military staff and command organization and functions; communicating and instructing in the Air Force; problem solving techniques as applied to Air Force staff and command functions; basic principles of leadership psychology; problems in leadership and management; military justice; and cadet junior officer training.

#### 304 Air Science 3—Advanced Camp (3)

**Staff**

Four weeks training at an Air Force base; familiarization with the duties and problems encountered by the Air Force junior officer.

#### 491, 492, 493 Air Science 4—Advanced (3,3,3)

**Staff**

Military application of weather and aerial navigation; military aspects of the geography of climate, political geography, and international relations; flying training for pilot candidates; preparation for commissioned service; and cadet senior officer training.

## MILITARY SCIENCE AND TACTICS

**Professor of Military Science and Tactics: Col. CORSTON A. GREENE,  
Army ROTC Building**

The Army Reserve Officers Training Corps was established by agreement between the University and the United States government in conformity with the provisions of Title 10, United States Code, Section 4382. Its purpose is to procure and train college students for qualification, upon graduation, as commissioned officers in the Army of the United States.

Courses in the first and second years constitute the basic program which satisfies the military training requirement for male students. The advanced program consists of courses in the third and fourth years. It is elective and is undertaken by individual contract with the United States Army. The basic course requires classroom attendance two hours each week and drill one hour each week. The advanced course requires classroom attendance four hours each week, drill one hour each week, and a summer camp of six weeks in the Summer Quarter following the junior year. Completion of the advanced course normally leads to a commission as second lieutenant in the United States Army Reserve, and graduates so commissioned discharge their active duty military obligations as officers. Each year a limited number of graduates is commissioned in the Regular Army. These are selected from applicants of high academic standing who demonstrate exceptional qualifications in advanced ROTC training.

A small number of senior cadets is given the opportunity to receive flight training which qualifies them as light aircraft pilots. They receive further training in U.S. Army aviation after graduation and commissioning.



Cadets for the advanced course are selected from applicants who have shown special aptitude during the basic course. In certain cases previous active service in the Army may be substituted for the basic course in qualifying for enrollment in the advanced course. To enroll in the advanced course a cadet must be of such an age that he may qualify for graduation and complete ROTC training before his twenty-eighth birthday. Advanced Army ROTC cadets receive a daily monetary allowance throughout the two years in which they are under contract. The allowance is presently 90 cents per day, but is subject to variation. For the six weeks of summer camp, however, this allowance is suspended and instead cadets receive pay which is equivalent to that of the lowest active army pay.

Cadets of all classes are issued the regulation U.S. Army uniform, with distinctive ROTC insignia, and are required to wear it on drill day each week. Upon registration a deposit of \$25.00 is required for the uniform and other government equipment issued. Upon return of the uniform and other equipment, complete and undamaged, a full refund is made. The Army furnishes all textbooks and equipment needed for military science instruction.

Inquiries about the ROTC should be addressed to the Professor of Military Science and Tactics.

## COURSES FOR UNDERGRADUATES

- 101, 102, 103 Military Science I—Basic (2,2,2)** **Staff**  
 Organization of the Army and ROTC; American military history; individual weapons and marksmanship; school of the soldier and exercise of command.
- 201, 202, 203 Military Science II—Basic (2,2,2)** **Staff**  
 Crew-served weapons and gunnery; map and aerial photograph reading; school of the soldier and exercise of command.
- 301, 302, 303 Military Science III—Advanced (3,3,3)** **Staff**  
 Small unit tactics and communications; organization, function, and mission of the arms and services; military teaching methods; leadership; school of the soldier and exercise of command.
- 360 Military Science III—Advanced Camp (3)** **Staff**  
 Six-weeks training at an army installation. Emphasis is placed on field training and the practical application of subjects taught during the academic year. (Offered Summer Quarter only.)
- 401, 402, 403 Military Science IV—Advanced (3,3,3)** **Staff**  
 Supply and evacuation; troop movements; motor transportation; command and staff; estimate of the situation and combat orders; military intelligence; the military team; training management; military administration; military justice; the role of the United States in world affairs and the present situation; leadership; officer indoctrination; school of the soldier and exercise of command.

## NAVAL SCIENCE

**Professor of Naval Science: Col. T. J. COLLEY, USMC, 309 Clark Hall**

The Department of Naval Science offers to selected students a four-year program, taken concurrently with their work toward a baccalaureate or higher degree, which prepares them for commissions in the regular or reserve components of the United States Navy or Marine Corps.

## NAVAL ROTC STUDENTS (CONTRACT PROGRAM)

At the beginning of Autumn Quarter each year the Professor of Naval Science selects approximately fifty students to enter the Naval ROTC contract program. These students must have the following general qualifications:

1. Be eligible for admission to the University.
2. Be male citizens of the United States between the ages of seventeen and twenty-one on July 1 of the year of entrance.
3. Meet physical requirements, which include vision of 20/20, no cavities in teeth, and height between 64 and 78 inches.
4. Be unmarried and agree to remain unmarried until commissioned.

In addition, with the consent of their parents, they must agree to complete the four-year course unless released by the Secretary of the Navy, and to make one summer cruise of approximately three weeks. This cruise is normally scheduled during the summer between the junior and senior years.

Students who attain junior or senior standing in the Naval ROTC must complete the program as a condition of graduation from the University unless excused or dismissed from this requirement by authority of the Secretary of the Navy.

Entrance to the Naval ROTC program entitles students to deferment from the draft under the Selective Service Act of 1948 as amended. The Naval ROTC student, upon completion of program requirements, is required to accept a commission in the United States Naval Reserve or Marine Corps Reserve, if offered. Active duty of reserve officers commissioned from the Naval ROTC contract program is contingent upon the needs of the service at the time of graduation.

Naval ROTC students have the status of civilians entering into a mutual agreement with the Navy, and are in training for commissions in the Naval Reserve or Marine Corps Reserve. They pay their own college expenses but receive a subsistence allowance of 90 cents a day during their junior and senior years, including the intervening summer. The Navy furnishes the uniforms and books used in naval science courses.

Students in the Naval ROTC program may enter any University curriculum that can normally be completed in four years. Students working toward a bachelor's degree in certain fields which may require more than four years for completion, such as engineering, architecture, and education, are eligible for entrance to the program. The Navy Class A swimming test must be passed and mathematics through trigonometry satisfactorily completed (unless previously completed in high school) by the end of the second year.

All Naval ROTC students take the same naval science courses for the first two years. Students who plan to be commissioned in the Marine Corps or Marine Corps Reserve take Marine Corps subjects during their third year and the first two quarters of their fourth year; those who plan to be commissioned in the Supply Corps of the Navy or the Naval Reserve take Supply Corps subjects during this period.

High school graduates interested in entering the Naval ROTC program should write to the Professor of Naval Science during the summer before University entrance.

## **MIDSHIPMEN, USNR (REGULAR PROGRAM)**

Each year, at the beginning of Autumn Quarter, the Navy assigns a limited number of students to the Naval ROTC Unit, University of Washington, for appointment as midshipmen in the Naval Reserve. Qualifications are, in general, the same as those listed above for contract students. Midshipmen are appointed after a nation-wide competitive examination held in December of each year and selection by state selection committees. They are deferred from induction until graduation and receive tuition, all textbooks, uniforms, and \$50.00 per month for four years. Application to take the annual examination must reach the Naval Examining Section, Science Research Associates, 104 Pearl Street, McHenry, Illinois, before a deadline date set in November of each year for entrance to college the following year.

Further information about the regular program may be obtained from the University Naval ROTC headquarters.

## **COURSES FOR UNDERGRADUATES**

### **111, 112, 113 Naval Orientation (3,3,3)**

**Staff**

Naval courtesy and customs; leadership; naval history; naval regulations; ship construction and characteristics; standard ship organization; orientation in underseas, amphibious, logistics, communications, security, intelligence, seamanship, and rules-of-the-road phases of the naval service.

### **211 Naval Weapons (3)**

**Staff**

Principles of gun construction; ammunition components; gun assemblies; automatic guns; mines; introduction to fire control; aviation ordnance.

- 213 Applied Naval Electronics (3)** **Staff**  
Advanced fire control; radar, sonar; C.I.C.; shore bombardment; guided missiles; nuclear explosives; underwater ordnance; rockets.
- 214 Weapons Laboratory (1)** **Staff**  
Practical work on naval weapons and fire control computers.

**LINE**

- 311 Naval Engineering (3)** **Staff**  
Marine engineering installations; boilers, power plants, auxiliary machinery, turbines, distillers, refrigeration plants.
- 312 Engineering and Navigation (3)** **Staff**  
Combination of diesel engines and elements of stability with piloting aspects and navigation.
- 313 Navigation (3)** **Staff**  
Nautical astronomy necessary for celestial navigation; daily work of the navigator at sea.
- 411 Naval Operations (3)** **Staff**  
Naval operations and shiphandling; maneuvering board.
- 412 Naval Operations and Administration (3)** **Staff**  
Combination of diesel engines and elements of stability and naval administration.
- 413 Military Justice and Leadership (3)** **Staff**  
Uniform code of military justice; practical application of leadership principles; duties and responsibilities of naval officers.

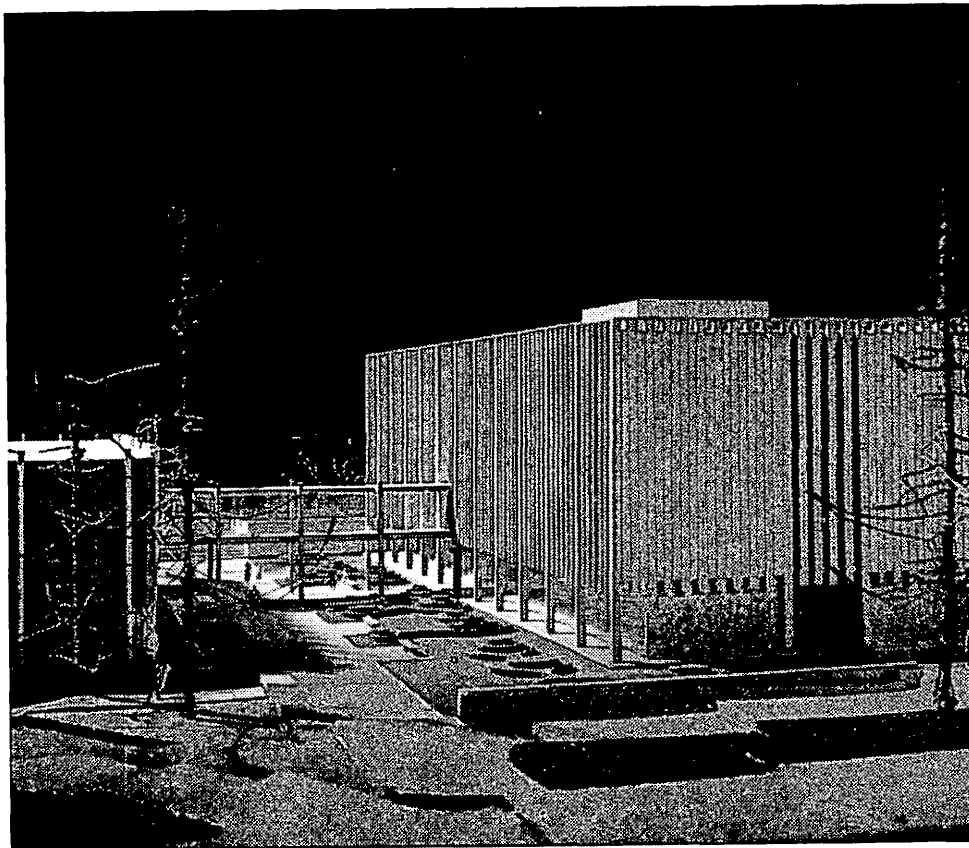
**MARINE CORPS**

- 311M Evolution of the Art of War (3)** **Staff**  
Introduction; the development of tactics and weapons as illustrated by specific battles of ancient and European history; a historical study of the causes and effects of war through 1864.
- 312M Evolution of the Art of War (3)** **Staff**  
Tactics and strategy from the rise of Germany through World War II; comparisons with modern basic strategy and tactics; foreign policy of the United States.
- 313M Modern Basic Strategy and Tactics (3)** **Staff**  
Tactics of the platoon and company; jungle warfare, river crossings; fortified positions. Strategy of the United States and Germany during World War II.
- 411M, 412M Amphibious Warfare (3,3)** **Staff**  
411M: a brief history of amphibious warfare development; a detailed study of the principles of amphibious warfare techniques. 412M: continued study of amphibious warfare, logistics, and operation orders; the Gallipoli campaign and the amphibious campaigns of World War II.
- 413M Leadership and Uniform Code of Military Justice (3)** **Staff**  
Military law; practical application of leadership principles; duties and responsibilities of marine officers.

**SUPPLY CORPS**

- 311S Organization and Logistics Navy Accounting (Naval Finance) (3)** **Staff**  
Introduction to supply corps: national security organization; Navy Bureau system; supply demand control point concept; naval finance; appropriation, property and cost accounting.
- 312S Advanced Navy Accounting: Basic Supply Afloat (3)** **Staff**  
Naval accounting; balance sheet reconciliation; reports and returns; organization and administration of supply afloat; afloat requirements determination and stock control.
- 313S Advanced Supply Afloat (3)** **Staff**  
Afloat custody and stowage and security of material; surveys; issues, transfers, and financial management of afloat inventories; special supply systems.
- 411S Ships Store Afloat: Clothing and Small Stores (3)** **Staff**  
Operating procedures, records, reports and returns for ships store afloat; operating procedures, records, reports and returns for clothing and small stores afloat.
- 412S Commissary (3)** **Staff**  
Operating procedures, records, reports and returns for commissary afloat.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF  
**BUSINESS ADMINISTRATION**  
1959-1961

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Department of Correspondence Study and the Department of Extension Classes, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Addressograph Service.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS

INTRODUCTION TO THE UNIVERSITY

UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF DENTISTRY

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FISHERIES

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PRELIMINARY SUMMER ANNOUNCEMENT

SUMMER QUARTER ANNOUNCEMENT

CENTER FOR GRADUATE STUDY AT HANFORD

CORRESPONDENCE STUDY

EVENING CLASSES

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BULLETIN  
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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	11
Board of Regents	
Officers of Administration	
Officers of the College of Business Administration	
Faculty of the College of Business Administration	
GENERAL INFORMATION . . . . .	19
College Facilities	
Admission Requirements	
Current Admission Requirements	
Veterans	
Required Tests and Examinations	
Registration	
Scholarship and Minimum Credits	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE DEPARTMENTAL PROGRAMS . . . . .	41
Bachelor's Degrees	
Advanced Degrees	
Course-Numbering System	
Accounting	
Business and Its Environment	
Business Education	
Business Law	
Business Statistics	
Business Writing	
Finance	
Foreign Trade	
General Business	
Human Relations in Business and Industry	
Insurance	
Law, Preprofessional Program	
Marketing	
Office Management	
Personnel	
Policy and Administration	
Production	
Real Estate	
Secretarial Training	
Transportation	
Conjoint (B.A.)	
Other Courses in Business Administration Programs	
RESERVE OFFICERS TRAINING PROGRAMS . . . . .	71

# CALENDAR

**AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS**  
(Winter Quarter, 1960, through Autumn Quarter, 1961)

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

## WINTER QUARTER, 1960

### REGISTRATION PERIOD

OCT. 26-Nov. 20	Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 28-30	In-Person Registration for students in residence Autumn Quarter, 1959, who did not complete Winter Quarter, 1960, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
DEC. 28-30	In-Person Registration for former students not in residence Autumn Quarter, 1959. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 11.</i>
DEC. 4	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
DEC. 28-30	In-Person Registration for ALL new students.
DEC. 30	Last day to register for Winter Quarter, 1960. Note application deadlines above.
JAN. 4-8	Change of registration by appointment only.

### ACADEMIC PERIOD

JAN. 4—MONDAY	Instruction begins
JAN. 8—FRIDAY	Last day to add a course
FEB. 22—MONDAY	Washington's Birthday and Founder's Day holiday
FEB. 26—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 12—SATURDAY	Advanced credit examinations
MAR. 14-18	Final examinations
MAR. 18—FRIDAY	Quarter ends

## SPRING QUARTER, 1960

### REGISTRATION PERIOD

JAN. 25-FEB. 19	Advance Registration only for students in residence Winter Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
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MAR. 22-24	In-Person Registration for students in residence Winter Quarter, 1960, who did not complete Spring Quarter, 1960, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
MAR. 22-24	In-Person Registration for former students not in residence Winter Quarter, 1960. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is March 11.</i>
FEB. 26	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
MAR. 22-24	In-Person Registration for ALL new students.
MAR. 24	Last day to register for Spring Quarter, 1960. Note application deadlines above.
MAR. 28-APR. 1	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 28—MONDAY	Instruction begins
APR. 1—FRIDAY	Last day to add a course
MAY 6—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 20—FRIDAY	Governor's Day
MAY 21—SATURDAY	Advanced credit examinations
MAY 30—MONDAY	Memorial Day holiday
JUNE 5—SUNDAY	Baccalaureate Sunday
JUNE 6-10	Final examinations
JUNE 10—FRIDAY	Quarter ends
JUNE 11—SATURDAY	Commencement

**SUMMER QUARTER, 1960****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

June 1-3

June 13-17

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1960:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:



Seniors and Graduates .....	Monday, April 18, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 19, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 20, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 21, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1960, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 19 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.*

*New (entering) Students will be mailed Registration Appointments with their Official Notice of Admission.*

#### ACADEMIC PERIOD

JUNE 20—MONDAY	Instruction begins
JUNE 21—TUESDAY	Last day to add a course for the first term
JUNE 24—FRIDAY	Last day to add a course for the full quarter
JULY 1—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—MONDAY	Independence Day holiday
JULY 16—SATURDAY	Advanced credit examinations
JULY 20—WEDNESDAY	Final examinations and first term end
JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
JULY 29—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 13—SATURDAY	Advanced credit examinations
AUG. 19—FRIDAY	Final examinations and second term end

#### AUTUMN QUARTER, 1960

##### REGISTRATION PERIOD

MAY 2-27	Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 8-27	In-Person Registration for students in residence Spring Quarter, 1960, who did not complete Autumn Quarter, 1960, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 8-27	In-Person Registration for former students not in residence Spring Quarter, 1960. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 13.</i>
AUG. 15	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by

	all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 12-23	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 12-27	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 27	Last day to register for Autumn Quarter, 1960. Note application deadlines above.
SEPT. 28-OCT. 4	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 26—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 4—TUESDAY	Last day to add a course
NOV. 1—TUESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 18—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 10—SATURDAY	Advanced credit examinations
DEC. 12-16	Final examinations
DEC. 16—FRIDAY	Quarter ends

**WINTER QUARTER, 1961****REGISTRATION PERIOD**

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for students in residence Autumn Quarter, 1960, who did not complete Winter Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 9.</i>
DEC. 2	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.

DEC. 27-29	In-Person Registration for ALL new students.
DEC. 29	Last day to register for Winter Quarter, 1961. Note application deadlines above.
JAN. 3-9	Change of registration by appointment only.

**ACADEMIC PERIOD**

JAN. 3—TUESDAY	Instruction begins
JAN. 9—MONDAY	Last day to add a course
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
FEB. 24—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 11—SATURDAY	Advanced credit examinations
MAR. 13-17	Final examinations
MAR. 17—FRIDAY	Quarter ends

**SPRING QUARTER, 1961****REGISTRATION PERIOD**

JAN. 23-FEB. 17	Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 21-23	In-Person Registration for students in residence Winter Quarter, 1961, who did not complete Spring Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
MAR. 21-23	In-Person Registration for former students not in residence Winter Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is March 10.</i>
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
MAR. 21-23	In-Person Registration for ALL new students.
MAR. 23	Last day to register for Spring Quarter, 1961. Note application deadlines above.
MAR. 27-31	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 27—MONDAY	Instruction begins
MAR. 31—FRIDAY	Last day to add a course
MAY 12—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 19—FRIDAY	Governor's Day
MAY 27—SATURDAY	Advanced credit examinations

MAY 30—TUESDAY	Memorial Day holiday
JUNE 4—SUNDAY	Baccalaureate Sunday
JUNE 5-9	Final examinations
JUNE 9—FRIDAY	Quarter ends
JUNE 10—SATURDAY	Commencement

## SUMMER QUARTER, 1961

### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

May 31-June 2

June 12-16

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 17, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 18, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 19, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 20, 8 a.m. to 5 p.m.

*Former students not in residence Spring Quarter, 1961*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 17 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

### ACADEMIC PERIOD

JUNE 19—MONDAY	Instruction begins
JUNE 20—TUESDAY	Last day to add a course for the first term
JUNE 23—FRIDAY	Last day to add a course for the full quarter
JUNE 30—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—TUESDAY	Independence Day holiday
JULY 15—SATURDAY	Advanced credit examinations
JULY 19—WEDNESDAY	Final examinations and first term end
JULY 20—THURSDAY	Second term begins
JULY 21—FRIDAY	Last day to add a course for the second term
JULY 28—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 12—SATURDAY	Advanced credit examinations
AUG. 18—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1961****REGISTRATION PERIOD**

MAY 1-26	Advance Registration only for students in residence Spring Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 6-26	In-Person Registration for students in residence Spring Quarter, 1961, who did not complete Autumn Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 6-26	In-Person Registration for former students not in residence Spring Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 15.</i>
AUG. 15	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 11-22	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 11-26	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 26	Last day to register for Autumn Quarter, 1961. Note application deadlines above.
SEPT. 27-OCT. 3	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 25—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 27—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 3—TUESDAY	Last day to add a course
NOV. 1—WEDNESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1962, due at Registrar's Office
NOV. 11—SATURDAY	State Admission Day holiday
NOV. 17—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 22-27	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 2—SATURDAY	Advanced credit examinations
DEC. 11-15	Final examinations
DEC. 15—FRIDAY	Quarter ends

## ADMINISTRATION

### BOARD OF REGENTS

HAROLD S. SHEFELMAN, <i>President</i>	Seattle
JOHN L. KING, <i>Vice-President</i>	Seattle
THOMAS BALMER, <i>Deceased, August, 1959</i>	Seattle
MRS. A. SCOTT BULLITT	Seattle
JOSEPH DRUMHELLER	Spokane
ALBERT B. MURPHY	Everett
ROBERT J. WILLIS	Yakima
HELEN E. HOAGLAND, <i>Secretary</i>	
NELSON A. WAHLSTROM, <i>Treasurer</i>	

### OFFICERS OF ADMINISTRATION

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Provost of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
HAROLD A. ADAMS, M.S.	<i>Director of Admissions</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Treasurer</i>
ERNEST M. CONRAD, B.B.A.	<i>Business Manager</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>

### OFFICERS OF THE COLLEGE OF BUSINESS ADMINISTRATION

AUSTIN GRIMSHAW, D.C.S.	<i>Dean of the College of Business Administration</i>
KERMIT O. HANSON, Ph.D.	<i>Associate Dean</i>
MARGARET P. FENN, M.B.A. (on leave 1959-1960)	<i>Assistant to the Dean</i>
LOUISE L. MARTIN, M.B.A.	<i>Assistant to the Dean</i>
MADELEINE G. ROSS, B.B.A.	<i>Acting Assistant to the Dean</i>

### FACULTY OF THE COLLEGE OF BUSINESS ADMINISTRATION

(As of June 15, 1959)

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

#### DEPARTMENT OF ACCOUNTING, FINANCE, AND STATISTICS

- Archer, Stephen H., 1956, *Assistant Professor of Finance*  
B.A., 1949, M.A., 1953, Ph.D., 1958, Minnesota
- Berg, Kenneth B., 1950 (1957), *Professor of Accounting*  
B.S., 1939, North Dakota; M.S., 1941, Ph.D., 1952, Illinois; C.P.A., 1954, State of Washington
- Brabb, George J., 1956, *Assistant Professor of Statistics*  
B.S., 1950, M.S., 1954, Idaho; Ph.D., 1958, Illinois
- Bradish, Richard D., 1959, *Acting Instructor in Accounting*  
B.S., 1950, M.B.A., 1958, Washington; C.P.A., 1955, State of Washington
- Butterbaugh, Grant I., 1930 (1956), *Professor of Statistics*  
A.B., 1916, Wisconsin; M.B.A., 1923, Washington; Ph.D., 1942, Chicago
- Cleveland, Gerald L., 1959, *Acting Part-Time Lecturer in Accounting*  
B.S., 1953, South Dakota; M.B.A., 1957, Minnesota

- Cox, William E., 1919 (1923), *Professor Emeritus of Accounting and General Business*  
B.A., 1909, M.A., 1910, Texas
- Davies, Dennis Mervyn, 1958, *Acting Lecturer in Accounting*  
B.B.A., 1955, M.B.A., 1956, Oregon
- Delano, Myles S., 1958, *Assistant Professor of Finance and Statistics*  
A.B., 1943, Bates; M.A., 1947, Boston
- Flowers, William B., 1958, *Assistant Professor of Accounting*  
B.S., 1943, M.S., 1949, Alabama; Ph.D., 1959, Texas; C.P.A., 1954, State of Texas
- Hamack, Frank H., 1921 (1942), *Lecturer in Accounting*  
LL.B., 1916, Georgetown
- Hanson, Kermit O., 1948 (1954), *Professor of Accounting, Finance, and Statistics; Executive Officer of the Department of Accounting, Finance, and Statistics; Associate Dean of the College of Business Administration*  
A.B., 1938, Luther College (Iowa); M.S., 1940, Ph.D., 1950, Iowa State
- Henning, Charles N., 1948 (1955), *Professor of Finance*  
B.A., 1938, M.A., 1940, Ph.D., 1952, California (Los Angeles)
- Hoogstraet, Emerson E., 1958, *Acting Lecturer in Finance*  
B.S., 1946, M.S., 1950, Oregon
- Hugon, James H., 1957, *Acting Instructor in Finance*  
B.S., 1949, M.B.A., 1957, Northwestern
- Johnson, Fletcher O., 1950, *Lecturer in Accounting*  
B.B.A., 1924, Washington; C.P.A., 1925, State of Washington (Pennsylvania, California, Illinois)
- Jolivet, Vincent M., 1956 (1959), *Associate Professor of Finance*  
B.S., 1952, McGill; M.B.A., 1954, D.B.A., 1957, Harvard
- Lorig, Arthur N., 1934 (1949), *Professor of Accounting*  
B.A., 1922, Wisconsin; M.A., 1932, Stanford; Ph.D., 1936, Chicago; C.P.A., 1927, State of California (Washington)
- Mueller, Fred J., 1956 (1959), *Associate Professor of Accounting and Finance*  
B.A., 1953, M.A., 1954, Washington; Ph.D., 1956, Ohio State
- North, Charles C., 1955, *Part-Time Lecturer in Accounting*  
B.B.A., 1940, Texas
- O'Rourke, Joseph J., 1959, *Acting Instructor in Accounting*  
B.A., 1952, Portland; M.B.A., 1953, Denver; C.P.A., 1959, State of Washington
- Orton, Bryce B., 1959, *Acting Lecturer in Accounting*  
B.S., 1951, Brigham Young; M.B.A., 1957, Oregon
- Palmer, Walter S., 1955 (1956), *Associate Professor of Finance*  
B.A., 1937, Nevada; M.B.A., 1941, Ph.D., 1954, Stanford
- Pigott, William III, 1957, *Assistant Professor of Finance*  
B.S.S., 1949, Seattle University; M.A., 1955, Ph.D., 1957, Washington
- Roller, Julius A., 1945 (1950), *Associate Professor of Accounting*  
B.B.A., 1934, Washington
- Simpson, Robert M., 1957, *Part-Time Lecturer in Accounting*  
B.A., 1925, Pennsylvania State; C.P.A., State of Michigan (Washington, Illinois, California, Texas)
- Storey, Reed K., 1956, *Assistant Professor of Accounting*  
B.S., 1952, Utah; Ph.D., 1958, California; C.P.A., 1952, State of Utah
- Walker, Lauren M., 1946 (1957), *Professor of Accounting*  
B.A., 1939, M.B.A., 1943, Washington; C.P.A., 1943, State of Washington

#### DEPARTMENT OF GENERAL BUSINESS

- Austin, Alan F., 1958, *Part-Time Lecturer in Business Law*  
B.A., 1952, LL.B., 1954, Washington
- Bourque, Philip J., 1957, *Associate Professor of General Business; Assistant Director, Bureau of Business Research*  
A.B., 1949, Massachusetts; M.A., 1950, Ph.D., 1956, Pennsylvania
- Briggs, Robert, 1952 (1955), *Associate Professor of Secretarial Training*  
A.B., 1935, M.A., 1950, Washington; D.Ed., 1954, Stanford

- Brown, Frances A., 1953 (1956), *Assistant Professor of Secretarial Training*  
B.Sc.Ed., 1940, Nebraska; M.A., 1950, Columbia
- Brown, S. Darden, 1930 (1937), *Associate Professor of Business Law*  
LL.B., 1925, B.A., 1932, Washington; LL.M., 1938, Stanford
- Burr, Rita K., 1956 (1959), *Assistant Professor of Secretarial Training*  
B.A., 1953, M.Ed., 1957, Washington
- Callow, Keith M., 1956, *Part-Time Lecturer in Business Law*  
B.A., 1949, LL.B., 1952, Washington
- Demmery, Joseph, 1928 (1934), *Professor of General Business*  
Ph.B., 1920, M.A., 1924, Chicago
- Frerichs, Alberta J., 1955 (1956), *Assistant Professor of Secretarial Training*  
B.Sc., 1940, Nebraska State Teachers College; M.Ed., 1951, Nebraska
- Gillam, Cornelius W., 1954 (1956), *Associate Professor of Business Law*  
B.A., 1945, Carleton College; M.A., 1946, Minnesota; J.D., 1950, Ph.D., 1954, Chicago
- Goldberg, Leonard D., 1947 (1956), *Associate Professor of Business Law*  
B.A., 1943, J.D., 1945, Chicago
- Hay, John L., 1956, *Part-Time Lecturer in Business Law*  
B.A., 1951, LL.B., 1953, Washington
- Hunter, David C., 1954, *Part-Time Lecturer in Business Law*  
A.B., 1942, Michigan; LL.B., 1949, Washington
- Marcus, Sumner, 1955 (1959), *Associate Professor of Business Law; Acting Executive Officer of the Department of General Business*  
A.B., 1931, M.B.A., 1933, LL.B., 1936, Harvard; D.B.A., 1958, Washington
- McGuire, Joseph W., 1950 (1956), *Associate Professor of Business Fluctuations*  
Ph.B., 1948, Marquette; M.B.A., 1950, Ph.D., 1956, Columbia
- Riviera, Daniel J., 1957, *Part-Time Lecturer in Business Law*  
A.B., 1950, Syracuse; LL.B., 1953, Georgetown
- Robinson, Dwight E., 1950 (1956), *Professor of Business Fluctuations*  
B.A., 1936, Yale; M.A., 1938, Oxford; Ph.D., 1948, Columbia
- Secret, Thomas W., 1955, *Part-Time Lecturer in Business Law*  
B.S., 1943, M.S., 1946, Washington; LL.B., 1951, Georgetown
- Seyfried, Warren R., 1956 (1958), *Associate Professor of Business Fluctuations and Real Estate*  
B.S. (M.E.), 1943, Vanderbilt; M.B.A., 1954, D.B.A., 1956, Indiana
- Wheeler, Bayard O., 1948 (1953), *Professor of Real Estate*  
A.B., 1928, California; M.A., 1930, Washington; Ph.D., 1942, California
- Wickman, James A., 1956, *Lecturer in Insurance*  
B.S., 1953, M.B.A., 1954, Washington
- Wilsing, Weston C., 1953 (1956), *Lecturer in Secretarial Training*  
B.Ed., 1943, Wisconsin State Teachers College; M.A., 1946, Columbia; D.B.A., 1959, Washington

#### DEPARTMENT OF MARKETING, TRANSPORTATION, AND FOREIGN TRADE

- Brewer, Stanley H., 1946 (1956), *Professor of Transportation*  
B.A., 1942, M.B.A., 1943, Washington; I.C.C. Practitioner, 1948; F.M.B. Practitioner, 1950
- Burd, Henry A., 1924 (1927), *Professor Emeritus of Marketing*  
B.S., 1910, Illinois Wesleyan; M.A., 1911, Ph.D., 1915, Illinois
- Comish, Newel W., 1949 (1955), *Associate Professor of Marketing*  
B.S., 1947, M.S., 1948, Oregon; Ph.D., 1953, Ohio State
- Engle, Nathanael H., 1941, *Professor of Marketing*  
B.A., 1925, M.A., 1926, Washington; Ph.D., 1929, Michigan
- Etcheson, Warren W., 1954 (1956), *Associate Professor of Marketing; Director, Bureau of Business Research*  
B.S., 1942, Indiana; M.A., 1951, Ph.D., 1956, Iowa
- Gordon, Guy G., 1949 (1957), *Associate Professor of Marketing*  
B.A., 1949, M.B.A., 1950, Washington; Ph.D., 1957, California
- Grathwohl, Harrison L., 1958, *Assistant Professor of Marketing*  
B.S., 1951, M.B.A., 1952, D.B.A., 1957, Indiana



- Harder, Virgil E., 1955 (1959), *Associate Professor of Business Writing*  
B.S.C., 1930, M.A., 1950, Iowa; Ph.D., 1958, Illinois
- Huff, David L., 1957, *Acting Instructor in Marketing*  
B.S., 1955, Oregon; M.B.A., 1957, Washington
- Kolde, Endel J., 1951 (1959), *Professor of Foreign Trade and Marketing*  
B.S., 1940, National Military Academy (Estonia); D.H.S., 1947, Stockholm (Sweden);  
M.A., 1951, D.B.A., 1954, Washington
- Little, Wallace I., 1954 (1956), *Associate Professor of Transportation*  
B.S., 1943, M.S., 1947, Illinois; Ph.D., 1952, Wisconsin
- Miller, Charles J., 1927 (1945), *Professor of Marketing; Executive Officer of the Department of Marketing, Transportation, and Foreign Trade*  
B.B.A., 1922, M.B.A., 1927, Washington
- Murphy, Herta A., 1946 (1955), *Assistant Professor of Business Writing*  
B.B.A., 1930, M.A., 1942, Washington
- Nelson, Robert A., 1955 (1956), *Associate Professor of Transportation*  
A.B., 1941, Clark; M.B.A., 1947, Boston; Ph.D., 1954, Clark
- Parker, Donald D., 1955 (1959), *Associate Professor of Marketing; Assistant Director, Bureau of Business Research*  
B.A., 1941, Linfield; M.B.A., 1942, Northwestern; D.B.A., 1958, Washington
- Peck, Charles E., 1951 (1955), *Associate Professor of Business Writing*  
B.A., 1935, Wichita; M.A., 1947, Ph.D., 1950, Iowa
- Robb, James F., 1957, *Acting Instructor in Marketing*  
B.S., 1954, Oregon State; M.B.A., 1957, Washington
- Triandafyllides, Alexander P., 1957, *Acting Instructor in Marketing*  
B.A., 1956, M.B.A., 1957, Washington
- Wagner, Louis C., 1947 (1955), *Professor of Marketing*  
B.B.A., 1938, Washington; M.A., 1940, Minnesota

#### DEPARTMENT OF POLICY, PERSONNEL RELATIONS, AND PRODUCTION

- Barnowe, Theodore J., 1947 (1955), *Professor of Human Relations and Administration*  
B.A., 1939, Morningside College (Iowa); M.A., 1940, Ph.D., 1946, Washington
- Boore, William F., 1959, *Acting Part-Time Lecturer in Production*  
Met. Eng., 1942, Lehigh; M.S. Met., 1950, Colorado School of Mines; M.B.A., 1954, Chicago
- Brown, Edward G., 1948 (1949), *Professor of Business Policy*  
A.B., 1929, Washington; M.B.A., 1932, Harvard
- Bunin, Sanford M., 1957, *Acting Assistant Professor of Human Relations and Personnel*  
B.S., 1949, Western Reserve; M.A., 1951, Kent State
- Fenn, Margaret P., 1953, *Acting Part-Time Instructor in Human Relations*  
B.S., 1942, LaCrosse State Teachers; M.B.A., 1950, Washington
- French, Wendell L., 1958, *Associate Professor of Personnel*  
B.A., 1948, M.P.S., 1949, Colorado; D.Ed., 1956, Harvard
- Henning, Dale A., 1955 (1956), *Associate Professor of Policy and Administration and Production*  
B.S., 1948, M.B.A., 1949, Pennsylvania; Ph.D., 1954, Illinois
- Johnson, Richard A., 1955 (1959), *Associate Professor of Production and Policy and Administration*  
B.B.A., 1949, M.B.A., 1952, Minnesota; D.B.A., 1958, Washington
- Kast, Fremont E., 1951 (1956), *Associate Professor of Production and Policy and Administration*  
A.B., 1946, San Jose State; M.B.A., 1949, Stanford; D.B.A., 1956, Washington
- Knowles, Henry P., Jr., 1957, *Acting Assistant Professor of Policy and Administration*  
B.S., 1935, U.S. Naval Academy; M.B.A., 1947, Harvard
- Knudson, Harry R., Jr., 1958, *Assistant Professor of Personnel and Human Relations*  
B.S., 1952, M.B.A., 1953, Indiana; D.B.A., 1958, Harvard

- Robinson, Richard J., 1958, *Acting Part-Time Lecturer in Human Relations*  
B.S., 1949, M.B.A., 1950, Indiana
- Rosenzweig, Jim, 1956 (1959), *Associate Professor of Policy and Administration and Operations Research*  
B.A., 1951, M.B.A., 1954, Washington; Ph.D., 1956, Illinois
- Saxberg, Borje O., 1957, *Assistant Professor of Production and Policy and Administration*  
B.S., 1952, Oregon State; M.S., 1953, Ph.D., 1958, Illinois
- Schrieber, Albert N., 1948 (1956), *Professor of Production and Policy and Administration*  
B.S. (M.E.), 1938, Illinois Institute of Technology; M.B.A., 1947, Harvard
- Sutermester, Robert A., 1949 (1952), *Professor of Personnel and Human Relations; Acting Executive Officer of the Department of Policy, Personnel Relations, and Production*  
A.B., 1934, Harvard; M.A., 1942, Washington
- Wallace, William M., 1958, *Acting Instructor in Personnel and Production*  
B.B.A., 1952, College of Puget Sound; M.B.A., 1957, Washington

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## CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*



## GENERAL INFORMATION

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## GENERAL INFORMATION

THE COLLEGE OF BUSINESS ADMINISTRATION was established in 1917, when increasing numbers of young men and women were seeking careers in business and when the growing complexity of business units was making it more difficult to achieve broad training by traditional apprenticeship methods.

The College was founded to help the student to understand the economic and business world. Its objective was then, as it is now, to give the student business training rooted in general knowledge and to develop in the student those qualities of mind and character that make useful, intelligent citizens and responsible members of the business community. Thus, while many students prepare themselves specifically for professional careers in fields such as accounting, a number pursue courses in business to prepare themselves for positions as teachers of business in secondary schools and colleges. Whatever the approach, the College places emphasis on broad individual development.

The growth of the College has been as rapid as that of the Northwest. Since 1921 the College has been a member of the American Association of Collegiate Schools of Business. It has a faculty of seventy-five members and in 1959 its student body included twenty-one hundred undergraduate and more than one hundred and fifty graduate students.

While the College recognizes a primary vocational or professional interest in its undergraduates, it does not believe that success in business should be obtained at the sacrifice of personal growth. The College, therefore, requires that every student take 40 per cent of his work in such subjects as English, mathematics, history, laboratory and social sciences, and humanities.

Specialization in a particular field is provided during the junior and senior years, with majors offered in accounting, business education, finance, foreign trade, insurance, marketing, office management, personnel administration, production, real estate, secretarial training, statistics, and transportation. A major in general business is available to students who want a broad, nonspecialized training in business administration. In addition to these major fields, courses to integrate and supplement the specialized study are offered in the area of business writing, business law, human relations in business, and policy and administration.

A preprofessional program in law is offered for students who wish to emphasize business subjects in their prelegal work. This program leads to the degree of Bachelor of Arts in Business Administration after three years of study in the College and one year in the School of Law.

Many of the courses offered by the College are open to undergraduate and graduate students in other colleges and schools of the University.

### **COLLEGE FACILITIES**

The College's activities are centered in Guthrie Hall, which, in addition to regular classrooms, contains accounting laboratories, a library, and seminar rooms. Many of the classrooms are arranged to fit the needs of particular types of instruction.

The Business Administration Annex is used for courses in secretarial training and houses a variety of office equipment.

### **THE LIBRARY**

The quarters of the Business Administration Library in Guthrie Hall contain seating space for two hundred students. The library has current materials on all phases of business including books, newspapers, periodicals, pamphlets, government publications, corporation annual reports, indexes, bibliographies, and loose-leaf services in finance, trade regulations, accountancy, transportation, real estate, taxes, and insurance. A room for research has been provided for the use of faculty members and graduate students.

### **BUREAU OF BUSINESS RESEARCH**

The College maintains a Bureau of Business Research which is a member of the Associated University Bureaus of Business and Economic Research. The Bureau was established in 1941 to centralize the University's research in business and to serve business, industry, labor, government, and the professions. Publications include studies of Pacific Northwest and Washington industries, Alaska, communities, and many aspects of business administration.

### **UNIVERSITY OF WASHINGTON BUSINESS REVIEW**

The *University of Washington BUSINESS REVIEW* is a journal published bi-monthly during the academic year (February, April, June, October, and December) by the College of Business Administration. In intervening months a supplement, featuring statistics for western states and the nation, analyses of business conditions, and short articles, is published. Specially constructed indexes of regional business activity, developed in the Bureau of Business Research, are included in the statistics. The magazine serves as a means of disseminating information of wide interest to students of business, to the business community, and to other universities. Articles present significant results of business research, describe and evaluate trends and techniques in business administration and its environment, and (in some cases) present regional business analyses. The magazine is distributed on a paid subscription basis to business firms and others, and on an exchange basis to bureaus of business research, or libraries, of other universities. Current subscription rates are \$3.00 for one year, \$7.50 for three years.

### **PRODUCTION LABORATORY**

The Production Laboratory provides demonstration facilities for use in production courses. In addition, the Laboratory is equipped to enable students to carry on individual research projects at graduate and undergraduate levels. Equipment, including primary machine and hand tools, is available for studies in motion and time, layout, and experimental testing.

### **TRANSPORTATION LABORATORY**

The Transportation Laboratory provides a place for display of visual aids and other illustrative materials to supplement teaching materials. Demonstrations of

principles and problems in transportation operations are given in the Laboratory. The Laboratory is used as a meeting place and workroom for University transportation clubs. Working tools and publications are provided for students to conduct research, to practice theoretical training, and to advance their knowledge of the field.

### COOPERATIVE WORK IN INDUSTRY

The College encourages students to supplement classroom training by obtaining experience in actual business situations. Selected students in accounting and marketing have an opportunity to work in industry while earning college credit.

Accounting majors, by special arrangement, spend one quarter with a certified public accounting firm, industrial organization, or government agency. At the completion of the work period, students submit written reports on their employment experiences.

The Marketing Department administers scholarship programs which are, in effect, cooperative training. The Skyway Luggage Company, Rhodes of Seattle, and the University Book Store provide part-time work and training, enabling students to study policies, methods, and techniques. The programs give college credit to qualified students for reports on work experience.

### ADMISSION REQUIREMENTS

The admission requirements for the College of Business Administration are as follows.

SUBJECT	UNITS	
	Through Summer Quarter, 1961	Effective Autumn Quarter, 1961
English .....	3	4 <sup>1</sup>
Social science.....	1	1
Elementary algebra.....	1	1
Plane geometry .....	1	1
Additional mathematics or laboratory science		1 <sup>2</sup>
Additional academic electives.....	3 <sup>3</sup>	3 <sup>3</sup>
<i>Total number of academic units</i>	9	11*
Free electives .....	7	5
<i>Total number of units required</i>	16	16

<sup>1</sup> Fourth unit selected from English composition, literature, drama, journalism, speech, business English, or 2 units of one foreign language.

<sup>2</sup> 1 unit in advanced mathematics or in one laboratory science (biology, botany, chemistry, geology, physics, or zoology).

<sup>3</sup> Selected from English, mathematics, social science, laboratory science, and foreign language.

\* An over-all grade-point average of at least 2.00 (C) in the 11 required units.

## CURRENT ADMISSION REQUIREMENTS

### GENERAL ADMISSION REGULATIONS

Regulations pertaining to admission to the University are administered by the Board of Admissions, an administrative board appointed by the President. First preference is given to qualified residents of Washington and all sons and daughters of University of Washington alumni. The College of Business Administration, like most colleges in the University, admits qualified out-of-state students and encourages those who meet the nonresident scholarship requirements to apply.

Applications for Admission must be submitted by prescribed deadlines and must be substantiated by certain credentials and reports submitted in accordance with University rules and practices. It is important that the student's application be submitted by the proper time, for the University *will assume no responsibility for applicants who come to the campus before their credentials have been forwarded or before they have been notified of acceptance.*

Correspondence regarding admission should be addressed to the Office of Admissions.

It is the student's responsibility to make sure that complete credentials covering all his previous secondary and college education are submitted to the University. To be official they must be forwarded by the principal or registrar of the last school attended, direct to the University's Office of Admissions. These records become part of the official file and cannot be returned to the student nor duplicated for any purpose whatsoever, as the University does not issue or certify copies of transcripts from other institutions. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University.

To be assured of admission in Autumn Quarter, it is imperative that complete required credentials are forwarded after high school graduation and no later than July 15. The July 15 deadline also applies to applicants desiring to transfer from other colleges and universities. Applications, with complete credentials, postmarked between July 15 and August 15 will be accepted in order of receipt only as long as additional new students can be accommodated. No applications postmarked after August 15 will be considered. For admission in the other quarters, applications and credentials should be submitted by published deadlines. (For specific dates see Calendar, pages 4-10.) This applies to *all* new students seeking admission as graduates or undergraduates. *It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.* Telegraphed or airmailed messages or requests will *not* be given precedence over other material already received by regular mail.

### ADMISSION FROM ACCREDITED HIGH SCHOOLS

Graduates who earn diplomas of graduation from accredited high schools and who meet the University unit and scholarship requirements for entrance are eligible for admission as freshmen with regular standing.

No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

Each entering freshman is required to submit from an accredited high school an official Application for Admission blank (obtainable from any high school principal or from the Office of Admissions of the University), which includes all credits and grades and a statement that the student has completed his high school course with a diploma of graduation. A high school diploma cannot be substituted for the official blank. Accredited high schools in Washington are those accredited by the State Department of Public Instruction; in Alaska, by the Northwest Association of Secondary and Higher Schools; in other states, by the state university of the state or a regional accrediting association.

A high school senior may submit, after the end of the seventh semester, an official Application for Admission blank which includes all credits and grades

through the seventh semester, a list of eighth-semester courses, and the expected date of graduation. Those who are found qualified will be notified they have been granted conditional admission; final admission will be contingent upon submission of a supplementary transcript after high school graduation, which includes the eighth-semester subjects with satisfactory grades and a statement that the high school course has been completed with a diploma of graduation. *Final admission to the University will continue to be based on complete records through the eighth semester and a statement that a diploma of high school graduation has been awarded.*

#### **SCHOLARSHIP REQUIREMENT FOR APPLICANTS ENTERING DIRECTLY FROM HIGH SCHOOL**

See page 25 for applicants who have had college work.

#### **Legal Residents of the State of Washington and All Sons and Daughters of University of Washington Alumni**

The University scholarship requirement is a high school grade-point average of 2.00 (equivalent to a C average on the state of Washington grading system).

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his high school records.

The student who is admitted on probation may continue his attendance at the University at the discretion of the dean of his college but may not (1) be pledged to or initiated into a fraternity or sorority, or engage in those other student activities in which his right to participate is restricted by the regulations of the Committee on Student Welfare; (2) engage in those athletic activities in which his right to participate is restricted by the regulations of the Intercollegiate Athletics Committee. He will be removed from probation when he has earned a minimum of 12 credits, exclusive of those in lower-division physical education activity and Army, Air Force, and Navy ROTC courses, with a 2.00 grade average; however, if he carries less than 12 credits in one quarter, he may not be removed from probation unless he has earned at least a 2.00 average for the current quarter, as well as a minimum cumulative average of 2.00 for his total quarters in attendance. A student removed from probation under these provisions is then subject to the regular scholarship rules.

#### **Nonresidents or Students Residing in States and Countries Other Than the State of Washington**

The University scholarship requirement for nonresidents\* or students residing outside the state of Washington who apply for admission directly from high school is a grade-point average of 3.00 (equivalent to a B average on the state of Washington grading system) or placement in the upper 25 per cent of their graduating class. No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in the preceding section. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students from high schools in other states which use different grading systems will find their scholarship averages adjusted to the state of Washington four-point system.

A nonresident applicant who cannot meet the 3.00 (B) scholarship requirement, if he believes there are extenuating circumstances meriting consideration,



and if he meets the subject requirements for admission to the college of his choice, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### UNIT REQUIREMENT FOR ALL APPLICANTS

The minimum requirement of the University is 16 high school units<sup>1</sup> (or 15 units exclusive of activity credit in physical education, debate, etc.) with grades certifiable for university entrance. The 16 units should include at least 9 units in academic subjects (a unit equals 2 semester credits, or one full year of high school study). No unit which received lower than the lowest passing grade as defined by the high school itself may be included in the required total. The College of Business Administration requires that the 16 units include 3 units of English; 1 unit of social science; and 2 units of mathematics, including elementary algebra and either plane geometry or second-year algebra with some advanced algebra recommended. Students should make every possible effort to complete this list of required subjects before entering the College.

#### SUBJECT MATTER DEFICIENCIES FOR ALL APPLICANTS

Applicants with diplomas of graduation from accredited high schools who meet the scholarship requirement and have at least 3 units in English and 6 in other academic subjects, including either 1 unit of algebra or 1 unit of plane geometry, may petition the Dean of the College for permission to enter. (Typical academic subjects are English, foreign languages, mathematics, science, history, and economics. Some nonacademic courses are those in commerce, industrial arts, home economics, and band.) Students who are permitted to enter with provisional standing must register each quarter for make-up courses in the one or more subjects they lack until the entrance deficiency is removed. *Those who are deficient in first-year algebra or plane geometry and who have a grade-point average of below 2.30 (nonresidents, 2.70 or 3.00) will be expected to remove their deficiencies prior to entering the University.* Provisional standing continues until the student has satisfied the entrance requirements of the college in which he is enrolled. *No application for a degree may be accepted until all entrance deficiencies have been removed.*

Deficiencies may be made up with university credit if college courses covering the high school material are available; 10 college credits are considered the equivalent of 1 high school unit, except that for foreign languages 15 quarter credits of college work are considered the equivalent of 2 units (4 semesters) of high school credit. No student may receive credit for repetition of work at the same or at a more elementary level, if credit has been granted in the earlier course. This rule applies whether the earlier course was taken in high school or in college, and whether, in the latter case, course numbers are duplicated or not. First-year algebra and plane geometry are offered by the Department of Extension Classes (fee \$24.00 per course) and do not carry University credit.

#### GRADUATES FROM UNACCREDITED HIGH SCHOOLS

A graduate of an *unaccredited* high school in Washington, if he has the recommendation of his principal, may petition the Board of Admissions for permission to enter if he meets other entrance requirements. Before granting such permission, the Board may require these students to pass certain examinations.

#### NON-HIGH SCHOOL GRADUATES

In general, the Board of Admissions considers that College Entrance Board Examinations may be used to supplement unaccredited or incomplete preparatory study but may not be used as the sole basis to supply entrance credits. Applications of this kind must be reviewed by the Board of Admissions.

<sup>1</sup> To count as a unit, a subject must be taught five times a week, in periods of not less than forty-five minutes, for a high school year of thirty-six weeks. The maximum allowance toward University entrance for junior high school study is 4 units.

Information regarding College Entrance Board Examinations may be obtained by writing to the Educational Testing Service, P. O. Box 592, Princeton, New Jersey, or Box 27896, Los Feliz Station, Los Angeles 27, California.

#### **ADMISSION WITH ADVANCED UNDERGRADUATE STANDING**

Students in other institutions who plan to transfer to the College of Business Administration are urged to pattern their schedules after the curricula of this College, so that they may transfer as many credits as possible.

Applicants are admitted to the University and to the College of Business Administration by transfer from accredited colleges, universities, and junior colleges under these conditions:

1. Complete transcripts and letters of honorable dismissal must be sent directly to the University Office of Admissions by the registrar of the former school. In general, the University will not accept a student who is in scholastic or disciplinary difficulty at his former school. Failure to supply full transcripts will be considered a serious breach of honor and may result in permanent dismissal from the University.

2. *Applicants who are legal residents of the state of Washington and all those who are sons or daughters of University of Washington alumni and who have less than a year of college work must have a 2.00 (C) grade-point average in both their college and high school records. Those who have completed a year or more of college work must have a 2.00 (C) average in both their college records and in the last term of attendance. The applicant must present an admission and scholastic record equivalent to that required of students in attendance at the University.*

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his school records.

3. *Applicants who are not legal residents\* of the state of Washington, applying with fewer than 45 acceptable college credits, must have a 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also have a 3.00 (B) average in their standard college courses.*

4. *Applicants who are not legal residents\* of the state of Washington and who have completed 45 or more standard college credits must have a 2.70 (B-) average in their standard college courses.*

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in paragraph 2 above. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students transferring from colleges or universities that employ a three-point or five-point system of passing grades will find their admission grade points adjusted to the four-point system of the University of Washington.

A nonresident applicant who cannot meet the 3.00 (B) or 2.70 (B-) scholarship requirement, whichever applies in his case, if he believes there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the College of Business Administrations, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### **TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS**

The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted.

1. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined until the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or senior standing. Transfer credit will not be allowed in the senior year.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution.

3. Transfer credits from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits, exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training schools credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the senior year.

6. A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of these credits can apply in the senior year. Extension and correspondence credits from schools that are not members of the National University Extension Association are accepted only after examination.

7. Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Department of Extension Classes and Department of Correspondence Study. All credits earned by advanced-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum. Up to 10 extension or correspondence credits from this University can apply toward the work of the senior year.

8. For work done in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advanced-credit examinations must be filed during the first quarter in residence.

9. No credit will be granted for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

#### ADMISSION OF FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD

Students educated entirely or partially in foreign countries must meet the same general requirements as those educated in American schools and must demonstrate a satisfactory command of the English language. A student who has graduated from a high school system that provides less than twelve years of instruction may be required to take additional school work.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in university attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students

must meet the scholarship requirement for nonresident students. See pages 23 and 25.

In some background subjects, a student, with formal training below the university level but more than is usually given in American high schools, may be registered for a more advanced course.

#### **ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Persons twenty-one or older who are legal residents of Washington and are not eligible for admission as regular students may apply to the Board of Admissions for admission with special standing. With their applications they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the Dean of the College permits but may not participate in student activities or receive degrees. By fulfilling requirements for admission to the College, special students may change their status to that of regular students and may receive degrees.

Persons twenty-one or older may register as auditors in nonlaboratory courses or the lecture parts of laboratory courses by obtaining the consent of the Dean of the College and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter. Students who have been dropped for low scholarship or new applicants who do not qualify for admission may not register as auditors until they have been reinstated or accepted in some college of the University.

#### **ADMISSION TO THE GRADUATE SCHOOL**

Prospective graduate students must apply for admission to the Graduate School. Entrance requirements are described in the *Graduate School Bulletin*, which may be obtained from the Addressograph Service.

### **KOREAN VETERANS**

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. If the veteran has any questions regarding application for a certificate, he should contact the Veterans Division, 1B Administration Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

#### **KOREAN CERTIFICATE**

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented along with his Program of Studies to the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

#### **INITIATION OF TRAINING**

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

There are restrictions for veterans returning to training following an interruption in excess of twelve months. Korean veterans should consult with the Veterans Division, 1B Administration, or the nearest Veterans Administration office to see if they are eligible for further benefits.

**QUARTERLY CREDIT REQUIREMENTS (Public Law 550)**

14 credits .....	Full subsistence
10 to 13 credits.....	Three-fourths subsistence
7 to 9 credits.....	One-half subsistence
6 credits or less.....	Established tuition and fees
or credits $\div$ 14 $\times$ \$110.00, whichever is the lesser	

**GRADUATE CREDIT REQUIREMENTS (500-level Courses or Above)**

9 credits .....	Full subsistence
7 to 8 credits .....	Three-fourths subsistence
5 to 6 credits .....	One-half subsistence
4 credits or less.....	Established tuition and fees
or credits $\div$ 14 $\times$ \$110.00, whichever is the lesser	

If a graduate is combining 400-level courses with 500-level courses he should check with the Veterans Division, 1B Administration, to determine his scale of pay.

**TERMINATION OF TRAINING**

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

**DISABLED VETERANS**

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

**CHILDREN OF DECEASED VETERANS**

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, 1B Administration Building, on the date of registration.

**WORLD WAR I OR II VETERANS**

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 34).

**REQUIRED TESTS AND EXAMINATIONS****WASHINGTON PRE-COLLEGE DIFFERENTIAL GUIDANCE TEST**

New students of freshman standing (including transfer students with less than 45 quarter college credits, exclusive of credits in physical education activity and Army, Air Force, and Navy ROTC subjects) are required to take the Differential Grade Prediction test at a time to be announced each quarter.

These tests have been selected on the basis of their proven value for the prediction of grades most likely to be earned by each student. The achieved scores are often used by members of staff in counseling students. In addition, a student's score on three parts of the battery (spelling, usage, and vocabulary) is used to assign him to the appropriate section in English composition; a student who scores in the lower fifth on these three tests must take the remedial, noncredit course,

English N50 (Basic Grammar), offered in Evening Classes, for which an additional fee is charged. Little can be gained by preliminary study for these tests. Sample copies are not available. Special, foreign, and blind students and auditors are exempted.

Foreign students who have markedly inadequate previous training in the use of English are required to take a special examination under the supervision of the English Department. *Since the aptitude tests are a prerequisite to English 101 (Composition) and Humanities-Social Studies 265 (Techniques of Communication) any student otherwise exempted must take these tests if he wishes to register for either of these courses.*

#### MATHEMATICS QUALIFYING AND EXEMPTION TESTS

Students who have taken third-semester algebra in high school, or the equivalent course in any other college, and who plan to take Mathematics 104 (Plane Trigonometry) and/or 105 (College Algebra) are required to take a qualifying test before they are permitted to register for these University courses. Those who fail the qualifying test and who wish to study trigonometry at the University must choose one of the following alternative plans:

1. Pass Mathematics 101 (without credit for such students) and then take 104.

NOTE: Mathematics 101 will not be offered as a regular University course, but only in Extension Classes or Correspondence Study, beginning Autumn Quarter, 1961.

2. Take Mathematics 103 which meets five hours per week, but carries only 3 credits.

Those who fail the qualifying test and who wish to study college algebra must first pass either Mathematics 101 or 103.

Students who have taken trigonometry and/or college algebra in high school and whose University courses of study require these subjects may obtain exemption from Mathematics 104 and/or 105 by taking an exemption test. Particularly high scores on both of these tests will qualify students to be placed in special sections of Mathematics 153. Directions for taking these tests are included in *Registration Information for New Students* which is enclosed with the Official Notice of Admission blank. Students are advised to review their high school work before taking these tests.

#### MEDICAL EXAMINATION

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the Student Health Center a form containing his health history and a report of a physical examination by a physician. The form will be sent to new students by the Office of Admissions and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the Student Health Center without charge.

With the exception of Canadian students, who will follow the above instructions, foreign students must take the required physical examination at the Student Health Center when they arrive on the campus.

#### REGISTRATION

##### REGULAR STUDENTS

A regular student is a student who fulfills the following requirements: (1) he has been granted regular admission to a school or college of the University; (2) his current schedule for credit is satisfactory to the dean of his school or college; (3) he has completed registration, including paying tuition and fees.

**PROCEDURE**

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration procedures, dates, and deadlines which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to, calling at, or telephoning the Registrar's Office at the time specified in the Calendar but in *no case* later than the stated deadline (see pages 4-10).

**ADVISING**

After notification of admission, and before registration, new students should visit or write to the College for assistance in planning their course programs. The College of Business Administration maintains an advisory office. Advisers are available at all times to help students plan their program of study both for college requirements and for the major sequence. Students may be referred by the advisers to faculty members.

**REGISTERED CREDITS ALLOWED EACH QUARTER**

Except with the consent of his dean, no student may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent) or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no case may a student be registered for, or receive credit for more than 20 credits (or the equivalent) of work, exclusive of physical education activity courses and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove deficiencies, or concurrently in extension classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

**CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the Dean of the College. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean and the instructor whose class the student wishes to enter.

**WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal

after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

#### WITHDRAWAL FROM THE UNIVERSITY

The student should obtain at the office of the dean of his school or college the Request for Withdrawal From the University form. The same system of grading applies as that described under Withdrawal From a Course.

#### SCHOLARSHIP AND MINIMUM CREDITS

The University scholarship requirement is the maintenance of a 2.00 cumulative grade-point average. Grade points per credit are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; and D, 1 point. A grade of E signifies failure and the grade point is 0. The grade-point average is computed by multiplying the grade point received in a course by the total number of credits the course carries, totaling these values for all courses, and dividing by the total number of credits for which the student registered.

Continuation in the College of Business Administration will depend upon compliance with the following scholarship regulations:

1. All students, except freshmen, whose current grade-point average is below 2.00 in any quarter are placed on probation the following quarter, regardless of their cumulative average (except that probation for a student with a cumulative average of 2.50 or higher is left to administrative discretion).

2. Freshmen are not placed on probation until after the second quarter. In the case of second- and third-quarter freshmen, a 1.80 current average applies rather than a 2.00.

3. Any student on probation who fails to obtain a current grade average of at least 1.66 in the subsequent quarter is dismissed from the College.

4. Any student on probation whose current grade average falls below 2.00 in each of three consecutive quarters is dismissed from the College. In the case of second- and third-quarter freshmen, a grade average of 1.80 applies rather than 2.00.

5. Any student on probation whose current grade average in any subsequent quarter is 2.00 or above is taken off probation, so far as this College is concerned, regardless of his cumulative average.

6. A student previously dropped for low scholarship and later reinstated will be dismissed at the end of any quarter thereafter in which he fails to maintain a current grade average of 2.00. Any student who has been dropped twice is ineligible for later readmission.

7. Nothing in the above will prevent immediate dismissal of any student at the end of any quarter in which his work is of such unsatisfactory caliber that continuation in the College is unjustified.

8. A student in any course in the College of Business Administration who withdraws after the first 15 calendar days of the quarter with a grade of D or E at the time of withdrawal is considered to be doing failing work and is given an EW.

For graduation, a total of 180 academic credits with a cumulative grade-point average of 2.00 is required. Of these credits, 60 must be in upper-division courses.

Grades earned at other institutions may not be used to raise the grade-point average at the University of Washington. Any college may make additional requirements for graduation.

Additional requirements of the College of Business Administration are: 72 credits earned in courses in business administration; 72 credits in courses which are not business administration (economic principles and economic history may be counted in either the business or nonbusiness groups); and no more than 18 credits in advanced ROTC subjects applied toward graduation, except in the case of students in the Supply Corps.



Any student transferring into the College of Business Administration with 135 or more earned credits will be required to accumulate a minimum of 45 additional credits subsequent to his admission into the College. Of these 45 credits, at least 35 must be earned in a minimum of three quarters in residence. The remaining 10 must be earned either in residence at the University or through the University's Department of Extension Classes and Department of Correspondence Study.

#### **SENIOR-YEAR RESIDENCE**

Senior standing is attained when 135 credits and the required credits in ROTC and physical education have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in a minimum of three quarters in residence. The remaining 10 credits may be earned either in residence or in this University's extension or correspondence courses.

#### **MILITARY TRAINING**

Male students who enter the University as freshmen or sophomores are required to complete six quarters of military training. Students should meet this requirement during the first two years they are in residence (registered in regular University classes).

The requirement may be met with courses in one of three University departments: Air Science, Military Science and Tactics, or Naval Science. The Departments of Air Science and Military Science offer six-quarter (two-year) basic programs of classwork and drill which fulfill University requirements, and two years of advanced ROTC training which selected students may enter after completing the basic program. Information about these programs may be obtained from the Professor of Air Science and the Professor of Military Science and Tactics at the University. The Department of Naval Science offers four-year programs only, and prospective students who are interested in Naval ROTC should write to the Professor of Naval Science. See also Reserve Officers Training Programs section.

Students with junior or senior standing in the Naval ROTC, and those who enter advanced Air Force or Army ROTC, must complete the program as a condition of graduation unless excused or dismissed by authority of the Secretary of the service concerned.

Exemptions from the requirement are granted to:

1. Students who are twenty-three years of age or over at the time of original entry into the University.
2. Students who enter as juniors or seniors.
3. Special students.
4. Students registered for 6 credits or less.
5. Students who are not citizens of the United States.
6. Students who, because of physical condition, are exempted by the University Health Officer.
7. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.
8. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.
9. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.
10. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.
11. Students who seek exemption on grounds other than specified above, and

whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the Dean of the College after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 5 or 11 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

#### PHYSICAL AND HEALTH EDUCATION

**Activity Courses.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

*Men* students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

*Women* students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

The following students are exempt from the requirement of activity courses:

1. Students who have attained the age of twenty-five. A student who attains the age of twenty-five during a quarter in which he is registered for a required physical education activity course shall be held for the completion of that course. This rule shall not be retroactive in its application to students who entered prior to Spring Quarter, 1951, and were exempted from required physical education courses under previous rules.

2. Students who enter as sophomores, juniors, or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who, because of physical condition, are exempted by the Graduation Committee upon the recommendation of the Dean of the College. Such action will be taken only when the Dean has received a joint recommendation for exemption from the University Health Officer and the Executive Officer of the Department of Physical Education for Men or for Women, whichever is appropriate. All other students who are reported by the University Health Officer as physically unfit to join regular classes will be assigned by the Executive Officer of the Department of Physical Education for Men or for Women to special programs adapted to their needs.

6. Students who are veterans of military service. Complete exemption is granted for one year or more of active duty. This exemption does not grant credit. Veterans with less than one year of service receive no exemption.

7. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**Health Courses.** All men students who enter the University as freshmen are required to take Health Education 175, a course in personal health, within the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption also does not grant credit.

*Women* students who enter the University as freshmen are required to take Health Education 110 within the first three quarters of residence. *Women* entering the University for the first time may satisfy this requirement by passing a health-

knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement, but does not grant credit for Health Education 110.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

### Tuition

Resident students, per quarter \$35.00

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter 105.00

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter 12.00

Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one half the nonresident tuition.

This exemption is not granted to Summer Quarter students.

### Incidental Fee, per quarter

Full-time resident students 27.50

Part-time resident students (registered for 6 credits or less, exclusive of ROTC) 10.00

Full-time nonresident students 52.50

Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC) 35.00

Auditors do not pay an incidental fee; there are no other exemptions.

### ASUW Fees

Membership, per quarter 8.50

Optional for auditors and part-time students.

Athletic admission ticket (optional for ASUW members) 3.50-6.50

Autumn, Winter, and Spring Quarters, \$6.50; Winter and Spring Quarters, \$3.50; Spring Quarter, \$3.50.

**Military Uniform Deposit** 25.00

Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.

**Breakage Ticket Deposit** 3.00

Required in some laboratory courses; ticket is returnable for full or partial refund.

**Locker Fee, per quarter** 1.50

Required of men students taking physical education activities.

**Grade Sheet Fee** .50

One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.

*Transcript Fee* 1.00

One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.

*Graduation Fee* 10.00

### SPECIAL FEES

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Appointments or Permits to register by In-Person Registration by action of the Registration Appeal Board. A late registration fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters by action of the Registration Appeal Board. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. The fee for a special examination is \$1.00 and for removal of an Incomplete, \$2.00. A fee of \$5.00 is charged each student, entering with less than 45 credits, who has not previously taken the Washington Pre-college Differential Guidance (Grade Prediction) Test.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter, are: bowling, \$5.00; canoeing, \$2.50; golf instruction, \$1.50.

### REFUND OF FEES

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

### ESTIMATE OF YEARLY EXPENSES

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

#### *Tuition, Incidental, and ASUW Membership Fees*

Full-time resident student \$213.00

Full-time nonresident student 498.00

*Athletic Admission Ticket (optional)* 6.50

*Health and Accident Insurance (optional)* 12.90

*Special Fees and Deposits* 38.50

Military uniform deposit, breakage ticket, and locker fees.

*Books and Supplies* 90.00

#### *Board and Room*

Room and meals in Men's Residence Halls 630.00

Room and meals in Women's Residence Halls 540.00-660.00

Room and meals in fraternity or sorority house 660.00-700.00

Initial cost of joining is not included; this information may be obtained from the Interfraternity Council or Panhellenic Council.

*Personal Expenses* 300.00

## STUDENT ACTIVITIES AND SERVICES

### ASSOCIATED STUDENTS

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

### SOCIETIES AND CLUBS

The clubs and fraternal organizations in the College were organized to further interest and promote higher standards in the various phases of business administration by acquainting members with their fellow students, their teachers, and with local businessmen and their problems.

*Alpha Kappa Psi* is a national commerce fraternity. Rho Chapter, at the University, is open to first-quarter sophomore business administration students who have an over-all grade-point average of 2.50 or better.

*Beta Alpha Psi* is an active national accounting fraternity dedicated to furthering the professional aspects of its membership and profession. Delta Chapter is composed of accounting majors with a minimum of 20 credits in accounting and a cumulative grade-point average of 3.00 in accounting and 2.50 in all subjects. Membership is limited to students who successfully pass a five-hour examination covering accounting law, theory, and problems.

*Beta Gamma Sigma*, national honorary fraternity, is made up of men and women with high scholarship and outstanding character in schools of commerce and business administration. Seniors with an over-all grade-point average of 3.30 and juniors with an over-all grade-point average of 3.50 are eligible for membership in Washington's Alpha Chapter.

*The Insurance Society* is an organization of students with a professional interest in insurance. Members must have had at least one insurance course.

*Society for Advancement of Management* is the recognized national professional organization of management in industry, commerce, government, and education and the pioneer in management philosophy. The University chapter is open to all students, regardless of academic major, who have a sincere interest in the art and science of management. Applicants must be above the freshman level and have a cumulative grade-point average of 2.00 or better.

*Marketing Club*, affiliated with the American Marketing Association, is open to all students interested in marketing.

*Pan Xenia*, a professional international foreign trade fraternity, is open to men with a satisfactory rating, majoring in foreign trade, political science, economics, or any international field.

*The Propeller Club* is composed of students interested in the field of transportation and its problems.

### FINANCIAL AIDS

A considerable number of scholarships are awarded annually on a competitive basis. Applications are available through the Office of the Dean of Students during Winter Quarter, and awards are made late in the spring for the following academic year. The University bulletin *Handbook of Scholarships* describes the various awards.

Short- and long-term loan funds, including the National Defense Student Loan fund, are administered by the Office of the Dean of Students. Full-time students who are making normal and satisfactory progress are eligible to apply.

Special awards for students in the College of Business Administration are avail-

able in the accounting, marketing, insurance, and production fields. Two loan funds may also be used by Business Administration students to help further their University work. Information may be obtained from the Scholarship Adviser.

#### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and similar problems.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, and employment should be referred to this Adviser. Students who are interested in study abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

#### COUNSELING CENTER

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors, and psychologists, works closely with other student services and supplements the academic advisory program.

#### HOUSING

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time sub-faculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

#### HEALTH SERVICES

The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

Health and accident insurance for students is available at the time of registration.

#### **EMPLOYMENT**

Information and assistance in obtaining full-time positions are given graduates by the Business Administration Placement Office. This Office also offers counseling service on job-hunting and interview procedures and provides opportunities for talks with representatives of national companies during their college-recruiting tours. Company brochures and general career information pamphlets are on display in this Office. These services are available to students and graduates of the College.

Part- and full-time work off campus in fields other than business administration may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Department and the ASUW Personnel Office.



## THE DEPARTMENTAL PROGRAMS



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# THE DEPARTMENTAL PROGRAMS

**T**HE COLLEGE OF BUSINESS ADMINISTRATION offers courses leading to the degrees of Bachelor of Arts in Business Administration, Master of Business Administration, Master of Arts, and Doctor of Business Administration. The College also cooperates with other colleges and departments in a program leading to the degree of Master of Arts in Urban Planning.

## **BACHELOR'S DEGREES**

Students working toward bachelor's degrees in business administration must meet certain general requirements of the University and the College as well as the particular course requirements of their major department. Course requirements are described in the announcements of the departments. General requirements for the bachelor's degree include military training, physical and health education, scholarship and minimum credits, course requirements, and senior-year residence.

Students should apply for bachelor's degrees during the first quarter of the senior year. If no more than ten years have elapsed since the date of a student's entry into the school or college in which he is to graduate, he may choose to graduate under the requirements set out in either the bulletin published by the appropriate school or college most recently prior to the date of his entry, or that published most recently prior to his anticipated date of graduation; provided that when, in the opinion of the faculty of the school or college or a departmental executive officer or a dean acting for such faculty, substantial changes have been made in the curriculum since the student's entry, the student's choice shall be subject to the approval of the appropriate faculty, executive officer, or dean. Disapproval of the student's choice shall be faculty action and subject to the procedure of the Faculty Code. All responsibility for fulfilling graduation requirements shall rest with the student concerned. No student whose standing is provisional because he has not removed his entrance deficiencies can have an application for degree accepted until the deficiency is cleared.

Students in other colleges of the University who wish simultaneously to receive a degree from the College of Business Administration must receive approval from the Assistant to the Dean of the College of Business Administration at least three quarters before completing the requirements for the degree from this College.

## REQUIREMENTS

The lower- and upper-division requirements leading to the degree of Bachelor of Arts in Business Administration are outlined below.

Lower-Division Requirements		CREDITS
Gen. Bus. 101	Introduction to Business .....	5
Acctg. 150	Fundamentals of Accounting .....	4
Acctg. 151	Fundamentals of Accounting .....	3
Engl. 101	Composition .....	3
Engl. 102	Composition .....	3
Engl. 103	Composition .....	3
Econ. 160	American Economic History .....	5
Hlth. Educ. 110	Health Education or 175 Personal Health .....	2
Electives (10 credits approved in humanities) .....		10
Acct. 255	Basic Accounting Analysis .....	3
Bus. Law 201	Business Law .....	3
Bus. Stat. 201	Statistical Analysis .....	5
Fin. 201	Banking and Business .....	5
Econ. 200	Introduction to Economics .....	5
Econ. 201	Principles of Economics .....	5
Geog. 207	Introductory Economic Geography .....	5
Electives (10 credits approved in social sciences and 10 credits approved in the sciences) .....		20
		<hr/> 91

Plus required physical education activity and military science.

Upper-Division Requirements		CREDITS
Fin. 301	Financial Management .....	5
Mktg. 301	Principles of Marketing .....	5
Prod. 301	Principles of Production .....	5
Gen. Bus. 439	Analysis of Business Conditions .....	5
Hum. Rel. 460	Human Relations in Business and Industry .....	5
Major requirements and approved electives .....		64
		<hr/> 89

## COLLEGE HONORS PROGRAM

The Honors Program of the College of Business Administration provides an opportunity for a small number of gifted undergraduate students in business administration to explore, through colloquia, reading, independent study, and consultations with faculty members, areas of academic interest that would not be possible in prescribed departmental degree programs and the usual elective offerings. The Honors Program is designed to help the honor student fill any great void in his academic program, to motivate the student to a higher quality of work in his field of specialization and to appreciate its relationship with other fields, to help him choose elective courses significantly—in short, to help him acquire as liberal an education in business administration as the College can supply and to emerge from undergraduate studies an enlightened personality.

Bulletin titles indicate only the general area in which a course will be conducted. The particular concepts to be considered and the material to be studied are determined by the instructor with the concurrence of the College Honors Committee.

Periodic announcements are made setting forth the eligibility requirements of the Honors Program. Information can be obtained from the Honors Committee.

## ADVANCED DEGREES

The College of Business Administration offers courses leading to the degrees of Master of Business Administration, Master of Arts, and Doctor of Business Administration. Graduate training is given in these fields of specialization: accounting; business and its environment; business policy and business administration; finance and banking; foreign trade; insurance; marketing; personnel and industrial relations; production; real estate; research and statistical control; and transportation. However, these areas shall not be held to exclude others which may be appropriate in special instances.

Graduate students seeking advanced degrees in business administration must

first file an application for admission to the Graduate School. The Graduate School passes upon the application and, if found satisfactory, forwards it to the College of Business Administration for final approval. Before final approval is granted by the College the applicant must have submitted to the College the result of the Admission Test for Graduate Study in Business. Inquiries concerning this test should be addressed to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, or 4640 Hollywood Boulevard, Los Angeles 27, California.

### ADMISSION

The applicant for a graduate degree in the College of Business Administration must have a bachelor's degree. If the degree is not in business administration from a member of the Association of American Collegiate Schools of Business, the applicant must present not less than 45 quarter credits in accounting, business fluctuations, business law, business statistics, corporation finance, economics, human relations, marketing, and production. Applicants for the degrees of Master of Business Administration and Doctor of Business Administration must include at least 9 credits in accounting and at least one course in each of the following subjects: business statistics, corporation finance, economic theory, human relations, marketing, and production. Deficiencies in background courses may be removed after enrollment in the graduate program through registration for regular undergraduate courses or their equivalent in accelerated courses identified by the letter "P."

The following courses will be open only to postgraduate students with a senior year grade-point average of 3.00:

<i>Course Number</i>	<i>Credits</i>	<i>Equivalent Content</i>
Accounting 200P	5	Accounting 150, 151, 255
Business Statistics 200P	3	Business Statistics 201
Finance 300P	5	Finance 201, 301
Marketing 300P	3	Marketing 301
Production 300P	3	Production 301
Human Relations 400P	3	Human Relations 460

The residence requirement for master's degrees is one year (three quarters). The requirement for the doctor's degree is three years, two of them at the University. Since one of the two years must be spent in continuous full-time residence, the residence requirement cannot be met solely with summer study.

There are four groups of courses which are not applicable to residence or graduate credit: (1) all courses numbered below 300, (2) courses numbered below 400 in the field of a student's major, (3) certain introductory, service, and undergraduate-research courses, and (4) accelerated courses followed by letter "P."

### MASTER'S DEGREES

Full graduate standing is granted applicants who have the necessary prerequisites and a grade-point average of 3.00 (B) or higher during their senior year. A grade-point average of less than 3.00 but above 2.75 will, if the student is admitted, result in provisional standing.

A student must maintain a 3.00 average in his first quarter of graduate work or he cannot take graduate courses in his second quarter. A student who fails to maintain a 3.00 average during the first two quarters of his graduate work will have his case reviewed by the Graduate Study Committee to determine whether or not he will be permitted to continue his work toward an advanced degree. In computing these grade-point averages, grades in both graduate and undergraduate courses are counted.

**Transfer and Extension Credit.** Up to 9 graduate credits taken while a graduate student in the graduate school of another accredited institution may be applied toward the master's degree. Six credits of extension work may similarly be ap-

plied, but only if taken at the University of Washington and only if taken after the student has been officially admitted to the Graduate School here. However, a combination of such transfer and extension work applying to the master's degree may not exceed 9 credits.

**Optional Programs.** Two options are offered for the master's degree, the Master of Business Administration (M.B.A.) and the Master of Arts in business (M.A.).

**Master of Business Administration.** The student must complete a minimum of 36 credits. At least 24 credits must be in business administration courses. The following courses are required:

	CREDITS
Accounting 592 .....	3
General Business 570, 571-572* .....	9
Policy and Administration 575, 576, or 586 .....	3
Policy and Administration 593 or 594 .....	3
Electives (The electives must include at least three areas of business administration, with a minimum of 3 credits in each area. Six of the elective credits shall be in 500-numbered courses.) .....	18
	<hr/> 36

\* Students may petition the Graduate Study Committee to enroll for thesis as a substitute for completing the three seminars in research and writing.

**Master of Arts.** The student must complete a minimum of 36 credits with a major in one of the fields of graduate study offered by the College of Business Administration. A minimum of 15 credits exclusive of the thesis must be earned in the major field. A minor may be taken in the College of Business Administration or elsewhere. A minimum of 9 credits is required in the minor field. If the minor is elected outside the College, requirements of the department offering the minor must be met.

A minimum of 15 credits must be earned in courses for graduates (500 and 600 series), and the remaining course credits must be in courses approved for graduate credit. The student must have a reading knowledge of an acceptable foreign language, as determined by examination.

**Minor in Business Administration.** Candidates for a master's degree in other colleges who elect a minor in the College of Business Administration must have as a background 15 credits in acceptable courses in business administration. The student must earn a minimum of 15 credits in approved upper-division and graduate courses in one field of business administration.

#### DOCTOR OF BUSINESS ADMINISTRATION

A requirement for consideration for the D.B.A. program is a grade-point average of at least 3.25 during the preceding year of graduate study and the necessary prerequisites for work in the College of Business Administration. Applications for admission to the D.B.A. program must be accompanied by three letters of recommendation, at least two of which must come from former instructors. The student must maintain a 3.25 or better average in his graduate work in *all* courses.

**Requirements of Study.** In addition to the general requirements of the Graduate School, the doctoral student must demonstrate competence in four areas of study, at least three of which must be in the College of Business Administration. Business and its environment or economics must be one of the four areas. In addition, the candidate must show evidence of competency in business research and must understand administrative functions of management. He must also demonstrate a knowledge of economics pertinent to his areas.

**Admission to Candidacy.** At the end of two years of graduate study as approved by the student's supervisory committee, the chairman of the committee may present to the Graduate School for approval a warrant permitting the student to take the general examination for admission to candidacy. The general examination consists of written and oral parts in all of the candidate's fields. All of these examinations are to be taken in one quarter and they are scheduled by the Graduate Study Committee.

No student is regarded by the Graduate School as a candidate for the doctor's degree until after the warrant certifying the successful completion of the general examinations has been filed with the Graduate School Office by the chairman of his supervisory committee. After his admission to candidacy, the student ordinarily devotes his time to the completion of his research work to be embodied in the thesis and to preparation for his final examination.

**Thesis and Final Examination.** The candidate's thesis must represent original and independent investigation. It should reflect not only his mastery of research techniques but also his ability to select an important problem for investigation and to deal with it competently. Instructions for the preparation of theses in acceptable form may be obtained from the Library.

The final examination is oral and will normally be taken not less than two quarters after the general examination. It is primarily on the thesis and the field of the thesis and will not be given until after the thesis has been accepted.

## COURSE-NUMBERING SYSTEM

Courses numbered from 100 through 299 are lower-division courses, for freshmen and sophomores; those numbered from 300 through 499 are upper-division, for juniors and seniors.

Courses numbered 500 and above are intended for and restricted to graduate students. Some courses numbered in the 300's and 400's are open both to graduates and to upper-division undergraduates. Such courses, when acceptable to the major department and the Graduate School, may be part of the graduate program. The Graduate School accepts credit in approved 300-level courses for the minor or supporting fields only; approved 400-level courses are accepted as part of the major. For a listing of approved 300- and 400-numbered courses, consult the *Graduate School Bulletin*.

Undergraduate students of senior standing who wish to register for a 500-level course must obtain permission from both the instructor of the class and the Dean of the Graduate School.

The number in parenthesis following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## ACCOUNTING

**Executive Officer: KERMIT O. HANSON**

Students who major in accounting can choose one of two options: professional or public accounting, and administrative or general accounting. The professional option is more complete, since it provides background not only for public accounting and the C.P.A. examination but for almost any accounting career. The major in general accounting is for students who intend to obtain accounting positions with business firms or in government service, and for those who take accounting simply as general training for business.

**PROFESSIONAL OR PUBLIC ACCOUNTING OPTION.** The requirements are: Accounting 310, 320, 330, 360, 420, 470, 480, 485; and Business Law 302 (Business Law) and 420 (Law in Accounting Practice). One additional course (3 or more credits)

must be taken if the student wishes to qualify for the minimum C.P.A. experience requirement.

**GENERAL ACCOUNTING.** The requirements are: Accounting 310, 320, 330, 350, 360; plus 6 credits elected in upper-division accounting courses.

## **COURSES FOR UNDERGRADUATES**

### **INTRODUCTORY ACCOUNTING**

**150 Fundamentals of Accounting (4)**

Basic principles and procedures, including recording of business transactions and preparation of financial statements.

**151 Fundamentals of Accounting (3)**

Elements of manufacturing, partnership, and corporation accounting. Prerequisite, 150.

### **MANAGERIAL ACCOUNTING**

**255 Basic Accounting Analysis (3)**

Financial and cost analysis and interpretation. Prerequisite, 151.

**305 Office Management (5)**

Office organization; supervision of office functions; office personnel problems. Prerequisite, 255.

**330 Cost Accounting (5)**

Theory of cost accounting; accumulation and allocation of costs; managerial control through cost data. Prerequisite, 310 or permission.

**350 Budgetary Control (3)**

Revenue, expense and financial planning and control for business enterprises. Prerequisite, 330.

### **FINANCIAL ACCOUNTING**

**310 Intermediate Accounting (5)**

Concepts and principles underlying accounting processes. Theory and problems of financial accounting, including financial statement analysis. Prerequisite, 255.

**360 Advanced Accounting (5)**

Theory and problems in accounting for ownership equity in corporations and partnerships. Quasi-reorganizations, business combinations, enterprise liquidations, insurance, actuarial science, income tax allocations. Prerequisite, 310.

**485 Consolidated Financial Statements (3)**

Accounting for parent-subsidiary and branch relationships, domestic and foreign; mergers. Prerequisite, 360.

**486 Fiduciary Accounting (2)**

Accounting and reporting for estates, trusts, bankruptcies, inheritances, etc. Prerequisite, 360.

**490 Advanced Problems (3)**

Intensive study of accounting principles, procedures, and presentations, principally through consideration of C.P.A. problems. Prerequisites, 320, 330, 480, 485.

**495 Advanced Accounting Theory (3)**

Theory of accounting related to income measurement, assets, and equities. Prerequisites, 360 and senior standing.

### **INCOME TAX**

**320 Income Tax I (3)**

Federal income tax and its application to returns of the individual. Prerequisite, 310.

**420 Income Tax II (3)**

Special problems in federal income tax, including partnerships, fiduciaries, and corporations; appeals. Prerequisite, 320.

### **AUDITING**

**371 Auditing or Industrial Internship (2)**

One quarter's internship with a certified public accounting firm, industrial organization, or government agency. Prerequisite, prior departmental approval.

**470 Auditing I (5)**

Auditing procedures and techniques, including practice set. Prerequisite, 360.

**471 Auditing II (3)**

Theory and applications of generally accepted auditing standards. A.I.C.P.A. Case Studies in Internal Control and in Auditing Procedure. Prerequisite, 470.

**SYSTEMS AND DATA PROCESSING****340 Accounting Systems (3)**

System design and installation, with emphasis on internal control. Prerequisite, 310.

**341 Machine Accounting (2)**

Study of modern punch card machines and their application to accounting procedures. Prerequisite, 255.

**344 Introduction to Electronic Data Processing (2)**

Current use of computers in business; impact of high-speed computation on decision-making; consideration of problems which lend themselves to quantitative approaches. Prerequisites, 255 and Business Statistics 201.

**444 Advanced Electronic Data Processing (3)**

Analysis of flow of information in business operations; place of computers in quantitative management; case studies; actual programming for and operation of electronic equipment. Prerequisite, permission.

**INSTITUTIONAL ACCOUNTING****480 Fund Accounting (3)**

Fund and budgetary accounting as applied to governments and to institutions such as hospitals and colleges. Prerequisite, 360.

**ACCOUNTING RESEARCH****499 Undergraduate Research (3, maximum 9)**

Prerequisite, permission.

**COURSES FOR GRADUATES ONLY****200P Managerial Accounting (5)**

Principles of financial statements and the double entry system. Manufacturing, partnership, and corporation accounting. Financial and cost analysis and interpretation. An accelerated course, for graduate students only, to remove background deficiency in 150, 151, and 255. Prerequisites, postgraduate standing with a senior year grade-point average of 3.00 and permission.

**520 Seminar in Financial Accounting (3)**

A critical examination of accounting theories, concepts, and standards pertaining to current assets and liabilities and relevant income determination problems. Prerequisites, 360 and permission.

**521 Seminar in Financial Accounting (3)**

A critical examination of accounting theories, concepts, and standards pertaining to non-current balance sheet items and relevant income determination problems. Prerequisites, 360 and permission.

**522 Seminar in Cost Accounting (3)**

Critical examination of theories of managerial accounting. Differentiation of objectives of managerial and financial accounting, joint costs, absorption costing, direct costing, standard costing, distribution costing, techniques of analysis of cost data, including differential cost analysis. Prerequisites, 330 and permission.

**592 Seminar in Administrative Controls (3)**

The use of accounting and statistics by management in the exercise of its planning and controlling functions; e.g., forecasting, budgets, standard costs, analysis of cost variations. Controllership as a function in the business enterprise. Prerequisites, 255 and permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)****BUSINESS AND ITS ENVIRONMENT**

**Acting Executive Officer: SUMNER MARCUS**

The Business and Its Environment curriculum is intended primarily for graduate students and may constitute one of the four area requirements for the degree of Doctor of Business Administration. The central objective of this curriculum is the evaluation of social, economic, and governmental influences on business and the related contribution of business to society. To this end it offers course work and supervised research in the external relationships rather than the internal management of business. Courses listed as General Business 439 (Analysis of Business Conditions) and 462 (Responsibilities of Business Leadership I) are recognized as prerequisites in this field of study.

## COURSES FOR GRADUATES ONLY

### 552 Legal Aspects of Business Regulation (3)

Examination, from the administrative point of view, of advanced legal problems bearing directly upon top management's decisions concerning basic operating policy. (Formerly General Business 552.) Prerequisite, permission.

### 562 Responsibilities of Business Leadership II (3)

Social responsibilities of business in relation to changing social forces. Relationships between business and consumers, government, labor, and agriculture. Problems of business ethics. (Formerly General Business 562.) Prerequisite, permission.

### 590 Business History (3)

Evolution of business institutions with special emphasis upon changing administrative policy, business organization, and methods in the American environment from the colonial period to the present. (Formerly General Business 590.) Prerequisite, permission.

### 593 Seminar in Business Fluctuations (3)

Business problems arising from fluctuations in prices and demand; analysis of strategic causes and effects of business policy on fluctuations; methods of adjustment by the firm; appraisal of corrective measures internal and external to business. (Formerly General Business 593.) Prerequisite, permission.

### 594 Seminar in Business Forecasting (3)

Problems of business forecasting and their setting; study and appraisal of forecasting methods in current use by corporations, advisory services and governmental agencies; review of actual cases and experience; techniques of preparing forecasts for the individual firm. (Formerly General Business 594.) Prerequisite, permission.

### 597 Behavioral Science of Business (3)

Analysis of the business system in the light of the concepts and methods of the behavioral disciplines. Prerequisite, permission.

### 598 Analysis of Business Behavior (3)

Current broad problems of business concerns in the American economy. The topics, one of which is usually discussed each quarter, emphasize practical price determination, cost analysis, firm behavior, motivation, or other similar subjects. (Formerly General Business 598.) Prerequisite, permission.

### 604 Research (\*, maximum 10)

Prerequisite, permission.

### 700 Thesis (\*)

## BUSINESS EDUCATION

### Acting Executive Officer: SUMNER MARCUS

A major in business education prepares students for teaching positions in high schools and junior colleges. Students who choose this major are expected to complete the course requirements of the College of Business Administration except Finance 301 (Financial Management) and General Business 439 (Analysis of Business Conditions) and the course requirements for the provisional general teaching certificate, which is issued by the College of Education (see the *College of Education Bulletin* for complete certification requirements).

Additional requirements for a major in business education are: Secretarial Training 111, 112 (Secretarial Training), 115 (Office Machines), 120-121 (Gregg Shorthand), 122 (Advanced Gregg Shorthand), 320 (Secretarial Practice), and 10 credits in approved electives in secretarial training, accounting, or marketing.

A student may qualify for a teaching certificate in the state of Washington with a teaching field in business education either through the College of Business Administration or through the College of Education. A student is advised to earn his baccalaureate degree in the College of Business Administration if he plans to work toward the Master of Business Administration.

## BUSINESS LAW

### Acting Executive Officer: SUMNER MARCUS

The Business Law curriculum provides courses in the essentials of business law for business administration students and students in other colleges.



**COURSES FOR UNDERGRADUATES****201 Business Law (5)**

Introduction to law, its origin and development; formation and performance of contracts; fraud, mistake, duress and undue influence; rights of third parties and remedies available at law and in equity; the law of agency as affecting the rights and duties of principal, agent, and third parties. Prerequisite, English 102.

**302 Business Law (5)**

Real and personal property, security transactions, sales, and negotiable instruments. (Formerly 202). Prerequisite, 201.

**307 Business Law (3)**

For engineering students and others unable to take more than 3 credits in business law. May not be substituted for 201. Not open for credit to business administration students. Prerequisite, permission.

**420 Law in Accounting Practice (3)**

Advanced business law problems for C.P.A. candidates. Prerequisite, 302.

**BUSINESS STATISTICS**

**Executive Officer: KERMIT O. HANSON**

The Business Statistics curriculum gives training in collecting, recording, analyzing, presenting, and interpreting the statistical data required for the management of business. The requirements for a major are: Business Statistics 341, 442, and 443; Accounting 310 (Intermediate Accounting) and 344 (Introduction to Electronic Data Processing); Mechanical Engineering 415 (Statistical Quality Control) and 417 (Methods Analysis); and Mathematics 105 (College Algebra).

**COURSES FOR UNDERGRADUATES****201 Statistical Analysis (5)**

A nonmathematical survey of the basic elements of descriptive statistics; use of the library as a source of business data; measurements useful in the analysis of data; some methods of data presentation. Prerequisite, General Business 101.

**341 Sampling (5)**

Theory and practice of sampling as applied to business problems; effect of biases on accuracy of results; precision and its cost. Tests of reliability of measures and the significance of differences in results obtained in sampling. Acceptance sampling. Prerequisite, 201.

**350 Analytical Techniques in Business (5)**

Introduction to mathematical tools utilized in the analysis of business problems. Emphasis is given to appreciation of the uses of these tools in business situations. Prerequisites, 201 and Mathematics 105 or permission.

**442 Administrative Applications of Statistical Control (3)**

Cases from modern business operations are used to present the practical application of statistical control techniques in administrative problems. Emphasis is on the use of acceptance sampling and control charts to increase efficiency and cut overhead costs. Prerequisite, 341 or permission.

**443 Statistical Problems (3)**

Application of various types of analyses to business management problems. Use of the analysis of variance, contingency tables, breakeven analysis; the use of correlation in commercial outlook forecasting; analysis of variations in labor, materials, and sales revenue. Prerequisite, 341 or permission.

**451 Analytical Methods in Decision-Making (5)**

Survey of application of analytical tools of operations research to business problems; includes total value analysis, marginal analysis, programming methods, queuing theory, and game theory. Prerequisite, 350 or permission.

**COURSES FOR GRADUATES ONLY****200P Statistical Analysis (3)**

A survey of the basic elements of descriptive statistics. An accelerated course, for graduate students only, to remove background deficiency in Business Statistics 201. Prerequisites, postgraduate standing with a senior year grade-point average of 3.00 and permission.

**520 Seminar (3)**

Administrative use of modern statistical techniques available for solution of problems in industrial, commercial, governmental, and nonprofit organizations. Emphasis on the utilization of statistical methods in administrative control. Group discussion, lecture, and reading groups. Prerequisite, permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)****BUSINESS WRITING****Executive Officer: CHARLES J. MILLER**

Good writing is a valuable asset to a successful business career. The Business Writing curriculum offers courses to assist the student to solve business problems by letter and to produce effective business reports.

**COURSES FOR UNDERGRADUATES****310 Business Correspondence (5)**

Principles, including "you" attitude, tone, and positive approach, psychology, and organization applied to requests, replies to inquiries, acknowledgements of orders, sales, claims, adjustments, credits, collections, and public relations letters. Preparation of an application letter and accompanying data sheet. Prerequisite, junior standing.

**410 Business Reports (5)**

Primary emphasis is on the presentation of factual information in a readable, concise, and accurate manner. Practice in writing reports. Application of sources of data and tabular and graphical materials to reports. Prerequisite, junior standing.

**FINANCE****Executive Officer: KERMIT O. HANSON**

Students majoring in finance choose one of three options: banking, which prepares students for careers in banks and related financial institutions; financial management, leading to careers as treasurers, controllers, credit managers, and financial administrators in business enterprises; or investments, leading to careers in investment banking and investment management.

**BANKING OPTION.** The requirements are: Finance 344, 423, 426, and 428; plus 15 credits elected from Finance 334, 367, 410, and 450; Insurance 301 (Principles of Insurance); Accounting 310 (Intermediate Accounting); Economics 350 (Public Finance and Taxation I) and 421 (Money, Credit, and the Economy); and Real Estate 301 (Principles of Urban Real Estate).

**FINANCIAL MANAGEMENT OPTION.** The requirements are: Finance 334, 426, 450, and Accounting 310 (Intermediate Accounting); plus 15 or more credits elected from Finance 344, 428; Accounting 320 (Income Tax I), 330 (Cost Accounting), and 350 (Budgetary Control); Insurance 301 (Principles of Insurance); and Policy and Administration 470 (Business Policy).

**INVESTMENTS OPTION.** The requirements are: Finance 344, 426, and 446; Accounting 310 (Intermediate Accounting); plus 13 or more credits from Finance 340, 410, and 450; Accounting 320 (Income Tax I); Economics 350 (Public Finance and Taxation I); Insurance 301 (Principles of Insurance); and Real Estate 301 (Principles of Urban Real Estate).

**COURSES FOR UNDERGRADUATES****201 Banking and Business (5)**

Functions of the important financial institutions, including commercial banks and the banking system of the United States; investment banking, security markets, savings institutions, consumer credit agencies, governmental credit agencies, and international financial relationships. The role each institution plays in meeting the short-, intermediate-, and long-term credit needs of business and individuals is emphasized. Prerequisites, Accounting 151 and Economics 201.

**301 Financial Management (5)**

Problems dealing with the sources, uses, and control of funds in business enterprises. Major

emphasis is devoted to sources of long- and short-term funds, policies relating to working capital, income management, and the financing of growth and expansion. Prerequisite, 201 and Accounting 255.

**334 Credits and Collections (3)**

Credit as a factor in the production and distribution of commodities; retail credit and mercantile credit; mercantile credit as a basis for bank credit; organization and functions of the credit department; sources of credit information; credit limits; collection systems and procedures; creditors' legal remedies. Prerequisite, 301.

**340 Securities Markets (5)**

A course devoted primarily to the functions and operations of the primary and secondary markets for securities. Particular emphasis is given to investment banking; direct placement of securities; the organized securities exchanges; the over-the-counter market; and regulatory and supervisory functions of the government, including the S.E.C. and the individual states. Prerequisite, 301.

**344 Principles of Investment (5)**

Designed both for students who expect to enter financial work and for those who desire a knowledge of investment for personal use. Basic principles in the selection of investment media; determination of individual and institutional investment policies; fundamental analysis of industries and securities. Prerequisite, 301.

**367 International Finance (5)**

Practices, institutional operations, and problems in the field of international finance; the balance of international payments; financing foreign trade and other international transactions; foreign departments of banks; the foreign exchange market and exchange rates; the impact of international financial problems on business. Prerequisite, 201.

**410 Mortgage Banking (3)**

Organization and operation of credit and auxiliary agencies, private and governmental, in the urban and rural mortgage banking fields. Credit and management problems of savings and loan associations, mutual savings banks, and related institutions. Prerequisites, 201 and Real Estate 301.

**423 Problems in Bank Administration (5)**

Problems of internal organization and management of commercial banks, including portfolio analysis, departmental functions, and responsibilities of officers and directors. Attention is also given to problems of banking as an industry, including branch banking, correspondent banking, and the relationship between banks and government agencies. Prerequisite, 201.

**426 Financial Institutions and Money Markets (3)**

Analysis of interrelationships of financial institutions in the short-term and long-term money markets. Special attention is given to the effects on financial institutions and money markets of Treasury and Federal Reserve policies, and to the manner in which legal requirements, portfolio policies, and sources of funds result in actions by financial institutions and affect money markets. Prerequisite, 301.

**428 Bank Credit Administration (3)**

A study of problems of bank credit administration through analysis of selected loan and investment cases. Prerequisite, 423 or permission.

**446 Investment Analysis (5)**

An advanced course primarily for students who want preparation for investment banking or for professional investment work. Principles and techniques applicable to the analysis of securities, both corporate and governmental, and workable criteria for the selection or rejection of issues are emphasized. Prerequisites, 344 and Accounting 310.

**450 Problems in Corporation Finance (5)**

Case study of financial problems of private business corporations. Includes special problems in promotion, financing current operations, financing long-run needs, reserve and dividend policies, expansion, combination, and reorganization, as well as comprehensive financial problems, from the management point of view. Prerequisite, 301 or permission.

**499 Undergraduate Research (3, maximum 6)**

Research in selected problems in credit administration, international finance, banking, corporation finance, and investments. Prerequisites, 301 and permission.

## COURSES FOR GRADUATES ONLY

**300P Business Finance (5)**

The role of financial institutions in meeting short-, intermediate-, and long-term credit needs of businesses and individuals. An accelerated course, for graduate students only, to remove background deficiency in Finance 201 and 301. Prerequisites, postgraduate standing with a senior year grade-point average of 3.00 and permission.

**520 Seminar in Banking Problems (3)**

Selected problems of contemporary and permanent significance in domestic and international banking and finance. Prerequisite, permission.

**521 Seminar in Money Markets (3)**

Supply and demand for funds in short-term and long-term money markets; analysis of the influence of the money supply, bank reserves, legal restrictions, institutional portfolio policies, and changing needs and instruments of corporation finance. An objective of this seminar is to develop ability to analyze and appraise current money market developments. Prerequisite, permission.

**522 Seminar in Corporation Finance (3)**

Emphasizes selected contemporary problems and methods, internal and external, in solving corporate financial problems and indicating financial trends. Extensive reading and discussion is required in designated areas. Prerequisite, permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)**

## FOREIGN TRADE

**Executive Officer: CHARLES J. MILLER**

The Foreign Trade curriculum prepares students for careers in overseas operations divisions of manufacturing, marketing, and financial establishments, import and export houses, international agencies, and foreign trade service organizations.

The requirements for a major are: Foreign Trade 301, 320, 370, 420, and 470. Courses in foreign languages and literature are strongly recommended.

### COURSES FOR UNDERGRADUATES

**301 Principles of Foreign Trade (5)**

Institutions, principles, and methods; effects of national differences on business practices; exporting and importing; organization for marketing and manufacturing operations abroad; national policies and international relations.

**320 International Business Environment (5)**

Cultural and social factors affecting business behavior; national trade policies, trade agreements, and conventions; government and social controls; taxation; international cooperation; communist trade policies; adaptation of business organization to foreign conditions. Current developments are emphasized. Prerequisite, 301.

**370 Foreign Area Analysis (5)**

Objectives, methods, and practices of area analysis; source reference and interpretation of foreign information; business problems in underdeveloped countries. Individual term projects provide practical experience in area studied. Prerequisite, 301.

**420 Foreign Trade Practices (5)**

International communications, contracts, and arbitration; product and market analysis, packaging; cost analysis and pricing; documentation and shipping; licenses, taxes, tariffs, and customs procedures. Prerequisite, 301.

**470 Problems in Foreign Operations Management (5)**

Analysis of foreign operations problems and policies at the management level. Prerequisite, 301.

### COURSES FOR GRADUATES ONLY

**520, 521 Seminar (3,3)**

Trends and contemporary problems in foreign operations management, international business relations and services, foreign economic policies, and related subjects; research and sources of information useful for solving international business problems. Each quarter a different aspect is emphasized. Prerequisite, permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)**

## GENERAL BUSINESS

**Acting Executive Officer: SUMNER MARCUS**

The General Business curriculum is designed for students who want a balanced training in several fields of business administration or who have not decided upon a specialized field of study. The requirements for a major are: 30 credits in approved upper-division courses in business, of which no more than 10 may be in any one major field, and 10 of which must be in courses numbered 400.

emphasis is devoted to sources of long- and short-term funds, policies relating to working capital, income management, and the financing of growth and expansion. Prerequisite, 201 and Accounting 255.

**334 Credits and Collections (3)**

Credit as a factor in the production and distribution of commodities; retail credit and mercantile credit; mercantile credit as a basis for bank credit; organization and functions of the credit department; sources of credit information; credit limits; collection systems and procedures; creditors' legal remedies. Prerequisite, 301.

**340 Securities Markets (5)**

A course devoted primarily to the functions and operations of the primary and secondary markets for securities. Particular emphasis is given to investment banking; direct placement of securities; the organized securities exchanges; the over-the-counter market; and regulatory and supervisory functions of the government, including the S.E.C. and the individual states. Prerequisite, 301.

**344 Principles of Investment (5)**

Designed both for students who expect to enter financial work and for those who desire a knowledge of investment for personal use. Basic principles in the selection of investment media; determination of individual and institutional investment policies; fundamental analysis of industries and securities. Prerequisite, 301.

**367 International Finance (5)**

Practices, institutional operations, and problems in the field of international finance; the balance of international payments; financing foreign trade and other international transactions; foreign departments of banks; the foreign exchange market and exchange rates; the impact of international financial problems on business. Prerequisite, 201.

**410 Mortgage Banking (3)**

Organization and operation of credit and auxiliary agencies, private and governmental, in the urban and rural mortgage banking fields. Credit and management problems of savings and loan associations, mutual savings banks, and related institutions. Prerequisites, 201 and Real Estate 301.

**423 Problems in Bank Administration (5)**

Problems of internal organization and management of commercial banks, including portfolio analysis, departmental functions, and responsibilities of officers and directors. Attention is also given to problems of banking as an industry, including branch banking, correspondent banking, and the relationship between banks and government agencies. Prerequisite, 201.

**426 Financial Institutions and Money Markets (3)**

Analysis of interrelationships of financial institutions in the short-term and long-term money markets. Special attention is given to the effects on financial institutions and money markets of Treasury and Federal Reserve policies, and to the manner in which legal requirements, portfolio policies, and sources of funds result in actions by financial institutions and affect money markets. Prerequisite, 301.

**428 Bank Credit Administration (3)**

A study of problems of bank credit administration through analysis of selected loan and investment cases. Prerequisite, 423 or permission.

**446 Investment Analysis (5)**

An advanced course primarily for students who want preparation for investment banking or for professional investment work. Principles and techniques applicable to the analysis of securities, both corporate and governmental, and workable criteria for the selection or rejection of issues are emphasized. Prerequisites, 344 and Accounting 310.

**450 Problems in Corporation Finance (5)**

Case study of financial problems of private business corporations. Includes special problems in promotion, financing current operations, financing long-run needs, reserve and dividend policies, expansion, combination, and reorganization, as well as comprehensive financial problems, from the management point of view. Prerequisite, 301 or permission.

**499 Undergraduate Research (3, maximum 6)**

Research in selected problems in credit administration, international finance, banking, corporation finance, and investments. Prerequisites, 301 and permission.

## COURSES FOR GRADUATES ONLY

**300P Business Finance (5)**

The role of financial institutions in meeting short-, intermediate-, and long-term credit needs of businesses and individuals. An accelerated course, for graduate students only, to remove background deficiency in Finance 201 and 301. Prerequisites, postgraduate standing with a senior year grade-point average of 3.00 and permission.

**520 Seminar in Banking Problems (3)**

Selected problems of contemporary and permanent significance in domestic and international banking and finance. Prerequisite, permission.

**521 Seminar in Money Markets (3)**

Supply and demand for funds in short-term and long-term money markets; analysis of the influence of the money supply, bank reserves, legal restrictions, institutional portfolio policies, and changing needs and instruments of corporation finance. An objective of this seminar is to develop ability to analyze and appraise current money market developments. Prerequisite, permission.

**522 Seminar in Corporation Finance (3)**

Emphasizes selected contemporary problems and methods, internal and external, in solving corporate financial problems and indicating financial trends. Extensive reading and discussion is required in designated areas. Prerequisite, permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)**

## FOREIGN TRADE

**Executive Officer: CHARLES J. MILLER**

The Foreign Trade curriculum prepares students for careers in overseas operations divisions of manufacturing, marketing, and financial establishments, import and export houses, international agencies, and foreign trade service organizations.

The requirements for a major are: Foreign Trade 301, 320, 370, 420, and 470. Courses in foreign languages and literature are strongly recommended.

### COURSES FOR UNDERGRADUATES

**301 Principles of Foreign Trade (5)**

Institutions, principles, and methods; effects of national differences on business practices; exporting and importing; organization for marketing and manufacturing operations abroad; national policies and international relations.

**320 International Business Environment (5)**

Cultural and social factors affecting business behavior; national trade policies, trade agreements, and conventions; government and social controls; taxation; international cooperation; communist trade policies; adaptation of business organization to foreign conditions. Current developments are emphasized. Prerequisite, 301.

**370 Foreign Area Analysis (5)**

Objectives, methods, and practices of area analysis; source reference and interpretation of foreign information; business problems in underdeveloped countries. Individual term projects provide practical experience in area studied. Prerequisite, 301.

**420 Foreign Trade Practices (5)**

International communications, contracts, and arbitration; product and market analysis, packaging; cost analysis and pricing; documentation and shipping; licenses, taxes, tariffs, and customs procedures. Prerequisite, 301.

**470 Problems in Foreign Operations Management (5)**

Analysis of foreign operations problems and policies at the management level. Prerequisite, 301.

### COURSES FOR GRADUATES ONLY

**520, 521 Seminar (3,3)**

Trends and contemporary problems in foreign operations management, international business relations and services, foreign economic policies, and related subjects; research and sources of information useful for solving international business problems. Each quarter a different aspect is emphasized. Prerequisite, permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)**

## GENERAL BUSINESS

**Acting Executive Officer: SUMNER MARCUS**

The General Business curriculum is designed for students who want a balanced training in several fields of business administration or who have not decided upon a specialized field of study. The requirements for a major are: 30 credits in approved upper-division courses in business, of which no more than 10 may be in any one major field, and 10 of which must be in courses numbered 400.

## COURSES FOR UNDERGRADUATES

### 101 Introduction to Business (5)

The nature of business problems; various types of ownership; physical factors in location of business; personnel aspects; marketing problems, devices for long- and short-term financing; managerial controls, such as accounting, statistics, and budgets; and the relation of business to government.

### 439 Analysis of Business Conditions (5)

Analysis of the basic variations affecting general business conditions as a background for business and investment decisions; appraisal of proposals for controlling cycles and of forecasting techniques. Prerequisites, Finance 301, Marketing 301, Production 301, and Business Statistics 201.

### 441 Dynamics of Business Enterprise (3)

Analysis of external and internal factors affecting decisions within the business firm. Motivation, inter-firm relationships, cost and pricing policies, are among the subjects examined. Prerequisite, senior standing.

### 462 Responsibilities of Business Leadership I (3)

Adaptation of business policies to changing social forces. Relationships between business and consumers, government, labor and agriculture, and problems of business ethics. Mature acceptance of the social responsibilities of economic power is encouraged. Prerequisite, senior standing.

### 499 Undergraduate Research (3, maximum 9)

Prerequisites, 439 and permission.

## COURSES FOR GRADUATES ONLY

### 570 Seminar in Business Research (3)

Business research methods and techniques. Emphasis is placed on what business research is; how it is done, stressing the scientific method as a research procedure; and who does it. Sources of relevant information are covered. Students will carry out the formulation of a research project; defining the problem, pinpointing sources of information, selecting a method of approach. Prerequisite, permission.

### 571-572 Business Studies (3-3)

Independent study in the field of business administration; critical evaluation of business analysis and research methods. Effective communication of ideas is emphasized. Methods and content of independent research studies being completed by the students are subjected to critical evaluation in seminar discussion. Prerequisites, 570 and approved research topic outline for 571; 571- for -572; 571-572 open only to MBA nonthesis students.

### 604 Research (\*, maximum 10)

Prerequisite, permission.

### 700 Thesis (\*)

## HUMAN RELATIONS IN BUSINESS AND INDUSTRY

Acting Executive Officer: ROBERT A. SUTERMEISTER

The purpose of the Human Relations in Business and Industry curriculum is to help each student develop knowledge, skills, and attitudes about human behavior that will make him a more responsible member of a business organization. Both courses offered are useful to students in other colleges of the University.

## COURSES FOR UNDERGRADUATES

### 365 Industrial Relations for Engineers (3)

Cases are used to develop useful ways of dealing with human situations, making administrative decisions, supervising people, and building effective industrial and personnel relations. Not open to business administration students.

### 460 Human Relations in Business and Industry (5)

Cases are used to develop an understanding of human situations in business and industry. Useful skills and concepts are developed as aids in diagnosing and taking action. Prerequisite, senior standing.

## COURSE FOR GRADUATES ONLY

### 400P Human Relations in Business and Industry (3)

Cases are used to develop an understanding of human situations in business and industry. An accelerated course, for graduate students only, to remove background deficiency in Human Relations 460. Prerequisites, postgraduate standing with a senior year grade-point average of 3.00 and permission.

## INSURANCE

**Acting Executive Officer: SUMNER MARCUS**

The Insurance curriculum has two primary aims: to give students information which will make them more intelligent purchasers of both personal and business insurance, and to train students who expect to enter some branch of the insurance business or the insurance department of a banking, commercial, or industrial organization. The requirements for a major are: Insurance 301, 360, 370, and 375; plus 10 or more credits from the following: Accounting 310 (Intermediate Accounting); Business Writing 410 (Business Reports); Finance 334 (Credits and Collections) and 344 (Principles of Investment); Insurance 460; Marketing 351 (Principles of Salesmanship); Policy and Administration 470 (Business Policy); and Real Estate 301 (Principles of Urban Real Estate).

### COURSES FOR UNDERGRADUATES

- 301 Principles of Insurance (5)**  
Nature of risk and uncertainty; methods of meeting risk; the insurance mechanism; legal problems of insurance; various types of contracts and carriers; purchase of insurance by the individual. Prerequisite, General Business 101.
- 360 Life Insurance for the Individual (5)**  
Recognizing individual needs for life insurance; policy provisions; settlement options; programming; rates and reserves; prospecting. The viewpoint is that of the insurance company. Prerequisite, 301.
- 370 Property-Liability Coverages (5)**  
The course examines concepts utilized in first-party and third-party loss coverages; analyzes basic exposure situations; evaluates the impact of multiple-line laws on coverages; discusses limitations on the full integration of coverages into unified policy contracts. Prerequisites, 301 and Accounting 310.
- 375 Property-Liability Insurer Functions (5)**  
Discussion and analysis of important functions in providing property-liability insurances. Rate-making, underwriting, reinsurance, loss adjustment, loss prevention, financial statements are considered. Special attention is devoted to the impact of multiple-line laws on insurer functions. Prerequisite, 370.
- 460 Life Insurance for Business (5)**  
Methods of meeting the life contingency risks of economic enterprises, including key-man and liquidation insurance, group insurance, and employee benefit plans which are susceptible to funding by insurance. The viewpoint is that of the insurance company. Prerequisite, 360.
- 499 Undergraduate Research (3, maximum 6)**  
Open only to qualified insurance students. Prerequisite, permission.

### COURSES FOR GRADUATES ONLY

- 520 Seminar (3)**  
Considers theoretical aspects of the insurance business rather than the public and sales factors. Examination is made of the economic theory underlying insurance and a number of the management problems facing the industry. Class is conducted on a discussion basis, with the members of the class preparing and presenting reports on the management problems discussed. Prerequisite, permission.
- 604 Research (\*, maximum 10)**  
Prerequisite, permission.
- 700 Thesis (\*)**

## LAW, PREPROFESSIONAL PROGRAM

**Adviser: S. D. BROWN**

Students at the University who plan to enter the University of Washington School of Law may qualify for entrance by obtaining a bachelor's degree before entrance; or by taking a special three-year course of prelegal training which leads to a bachelor's degree at the successful completion of the first year in the School of Law.



Students who take the three-year course leading to a bachelor's degree after one year in the School of Law have a choice of three curricula. The College of Arts and Sciences provides an arts-law and a science-law curriculum (see the *College of Arts and Sciences Bulletin*) and the College of Business Administration provides a business-law curriculum. In all these curricula the three-year program must include 135 credits with a 2.50 grade-point average, and the required quarters in physical education activity and/or military training, if a degree is to be conferred by the college at the end of a year in the School of Law.

These three-year curricula are open to students from other institutions who enter the University with advanced standing, provided that they earn at least 45 approved credits in the University before entering the School of Law. This privilege is not extended to normal school graduates attempting to graduate in two years nor to transfer students who enter the University with the rank of senior.

Students in the College of Business Administration must satisfy all the specific requirements for a Bachelor of Arts in Business Administration degree with the exception of Business Law 201 (Business Law) and must have accumulated a total of 135 credits before entering the School of Law.

In addition, the applicant must take the Law School Admission Test which is given in November, February, April, and August. If possible, applicants should take the February test.

## MARKETING

**Executive Officer: CHARLES J. MILLER**

Students who major in marketing study the principles and policies governing the distribution of goods from producers to consumers and the functions performed by the various types of distributive agencies. Courses are designed to prepare students to enter industrial marketing organizations, wholesaling institutions, retail stores, advertising, and research agencies.

*Students who plan to major in marketing should take 301 the last quarter of their sophomore year.*

The requirements for a major are: Marketing 371, 381, 391, 421, and 491.

Requirements are subject to change by reason of contemplated alterations of the curriculum. Each student should consult his major professor on courses and departmental requirements before registering.

## COURSES FOR UNDERGRADUATES

### **301 Principles of Marketing (5)**

Analytical survey of institutions, functions, problems, and policies in the distribution of goods from producer to consumer; pricing, costs, and governmental regulations. Should be taken in the sophomore year by marketing majors.

### **351 Principles of Salesmanship (2)**

Psychological, economic, and marketing foundations of creative sales activities. Effective sales techniques demonstrated by students in realistic situations. Prerequisite, 301.

### **371 Wholesaling (5)**

Principles and functions of wholesaling consumer, industrial, and agricultural goods. Practical aspects of managing wholesaling establishments. Prerequisite, 301.

### **381 Retailing (5)**

Profit planning and business control; buying, stock control, pricing, promotion; store location, layout, organization, policies, systems; coordination of store activities. Prerequisite, 301.

### **391 Advertising (5)**

Planning the program: analysis of media and budgets; research; utilization by business; advertising institutions; economic and social aspects. Prerequisite, 301.

### **401 Sales Management (5)**

Analysis of sales methods, policies, and costs; sales organization; management of the sales force (selection, training, compensation, and supervision); sales planning; sales and distribution policies, problems. Prerequisite, 301.

**411 Group Activities in Marketing (5)**

Management problems, policies, and practices of trade associations, commodity exchanges, and producer, wholesaling, and consumer cooperatives; formal and informal marketing associations.

**421 Marketing Research (5)**

Uses, methods, and techniques of marketing research. A class research project provides practical application of methods studied. Prerequisites, 301 and Business Statistics 201.

**425 Distribution Cost Analysis (3)**

Quantitative analysis of distribution costs as a basis for control and decisions in marketing management. Not open to students who have taken Accounting 351. Prerequisites, 301 and Accounting 255.

**431 Retail Planning and Control (5)**

Planning, control, and evaluation of factors that determine retail profits including buying, pricing, financing, inventories, and expenses; store-wide planning and control. Prerequisite, 381.

**441 Retail Sales Promotion (3)**

The promotion plan and budget; advertising, publicity, and salesmanship; store design and layout as promotional devices; group promotion; coordination of promotional activities. Prerequisite, 301.

**481 Retail Field Work (2, maximum 8)**

Open to scholarship students only. Prerequisite, permission.

**491 Marketing Problems (5)**

Analysis of wholesale and industrial, retail, and advertising problems at the management level. Prerequisite, 301.

**COURSES FOR GRADUATES ONLY****300P Principles of Marketing (3)**

Analytical survey of institutions, functions, problems, and policies in the distribution of goods from producer to consumer. An accelerated course, for graduate students only, to remove background deficiency in 301. Prerequisites, postgraduate standing with a senior year grade-point average of 3.00 and permission.

**520 Marketing Trends and Developments (3)**

The current evolution of marketing is subjected to critical evaluation. The entire field of marketing is reviewed analytically. Prerequisites, 301 and permission.

**521 Marketing's Role in Contemporary America (3)**

The role of marketing in helping to meet the challenges of full employment and an expanding flow of goods and services through the American economy. Specific problem areas which may be examined include: marketing costs and efficiency, marketing and government, marketing and monopoly, pricing, and channels of distribution. Prerequisites, 301 and permission.

**522 Advanced Marketing Concepts (3)**

The interdisciplinary exchange of ideas related to marketing is studied. New marketing theories and evolving concepts of marketing management are examined and critically appraised. Prerequisites, 491, 520 or 521, and permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)****OFFICE MANAGEMENT**

**Executive Officer: KERMIT O. HANSON**

Office management may be chosen as a major by students who want to arrange a program in office organization, supervision of office functions, office personnel problems, and the techniques and procedures involved in efficient office management. The requirements for a major are: Accounting 305 (Office Management), 310 (Intermediate Accounting), 340 (Accounting Systems), and 499 (Undergraduate Research); Business Writing 310 (Business Correspondence); Finance 334 (Credits and Collections); and Personnel 310 (Personnel Management).

**PERSONNEL**

**Acting Executive Officer: ROBERT A. SUTERMEISTER**

The Personnel curriculum provides training in the policies and procedures used in developing and maintaining an efficient work force. The requirements for a

major are: Personnel 310, 345, 346, and 450; Policy and Administration 463 (Administrative Practices); Sociology 466 (Industrial Sociology); Economics 340 (Labor in the Economy); Mechanical Engineering 417 (Methods Analysis); and one course recommended by the adviser from: Psychology 101 (Psychology of Adjustment), 345 (Social Psychology), 405 (Personality), 413 (Tests and Measurements); Economics 441 (Union-Management Relations), and 442 (American Labor History). Women may substitute Mechanical Engineering 418 (Work Simplification) for Mechanical Engineering 417 (Methods Analysis).

## COURSES FOR UNDERGRADUATES

### 310 Personnel Management (5)

Philosophy and procedures in obtaining and maintaining an efficient work force, with emphasis on the methods of initiating and carrying out an effective personnel program.

### 345 Personnel Management Techniques (3)

Concerned with locating and bringing into the company an adequate work force. Practice in the techniques of job analysis, description, and evaluation; recruiting, selection, and placement; orientation and induction; interviewing for selection, orientation, and placement. Prerequisite, 310.

### 346 Personnel Management Techniques (3)

Concerned with maintaining and improving the current work force. Practice in techniques of training (workers, supervisors, and executives), communication, wage and salary administration, employee services, records, research, performance appraisal, and interviewing in counseling, discharge, transfer, and discipline situations. Prerequisite, 310.

### 450 Industrial Relations Administration (5)

A case course directed toward the development of administrative skill in dealing with unions. The subjects covered are: the nature of unions, the institutional forces conditioning collective bargaining practices, and administrative practices in dealing with unions.

## COURSES FOR GRADUATES ONLY

### 520 Seminar in Personnel Management (3)

By case discussion and brief written reports, analysis of the problems and policies in personnel administration in the following areas is covered: business philosophy, ethics, personnel policies, the role of the personnel director, breadth of the personnel department's responsibilities, collective bargaining, supervision, job evaluation, and safety. Prerequisite, permission.

### 521 Current Problems in Personnel and Industrial Relations (3)

Current problems in these areas: selection, appraisal, performance review, and development of executives; executive salary administration; white-collar unionization; preparation for contract negotiations; problems surrounding strikes. Prerequisite, one course in personnel, industrial relations, or labor economics, and permission.

### 604 Research (\*, maximum 10)

Prerequisite, permission.

### 700 Thesis (\*)

## POLICY AND ADMINISTRATION

Acting Executive Officer: ROBERT A. SUTERMEISTER

The Policy and Administration curriculum provides courses that integrate and supplement the work in other departments of the College. The courses are designed to add to the understanding of the fundamental principles of business from the viewpoint of management, particularly of those executives whose decisions shape important policies of business under private ownership. Policy and administration courses emphasize the administrative viewpoint and the general unity of business administration and encourage the habit of thinking about business problems in an over-all context.

## COURSES FOR UNDERGRADUATES

### 440 Concepts in Organization and Administration (5)

A study of formal organization structures, departmentation, delegation and decentralization of authority and responsibility, authority and responsibility relationships, planning, committees, boards of directors, organizational trends. Relates formal structure to informal organization and human relations. Prerequisite, advanced junior standing.

**463 Administrative Practices (5)**

Administrative behavior and the administrative function in business and industry, studied through selected reading and the use of actual cases. Emphasis is on the development of skill in diagnosing concrete situations. Prerequisite, Human Relations 460.

**470 Business Policy (5)**

Problems of policy formulation at upper levels of management, requiring the over-all integration of the various aspects of business. Prerequisites, Finance 301, Marketing 301, and Production 301.

**471 Problems of the Independent Businessman (5)**

Case studies of problems faced by independent owner-managers of small business enterprises. Prerequisites, Finance 301, Marketing 301, and Production 301.

**480 Business Gaming Laboratory (3)**

Critical analysis of integrated business policy formulation in a complex and dynamic industrial environment by means of simulation (business gaming). Prerequisites, senior standing and permission.

**COURSES FOR GRADUATES ONLY****575, 576 Seminar in Administration (3,3)**

An examination of present-day thinking, points of view, and developing research with a major stress on the human aspects of administration. Various areas are developed by extensive reading, case discussion, and individual reports on special projects and research. Prerequisite, permission.

**586 Seminar in Administrative Organization (3)**

Examination of organization concepts and theories, aimed at developing working principles and an organized philosophy of management. Reading and discussion of the classical and current literature of the field, including an examination of the philosophy of organization of various outstanding business leaders. Prerequisite, permission.

**593, 594 Policy Determination and Administration (3,3)**

Development of an appreciation for and skill in dealing with policy problems faced by the chief administrative officers of business firms. Analysis of problems which relate to determination of objectives; development of policies to achieve the objectives; organization of executive personnel to implement the policies; coordination of the organization; appraisal and adjustments to changes in the environment. The course is intended to give a clearer insight not only into how business decisions are reached, but into the motivation of businessmen in deciding what to do under varying circumstances. Case study seminars with simulation (business gaming) included in 594. (It is recommended that these courses be scheduled toward the end of the student's course work.) Prerequisites, Master of Business Administration candidacy and permission for 593; 593 for 594.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)****PRODUCTION**

**Acting Executive Officer: ROBERT A. SUTERMEISTER**

The Production curriculum is concerned with the proper use of materials, machines, manpower, methods, and standards in manufacturing as well as the management function of all business enterprises. Training is provided in industrial organization and management, production planning and control, purchasing and materials management, manufacturing methods, and operations analysis. The requirements for the major are: Production 351, 355, and 460; Accounting 330 (Cost Accounting); Personnel 310 (Personnel Management); Mechanical Engineering 201 (Metal Casting), 202 (Welding), 203 (Metal Machining) and 417 (Methods Analysis); and one of the following: Production 470; Policy and Administration 440 (Concepts in Organization and Administration), 470 (Business Policy), 471 (Problems of the Independent Businessman), or 480 (Business Gaming Laboratory). Suitable substitutes may be arranged with faculty permission for Mechanical Engineering 201, 202, and 203 for those students who have had corresponding experience or who desire training in other technical specialties.

**COURSES FOR UNDERGRADUATES****301 Principles of Production (5)**

Principles and procedures of managing a manufacturing enterprise; organization and administration; product development; plant location, layout, and equipment; planning and control of production, materials, quality, personnel, and wages; methods analysis and time standards; industrial budget control; the background of scientific management.

**351 Production Planning and Control (5)**

Principles, procedures, and techniques in organizing, planning, and controlling production in various types of manufacturing. The functions of production control in continuous and intermittent types of production. The processes of production routing, scheduling, dispatching, and follow-up. Prerequisite, 301.

**355 Purchasing and Material Management (5)**

Principles and techniques of industrial and institutional purchasing, including organization of the purchasing department and its relationship to other departments; policies and procedures on negotiation with vendors; determination of proper quality, quantity, source, and price; value analysis; inventory control; materials management. Prerequisite, advanced junior standing.

**460 Manufacturing Administration (5)**

Administration of the production activities of a manufacturing enterprise. Particular attention is given to production decisions and other executive responsibilities at the management level. Prerequisites, 301 and 351.

**470 Industrial Analysis of the Pacific Northwest (5)**

Analysis of the production base of the Pacific Northwest; evaluation of industrial potential of the area. Special attention is given to production methods and problem analysis for selected industries. Prerequisite, 301.

**499 Undergraduate Research (3, maximum 9)**

Individual study or special project in production field. Open only to qualified students majoring in production. Prerequisite, permission.

**COURSES FOR GRADUATES ONLY****300P Principles of Production (3)**

Principles and procedures of managing a manufacturing enterprise. An accelerated course, for graduate students only, to remove background deficiency in 301. Prerequisites, post-graduate standing with senior year grade-point average of 3.00 and permission.

**520 Seminar in Production (3)**

Research, readings, and reports on current problems in the field using a topical approach with emphasis on such areas as product research and development, plant location, equipment policies, materials and quality controls, and production planning and control. Prerequisite, permission.

**521 Seminar in Manufacturing (3)**

Policy formulation and administration of manufacturing enterprises by analysis of case studies of selected industries emphasizing integration of the functions of production management with the major goals of the organization. Prerequisite, permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)****REAL ESTATE****Acting Executive Officer: SUMNER MARCUS**

The Real Estate curriculum provides training that is useful in a general business career and also prepares students who plan to enter the field of real estate. The requirements for a major are: Real Estate 301, 410, 495, and 496; Insurance 301 (Principles of Insurance); Architecture 105 (The House); and 7 or more credits from Finance 344 (Principles of Investment), 410 (Mortgage Banking); Marketing 351 (Principles of Salesmanship); and Architecture 100 and 101 (Architectural Appreciation).

**COURSES FOR UNDERGRADUATES****301 Principles of Urban Real Estate (5)**

Economic principles underlying the utilization of land; determining factors in the location and development of residential, commercial, industrial, and financial districts; public control. Prerequisite, General Business 101.

**410 Real Estate Appraisals, Brokerage, and Management (5)**

Types of real estate uses and their characteristics; appraisals of farm and urban land improvements; property rights, real estate finance; management of property; leases. Prerequisite, 301.

**495, 496 Research in Real Estate (3,3)**

Open to qualified undergraduate students. Prerequisites, 301 and permission for 495; 495 for 496.

## COURSES FOR GRADUATES ONLY

- 520 Seminar in Real Estate and Urban Land Economics (3)**  
Analysis and evaluation of land allocation systems, institutional aspects of the real estate industry, and problems arising from competition of spatial units within urban markets. Prerequisite, permission.
- 521 Seminar in Real Estate Administration (3)**  
The administrative approach to management problems in the real estate industry; analysis of the business functions of production, finance and distribution of real estate services. Prerequisite, permission.
- 604 Research (\*, maximum 10)**  
Prerequisite, permission.
- 700 Thesis (\*)**

## SECRETARIAL TRAINING

**Acting Executive Officer: SUMNER MARCUS**

The Secretarial Training curriculum is designed to meet the needs of students who are preparing for positions as secretaries to the executives of business concerns and other institutions. The requirements for a major are: Secretarial Training 310, 311, and 320; Business Writing 310 (Business Correspondence); Accounting 305 (Office Management); and English 387 (English Grammar).

## COURSES FOR UNDERGRADUATES

- 111, 112 Secretarial Training (2,2)**  
Further development of typewriting speed and accuracy; emphasis on business letters and other business forms; personal typewriting problems. Prerequisites, one or two semesters of high school typewriting for 111; 111 for 112.
- 115 Office Machines (3)**  
Laboratory instruction and practice in the operation of selected office machines, exclusive of secretarial machines.
- 120-121 Gregg Shorthand (3-3)**  
Theory of Gregg shorthand, simplified. Students who present one or more units of shorthand as entrance credit may not receive credit for 120-. Students with one or more high school units in shorthand should consult department advisers for proper course placement.
- 122 Advanced Gregg Shorthand (3)**  
New matter dictation and introduction to transcription. Prerequisite, -121 or permission.
- 310, 311 Advanced Secretarial Training (5,5)**  
Advanced shorthand dictation and transcription; general office practice and procedures. Prerequisites, 112 and 122, or permission for 310; 310 for 311.
- 320 Secretary Practice (5)**  
Application of skills acquired in shorthand, typewriting, office machines, business letter writing; machine transcription, electric typewriting, duplicating processes, filing systems; office procedures. Prerequisites, 112 and 122.

## TRANSPORTATION

**Executive Officer: CHARLES J. MILLER**

The Transportation curriculum provides training for students who plan careers in the field of transportation and for other students who want an understanding of the transportation industry and of industrial traffic management. The requirements for a major are: Business Law 302 (Business Law); Transportation 301, 440; and at least 15 credits from Transportation 311, 313, 315, 317, 481, and 491.

## COURSES FOR UNDERGRADUATES

- 301 Principles of Transportation (5)**  
Survey of air, water, highway, and railroad transportation. The relation of transportation to business activities and the movement of passengers, raw materials, and finished products. Business practices and policies of transportation companies. Federal regulation of transportation industries.

**311 Railroad Transportation (5)**

Business policies and practices of railroad operating companies. Studies in financing equipment, labor management, pricing considerations, and practices. Control of the movement of equipment. National policy and regulatory control of the railroad industry. Prerequisite, 301.

**313 Air Transportation (5)**

Management and administrative policies in commercial air transportation. Considerations in the finance and purchase of equipment. Utilization of aircraft in movement of passengers and freight. Pricing theory and practice. National policy and regulation of air carriers. Prerequisite, 301.

**315 Highway Transportation (5)**

Business methods and practices in operation and management of common, contract, and private motor carriers in intra- and interstate transportation; state and federal regulation of these carriers; highway freight rates. Prerequisite, 301.

**317 Water Transportation (5)**

Problems of ocean and inland water carriage relating to routes, rates, services, traffic, operation, and regulation. Prerequisite, 301.

**440 Industrial Traffic Management (5)**

Transportation buying; problems in keeping tariff files, obtaining and quoting rates; routing, expediting, and tracing shipments; making claims; and auditing freight bills. Prerequisite, 301.

**481 Management Problems in Transportation (5)**

Analysis of carrier management problems. Prerequisite, 301 or permission.

**491 Distribution Management Problems (5)**

Analysis of problems facing the buyer of transportation. Prerequisite, 301 or permission.

**COURSES FOR GRADUATES ONLY****520, 521 Seminar (3,3)**

Advanced analysis and research on current transportation problems and practices. Study and discussion of techniques employed in the evaluation of an industrial firm's transportation problem. Relationship and effect of changing national policies and regulations on transportation businesses. Prerequisite, permission.

**604 Research (\*, maximum 10)**

Prerequisite, permission.

**700 Thesis (\*)****CONJOINT (B.A.)****Adviser: Chairman of the Honors Committee**

The Honors Program of the College of Business Administration provides an opportunity for a small number of gifted undergraduate students in business administration to explore, through colloquia, reading, independent study, and consultations with faculty members, areas of academic interest that would not be possible in prescribed departmental degree programs and the usual elective offerings.

**COURSES FOR UNDERGRADUATES****475, 476, 477 Conjoint Honors Colloquium (5,5,5)**

Investigation of selected topics relevant to business and its environment; their consideration from the viewpoint of all departments and cognate social science disciplines. By invitation.

**OTHER COURSES IN BUSINESS ADMINISTRATION PROGRAMS****ANTHROPOLOGY****100 Introduction to the Study of Man (5)****Staff**

Survey of the fields of anthropology. Problems and principles in the study of man's racial, linguistic, and cultural variation. Physical anthropology, linguistics, cultural anthropology, archaeology. Not open to students who have taken 390.

**201 Physical Anthropology: Man in Nature (5)****Staff**

An introduction to physical anthropology. The basic principles of human genetics, the evidence for human evolution, and the study of race. Prerequisite, 100 or sophomore standing.

- 202 Cultural Anthropology: Comparison and Analysis (5)** **Staff**  
Selected anthropological analyses and comparisons of human communities around the world which illustrate diversity and universality in human cultures. Prerequisite, 100 or sophomore standing.
- 203 Archaeology: The Dawn of Tradition (5)** **Greengo**  
An introduction to the prehistory of man. The beginnings of human culture in the Old World to the early Iron Age in Western Europe. Prerequisite, 100 or sophomore standing.
- 250 The Nature of Culture (2)** **Staff**  
Orientation to cultural anthropology; introduction to primitive and modern societies and their present day relationships. Not open to students who have had 100, 202, or 390.
- 280 Theories of Race (2)** **Staff**  
Survey of human heredity; racial history; race differences. Not open to students who have had 100, 201, or 390.

**ARCHITECTURE**

- 100, 101 Architectural Appreciation (2,2)** **Staff**  
Survey of architectural design from a historical viewpoint.
- 105 The House (2)** **Staff**  
Analysis of domestic architecture.

**ART**

- 100 Introduction to Art (5)** **Staff**  
Lectures and studio work. For nonmajors.

**ASTRONOMY**

- 101 Astronomy (5)** **Staff**  
Celestial sphere, solar system, sidereal universe.

**BIOLOGY**

- 101J-102J General Biology (5-5)** **Staff**  
Principles of biology applying to all living forms, illustrated by representatives of major plant and animal groups and introducing man's place in nature. Offered jointly with the Department of Zoology. Recommended for education students and those not majoring in the biological sciences.

**BOTANY**

- 111 Elementary Botany (5)** **Staff**  
Structure, physiology, and reproduction of plants, with emphasis on seed producing groups. Open to those who have had 105 only by permission of instructor.
- 112 Elementary Botany (5)** **Staff**  
Structure and relationships of the major plant groups. Prerequisites, 111, one year of high school botany, Biology 101J-102J, or Zoology 111 and 112.

**CHEMISTRY**

- 100 General Chemistry (4)** **Staff**  
Open only to students without high school chemistry credit. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.
- 110 General Chemistry (3)** **Staff**  
For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.
- 150 General Chemistry (4)** **Staff**  
For students planning more than two quarters of chemistry. Stoichiometry, gases, aqueous solutions, kinetics, acid and base equilibria, electrochemistry, oxidation reduction. Prerequisites, 100 or 110; Mathematics 101 or 103, or passing score on Algebra Qualifying Test.

**CLASSICAL COURSES IN ENGLISH**

- 101 Latin and Greek in Current Use (2)** **Staff**  
Designed to improve and increase English vocabulary through study of the Greek and Latin elements in English, with emphasis on words in literary and scientific use. No knowledge of Latin or Greek required.

**COMMUNICATIONS****Advertising**

- 226 Introduction to Advertising (3)** **Staff**  
Economic and social aspects; organizational structure; comparison of major advertising media, and the elements of creating and producing advertising. Open to nonmajors.



**Communications**

- 201 Communications Today (2)** **Staff**  
An elementary course in communications theory, including analysis of the communications process and a survey of contributions of the various disciplines as applied to mass media news, advertising, and editorial interpretation. A critical study of language use. (Formerly 100.) Open to lower-division nonmajors.
- 303 Public Relations (3)** **Staff**  
Principles and practice of public relations in business, industry, government, and social agencies; policy and conduct as fundamentals in good relationships. Open to nonmajors. Prerequisite, upper-division standing or permission.

**DRAMA**

- 101, 102, 103 Introduction to the Theatre (2,2,2)** **Staff**  
Significant aspects of the modern theatre.

**ECONOMICS**

- 160 American Economic History (5)** **Staff**  
American economic institutions, their European background and development; the impact of industrialization on the American economy from 1850 to the present.
- 200 Introduction to Economics (5)** **Staff**  
Organization, operation, and control of the American economy; consideration of problems of inflation, unemployment, taxation, the public debt, monopoly, trade unions, and international trade. American capitalism compared with communism and socialism. Open to freshmen.
- 201 Principles of Economics (5)** **Staff**  
Operation of the American economy, with special emphasis on prices, wages, production, and distribution of income and wealth; problems of the world economy. Prerequisite, 200.
- 340 Labor in the Economy (5)** **Staff**  
Employment, unemployment, wages, working conditions, trade-unionism, collective bargaining, labor-management relations, and public policy. 200 or 211 recommended.
- 441 Union-Management Relations (5)** **Staff**  
The collective-bargaining process, with special reference to economic implications. Prerequisite, 340 or permission.
- 442 American Labor History (5)** **Staff**  
Analysis in historical perspective of the American labor movement, its organizational structure, ideology, policy, and practices.

**ENGLISH**

- 101, 102, 103 Composition (3,3,3)** **Staff**  
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form.
- 257 Introduction to Poetry (5)** **Staff**  
Poetry as an art; its relationship to other arts and to the creative mind. No verse writing required.
- 258 Introduction to Fiction (5)** **Staff**  
Analysis of short stories and novels.
- 267, 269 Survey of American Literature (3,3)** **Staff**  
267: ideas in American literature; 269: American fiction.
- 272, 273 Introduction to Modern Literature (3,3)** **Staff**  
Essays, poetry, novels, and plays. No credit to students who have taken 404, 406, or 466.

**FAR EASTERN AND RUSSIAN INSTITUTE**

- 110 The Far East in the Modern World (5)** **Staff**  
Social, economic, and political problems of China, Japan, Korea, the Philippines, Indonesia, and Southeast Asia. Includes the development of Russia as an Asiatic power as well as the role of the Western powers in the Far East. For freshmen and sophomores; juniors and seniors should take 310 rather than 110, if possible.
- 310 The Far East in the Modern World (5)** **Staff**  
Social, economic, and political problems of China, Japan, Korea, the Philippines, Indonesia, and Southeast Asia. Includes the development of Russia as an Asiatic power as well as the role of the Western powers in the Far East. Juniors and seniors should take this course in place of 110 if possible. Credit cannot be received for both 310 and 110.

**FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE****Chinese**

- 101 Chinese Language, Intensive A (10)** **Staff**  
Introduction to the sounds and structure of modern Chinese (Mandarin) by inductive method. After a certain familiarity with the language is acquired the students are introduced to the Chinese writing.
- 206 Chinese Language, Intensive B (10)** **Staff**  
Continuation of 101. Prerequisite, 101.

**Japanese****101-102, 103 First-Year Conversational Japanese (5-5, 5)****Staff**

Introduction to conversation, pronunciation, oral composition, and grammar; reading of romanized Japanese; conversation, composition, and grammar; introduction to *kana* syllabaries and Chinese characters.

**Korean****302-303 Elementary Spoken Korean Language (5-5)****Staff****Russian****101 Russian Language, Intensive A (10)****Staff**

Elementary Russian. Introduction to pronunciation, spelling, graded reading, essentials of grammar, conversation, exercises and drills. Student acquires six hundred-word vocabulary.

**102-103 Elementary Russian Language (5-5)****Staff**

Introduction to pronunciation, spelling, graded reading, essentials of grammar, exercises. Student acquires six hundred-word vocabulary.

**GENERAL EDUCATION****Humanities****101 Literature (5)****Staff**

An introduction to literary forms and techniques through the analysis of representative examples of narrative and poetic art, with emphasis upon the relationship of content and expression.

**102 The Arts (5)****Staff**

Painting, sculpture, music, architecture, the dance, and drama studied through example, discussion, and criticism.

**103 Philosophy (5)****Staff**

Methods of reflective thinking and the use of them in considering such essential questions as the existence and nature of God, the meaning of a good life and a good social order, the nature and limits of human knowledge, the relationship between mind and body, and the nature of the universe. This course may be offered in partial fulfillment of the requirements for a major in philosophy.

**201 Literature (5)****Staff**

Reading and critical discussion of some of the greatest works in world literature.

**202 Masterpieces of Art (5)****Staff****203 Philosophy (5)****Staff**

Reading and critical discussion of some of the world's greatest philosophical systems. This course may be offered in partial fulfillment of the requirements for a major in philosophy.

**Physical Science****101 The Physical Universe (5)****Staff**

The universe as a unit; the stars; the solar system; the earth; the basic process; the atom.

**Social Science****101 History of Civilization: The Great Cultural Traditions (5)****Staff**

The historic foundation of civilizations—Mesopotamia, Egypt, India, China; economy, society, government, religion, and culture; the elaboration of culture and institutions in Greece, Rome, and the Orient; Christianity and the beginning of civilization in western Europe; early medieval civilization in the West. 101, 102, and 103 may be offered in partial fulfillment of the requirements for a major in history.

**102 History of Civilization: The Western Tradition in World Civilization (5)****Staff**

The beginning of modern civilization; the Renaissance; the Protestant Revolt; the state; commercial revolution and mercantilism; the rise of science; the "era of revolutions"; Indian, Chinese, and Japanese civilizations in the medieval and early modern eras; the Industrial Revolution and the rise of democracy.

**103 History of Civilization: The Contemporary World (5)****Staff**

The meeting of East and West: the "one-world" community in the twentieth century; imperialism, communism, fascism, democracy, internationalism; twentieth-century science; present-day philosophy; religion, literature, and art; the meaning of history for the citizen of the contemporary world.

**201, 202, 203 Modern Society (5,5,5)****Staff**

Part I: the various forms of society in the world today; the so-called "primitive" societies; the patterns of culture; the historical beginnings of industrial society in the West. Part II: the major social, economic, and political "regions" of the contemporary world; the Far East; the industrial West; the impact of western industrialism upon the East. Part III: economic, social, and political interrelationships of the modern regions and states; theories of society; the United Nations.

**GEOGRAPHY****207 Economic Geography (5)****Staff**

World survey of extractive, manufacturing, and distributing activities; emphasis is placed on regional characteristics relating to the availability of resources and markets and the utilization of technological skills.

**GEOLOGY****101 Survey of Geology (5)****Staff****GERMANIC LANGUAGES AND LITERATURE****German****101-102, 103 First-Year Speaking German (5-5,5)****Staff**

Recommended for prospective majors and minors and those who wish to work toward a speaking knowledge. The methods and objectives are primarily oral-aural. Students with one year of high school German may receive 2½ credits only for -102.

**110-111 First-Year German (5-5)****Staff**

A beginning course devoted primarily to the reading objective. Not open to those who have taken 101-102. Students with one year of high school German may receive 2½ credits only for -111.

**MATHEMATICS****101 Intermediate Algebra (5)****Staff**

Similar to third term of high school algebra. Not open for credit to students who have taken one and one-half years of algebra in high school. Beginning Autumn Quarter, 1961, to be offered by Extension Classes and Correspondence Study only. Prerequisite, one year of high school algebra.

**103 Intermediate Algebra and Trigonometry (3)****Staff**

Meets five hours per week. First four weeks, review of intermediate algebra. After this review, students must pass qualifying test to continue in 103. Those failing the test will be reregistered in 101, for which they will receive no University credit. Last six weeks, plane trigonometry, equivalent to 104. Beginning Autumn Quarter, 1961, not open for credit to students who have taken trigonometry in high school. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, and one year of plane geometry.

**105 College Algebra (5)****Staff**

Functions and graphs; linear and quadratic equations; progressions; complex numbers; theory of equations; determinants. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, or 103.

**112 Mathematics of Business (5)****Staff**

Discounts, simple interest, installment buying, binomial theorem, annuities, bonds, probability, and insurance mathematics. (Credit may not be applied toward a major in mathematics.) Prerequisite, one and one-half years of high school algebra, or 101.

**120 Introduction to Mathematical Thinking (2)****Staff**

Mathematical logic and the number system. Background material for other freshman mathematics courses. Prerequisites, one year of high school algebra and one year of plane geometry.

**MUSIC****107 Survey of Music (5)****Staff**

Illustrated lectures with supplementary readings to provide the general student with background for the understanding of common musical forms, idioms, and styles. For nonmajors.

**108 The Orchestra (2)****Staff**

The development of the orchestra and its literature. For nonmajors.

**117 Music Appreciation: Symphonic Music, Nineteenth Century (2)****Staff**

Illustrated studies to increase the understanding and enjoyment of symphonic music of the nineteenth century. For nonmajors. Prerequisite, 107 or 108.

**118 Music Appreciation: Symphonic Music, Seventeenth and Eighteenth Centuries (2)****Staff**

For nonmajors. Prerequisite, 107 or 108.

**119 Music Appreciation: Symphonic Music, Contemporary (2)****Staff**

For nonmajors. Prerequisite, 107 or 108.

**217, 218, 219 Music Appreciation: Opera (2,2,2)****Staff**

Survey of opera. For nonmajors.

**OCEANOGRAPHY****101 Survey of Oceanography (5)****Staff**

Origin and extent of the oceans; nature of the sea bottom; causes and effects of currents and tides; animal and plant life in the sea. Recommended for nonmajors.

**PHILOSOPHY****100 Introduction to Philosophy (5)****Staff**

Reading and discussion of writings of the great philosophers on issues of lasting importance. Nature and limits of knowledge; the appeals to reason and experience. Relations of science and religion; naturalism and supernaturalism. Conceptions of reality: materialism, idealism, and skepticism. Conceptions of morality: the appeals to duty and happiness. Conflict of social ideals. (Not open to those who have had Humanities 103.)

**120 Introduction to Logic (5)****Staff**

Deductive and inductive logic; conditions of clear statement and valid reasoning; propositions, contradiction, definition, inference, types of argument, detection and avoidance of fallacies; probability and the methods by which theories and laws are established in daily life in the sciences. Application of logic to other fields.

**230 Philosophic Issues in World Affairs (2)****Staff**

Philosophic issues in the conflict between soviet and liberal interpretations of democracy, and the bearing of these differences on world order. Ideals of the more neutralist nations. The philosophical basis of a world order.

**PHYSICAL AND HEALTH EDUCATION****Health Education****110 Health Education (Women) (2)****Staff**

Health problems of freshman women. Required of all freshman women; exemption without credit by examination. See page 33.

**175 Personal Health (Men) (2)****Staff**

Health information that affords a basis for intelligent guidance in the formation of health habits and attitudes. Required of all freshman men; exemption without credit by examination. See page 33.

**Physical Education Activities****101 through 255 Physical Education Activities (Men) (1 each)****Staff**

101, adapted activities; 106, handball; 107, basketball; 108, tennis; 109, softball; 110, golf (fee, \$1.50 per quarter); 111, track; 112, crew (class), prerequisite, swimming; 114, boxing; 115, gymnastics; 117, wrestling; 118, volleyball; 119, swimming; 121, touch football; 122, badminton; 123, archery; 125, skiing (fee); 126, speedball; 127, bowling (fee); 128, weight training; 129, sailing; 131, beginning, 134, intermediate folk and square dancing; 151, modern dance; 154, social dance; 157, canoeing (fee, \$2.50 per quarter); 141, freshman, 241, varsity basketball; 142, freshman, 242, varsity crew, prerequisite, swimming; 143, freshman, 243, varsity football; 144, freshman, 244, varsity track; 145, freshman, 245, varsity swimming; 146, freshman, 246, varsity baseball; 147, freshman, 247, varsity tennis; 148, freshman, 248, varsity golf; 149, freshman, 249, varsity skiing; 150, freshman, 250, varsity volleyball; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.

**111 through 170; 211 through 270 Physical Education Activities (Women) (1 each)****Staff**

111, adapted activities; 112, basic activities (general); 113-114, basic activities (applied); 115, archery; 118, badminton; 119, body conditioning; 121, bowling (fee); 124, fencing; 126, golf (fee, \$1.50 per quarter); 128, riding (fee); 129, sailing; 131, ski conditioning; 132, elementary skiing (fee); 133, stunts and tumbling; 135, tennis; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, folk and square dance; 149, international folk dance; 151, modern dance; 154, social dance; 155, tap dance; 157, canoeing (fee, \$2.50 per quarter); 160, adapted swimming; 161, beginning swimming; 162, elementary swimming; 215, intermediate archery; 218, intermediate badminton; 221, intermediate bowling (fee); 222, advanced bowling (fee); 224, intermediate fencing; 228, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dancing; 251, intermediate modern dance; 252, advanced modern dance; 257, intermediate canoeing (fee, \$2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, rhythmic swimming; 266, diving; 267, lifesaving.

**PHYSICS****101, 102, 103 General Physics (4,4,4)****Staff**

Concurrent registration in 107, 108, 109 recommended with 101, 102, 103 and may be required by individual departments. 101: mechanics. Prerequisites, trigonometry and one year of high school physics or its equivalent by permission. 102: sound and electricity. No credit in 102 if 112 has been taken. Prerequisite, 101. 103: heat, light, and modern physics. No credit in 103 if 113 has been taken. Prerequisite, 102 or concurrent registration in 102.

**107, 108, 109 General Physics Laboratory (1,1,1)****Staff**

107: mechanics and sound laboratory. Concurrent registration in 101 recommended and may be required by individual departments. 108: electricity and magnetism laboratory. Concurrent registration in 102 recommended and may be required by individual departments. 109: heat and light laboratory. Concurrent registration in 103 recommended and may be required by individual departments.

**POLITICAL SCIENCE****201 Modern Government (5)****Staff**

The nature and function of political institutions in the major national systems; democracy and dictatorship; introductory comparative politics of the United States, Great Britain, France, and the Soviet Union.

**202 American Government and Politics (5)****Staff**

Popular government in the United States; the theory and practice of national institutions.

**203 International Relations (5)****Staff**

An analysis of the world community, its politics and government.

**PSYCHOLOGY**

- 100 General Psychology (5)** **Staff**  
Introduction to the principles of human behavior.
- 101 Psychology of Adjustment (5)** **Staff**  
Application of psychological principles to the problems of everyday life. Prerequisite, 100.

**ROMANCE LANGUAGES AND LITERATURE****French**

- 101-102, 103 Elementary (5-5,5)** **Staff**  
No credit will be granted for 101- until -102 (or a more advanced course as approved by the Department) has been completed satisfactorily. Oral practice in the language laboratory is required of all students in these courses. Prerequisites, for -102, 101- or second high school semester with grade of C or D; for 103, -102 or second high school semester with grade of A or B, or third high school semester or equivalent.
- In addition to the regular courses described above, sections with the *audio-visual* approach will be offered. The description for these sections is as follows: Introduction to the speaking and reading of French emphasizing the oral approach. Color slides are used to link the French words to their meanings as understood by a French person.

**Italian**

- 101-102, 103 Elementary (5-5,5)** **Staff**

**Spanish**

- 101-102, 103 First-Year Speaking Spanish (5-5,5)** **Staff**  
Recommended for prospective majors and minors and those who wish to work toward a speaking knowledge of the language. The methods and objectives are primarily oral-aural. Work for the course includes oral practice in the language laboratory. Prerequisite for -102, 101- or equivalent; for 103, a grade of A, B, or C in -102, or A or B in the second high school semester, or any passing grade in the third high school semester. See 121-.
- 110-111, 112 First-Year Reading Spanish (5-5,5)** **Staff**  
A beginning course for nonmajors, in which the acquisition of a reading knowledge is stressed. Prerequisite for -111, 110- or equivalent; for 112, -111, or grade of A or B in the second high school semester, or any passing grade in the third high school semester, or equivalent.
- 121- Basic Grammar Review (5-)** **Staff**  
Refresher course; should be taken instead of 103 by students who received a grade of D in -102 or C or D in the second high school semester. No student may receive credit for both 103 and 121-; nor will credit be granted for 121- until 201 or equivalent has been completed.

**SCANDINAVIAN LANGUAGES AND LITERATURE****Norwegian**

- 101-102, 103 Elementary Norwegian (3-3,3)** **Staff**  
Fundamentals of oral and written Norwegian.

**Swedish**

- 101-102, 103 Elementary Swedish (3-3,3)** **Staff**  
Fundamentals of oral and written Swedish.

**SOCIOLOGY**

- 110 Survey of Sociology (5)** **Staff**  
Basic principles of social relationships. Primarily for freshmen and sophomores. Not open to students who have taken 310.
- 240 Group Behavior (5)** **Staff**  
Socialization of the individual; social processes and interaction of persons in groups. Prerequisites, 110 or 310, and Psychology 100.
- 270 Survey of Contemporary Social Problems (5)** **Staff**  
Analysis of the processes of social and personal disorganization and reorganization in relation to poverty, crime, suicide, family disorganization, mental disorders, and similar social problems. Prerequisite, 110 or 310.

**SPEECH**

- 100 Basic Speech Improvement (5)** **Staff**  
Training in the fundamentals of good speech, such as orderly thinking, emotional adjustment, adequate voice, distinct articulation, and effective oral use of language. Speech as man's primary means of communication, with emphasis on the more informal uses of speech in daily life. Frequent conferences with instructor.
- 110 Voice Improvement (2)** **Staff**  
Study and application of principles basic to good voice quality, vocal variety, and the effective use of the voice in reading and speaking. Group and individual listening and speaking projects make use of laboratory and recording facilities. Two class meetings and one laboratory hour per week.

**111 Articulation Improvement (2)****Staff**

Introductory study of the sounds of American English and application of this study to individual problems in articulation and pronunciation. Analysis and correction of dialect and substandard speech patterns. Group and individual listening and speech projects with laboratory and recording facilities. Two class meetings and one laboratory hour per week.

**120 Introduction to Public Speaking (5)****Staff**

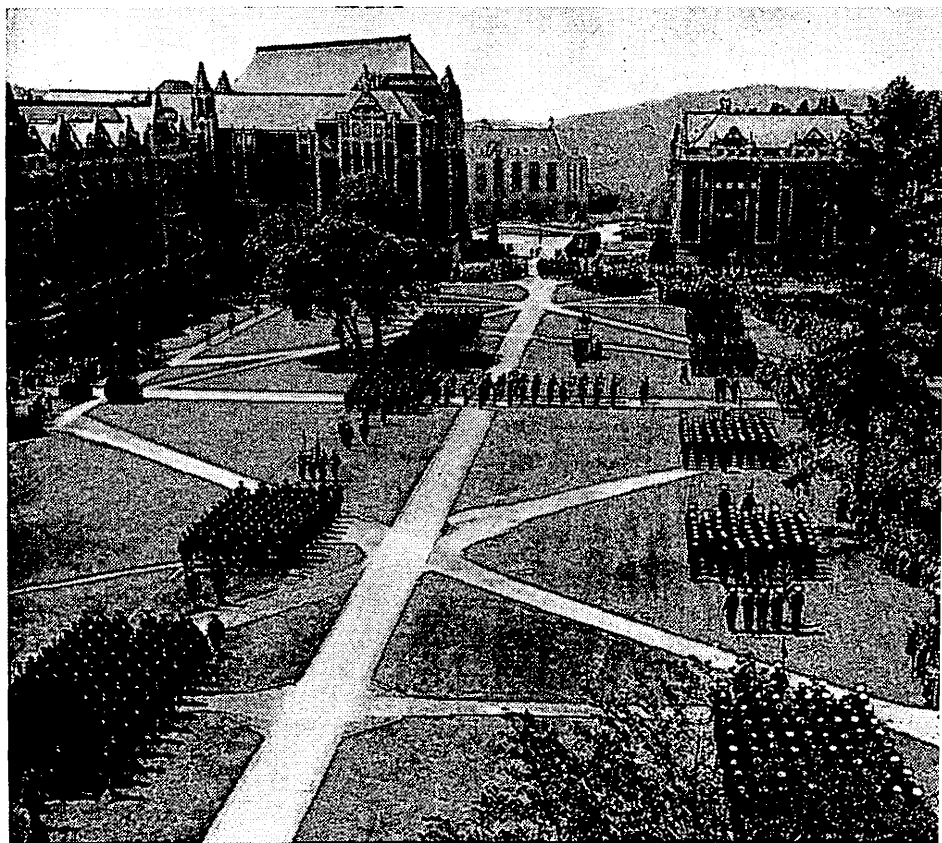
Audience analysis, choice and organization of material, oral style, and delivery. Frequent speeches before the class, followed by conferences with instructor.

**ZOOLOGY****111, 112 General Zoology (5,5)****Staff**

Physical basis of life, structure, function, development, inheritance, evolution, and ecology of animals. 111: invertebrate phyla through molluscs. 112: annelids through chordates; 111 prerequisite for 112.

**114 Evolution (2)****Staff**

A general survey of the evolution of animals, including man. For nonmajors.



## RESERVE OFFICERS TRAINING PROGRAMS

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# RESERVE OFFICERS TRAINING PROGRAMS

**T**HE DEPARTMENTS of Air Science, Military Science and Tactics, and Naval Science were established under the provisions of the National Defense Act of June 4, 1920, and function under directives from the United States Department of Defense. The Secretaries of the services are responsible for the operation of the ROTC programs. At the University, the programs are coordinated by the office of the Dean of the College of Engineering.

The Departments of Air Science and Military Science and Tactics provide two years of basic military training for male students and an additional two years of advanced training for a selected group of male students. The advanced programs prepare students to receive regular or reserve commissions in the United States Army and Air Force. The Department of Naval Science offers a four-year program which prepares selected male students for regular or reserve commissions in the United States Navy or Marine Corps. Students who take advanced training in the Air Force or Army ROTC program, and students in the Naval ROTC program, must agree in writing to accept a commission, if offered, to serve on active duty, subject to the call of the Secretary of their service for such a period of time as is required by regulations at the time of their commission, and to serve with the reserve forces for the period thereafter, which is required by law.

ROTC courses are included in the freshman and sophomore curricula of all male students (see page 32). The first six quarters of study in either of the three departments satisfy the military training requirements of the University, but students who attain junior or senior standing in the Naval ROTC program, and those who enter the advanced Air Force or Army ROTC program, must complete the program as a condition of graduation unless excused or released by authority of the Secretary of the service concerned.

## AIR SCIENCE

**Professor of Air Science: Col. WILLIE O. JACKSON, JR., Air Science Building**

Eligibility to enroll in the Basic Course, Air Force Reserve Officers Training Corps, is limited to students who are citizens of the United States and have not yet reached their twenty-third birthday at the time of initial enrollment. Students



enrolled in the Air Force ROTC may be deferred from the draft subject to the approval of the Professor of Air Science.

First-year Air Force ROTC cadets are given an introductory course in Foundations of Air Power, a general survey of air power, designed to provide the student with an understanding of the elements of air power and basic aeronautical science. This sequence of courses requires classroom attendance two hours each week. First-year cadets are also introduced to the principles of leadership and command through practice of basic elements of drill one hour each week. In the second year of the basic program, a year-long survey of the development of aerial warfare, with emphasis on principles of war, concepts of employment of forces, and changing weapon systems is given. Practice in leadership, drill, and exercise of command extends throughout the two years of the basic program and continues two additional years for students in the advanced program.

After completing the basic program, students may apply for entrance to the Advanced Air Force ROTC, which is designed to select and train college men as future Air Force officers. A limited number of outstanding students, including veterans, are selected for the advanced program, and each student selected must:

1. Successfully complete the two-year Basic Air Force ROTC program or, if a veteran, complete as much of the basic program as determined by the Professor of Air Science.
2. Execute a written agreement with the government to complete the advanced program, contingent upon remaining in the University, and to attend a summer training camp at the time specified.
3. Request immediate discharge from any reserve or National Guard organization other than the Air Force Reserve (according to law, discharge from any reserve unit must be granted).
4. Agree to complete all requirements for appointment as a second lieutenant before his twenty-eighth birthday. This age requirement is reduced to twenty-six and one-half years for flying personnel.
5. Successfully complete general survey and screening tests as prescribed.
6. Be selected by the Professor of Air Science and the President of the University.
7. Complete the advanced program as a prerequisite for graduation from the University.

The two-year advanced course requires classroom attendance four hours a week, plus one hour of practice in the leadership laboratory. In the first year of the advanced course, cadets study the knowledge and skills required of a junior officer in the Air Force with special emphasis on staff duties and leadership. This includes Air Force leadership doctrine, staff organization and functions, communicating, instructing, problem solving techniques, leadership principles and practices, and the military justice system. Between the junior and senior years, advanced-course cadets are required to attend a four-week summer camp. During the senior year, cadets participate in a study of global relations of special concern to the Air Force officer with attention to such aspects as weather, navigation, geography, international relations and their service as commissioned officers.

Advanced Air Force ROTC students are paid subsistence allowances of approximately \$27.00 a month. While attending summer camp they are paid at the rate of \$75.00 a month and are furnished travel to and from the camp, subsistence, housing, uniforms, and medical attention.

Students in the basic program are furnished complete uniforms of the type worn by Air Force personnel. Students in the advanced program are furnished officers' uniforms which become their personal property when commissioned. They are normally required to wear the uniform on drill days; wearing it to ROTC classes other than drill is optional. The Air Force furnishes all textbooks used in air science courses. At the time of registration each student must make a \$25.00

deposit, which, except for a \$2.50 laundry and cleaning charge to students in the basic program, is refunded when the uniform and textbooks are returned undamaged.

Inquiries about enrollment or other information should be addressed to the Professor of Air Science, Air Science Hall, on the campus.

## COURSES FOR UNDERGRADUATES

### FOUNDATIONS OF AIRPOWER

- 131, 132, 133 Air Science 1—Basic (2,2,2)** **Staff**  
A general survey of air power designed to provide the student with an understanding of the elements and potentials of air power. It includes fundamentals of air power; military air powers of the world; military research and development; air vehicle industries; air lines and airways; leadership laboratory; a general survey of aeronautical science; general aviation; elements of an aircraft; aerodynamics; guidance, control, navigation, propulsion systems; leadership laboratory; a general survey of space flight; military instruments of national security; professional opportunities in the United States Air Force; leadership laboratory.
- 231, 232, 233 Air Science 2—Basic (2,2,2)** **Staff**  
A survey of the development of aerial warfare with emphasis on principles of war, concepts of employment of forces, changing weapon systems. Treatment of aerial warfare is undertaken to include targets, weapons, aircraft, and missiles; bases and facilities, aerial operations. Cadet noncommissioned officer training.

### AIR FORCE OFFICER DEVELOPMENT

- 301, 302, 303 Air Science 3—Advanced (3,3,3)** **Staff**  
Military staff and command organization and functions; communicating and instructing in the Air Force; problem solving techniques as applied to Air Force staff and command functions; basic principles of leadership psychology; problems in leadership and management; military justice; and cadet junior officer training.
- 304 Air Science 3—Advanced Camp (3)** **Staff**  
Four weeks training at an Air Force base; familiarization with the duties and problems encountered by the Air Force junior officer.
- 491, 492, 493 Air Science 4—Advanced (3,3,3)** **Staff**  
Military application of weather and aerial navigation; military aspects of the geography of climate, political geography, and international relations; flying training for pilot candidates; preparation for commissioned service; and cadet senior officer training.

## MILITARY SCIENCE AND TACTICS

**Professor of Military Science and Tactics: Col. CORSTON A. GREENE,**  
**Army ROTC Building**

The Army Reserve Officers Training Corps is established by agreement between the University and the United States government in conformity with the provisions of Title 10, United States Code, Section 4382. Its purpose is to procure and train college students for qualification, upon graduation, as commissioned officers in the Army of the United States.

By taking the two-year basic course, students satisfy the University ROTC requirement. The advanced course is elective and is taken in the third and fourth years under contract with the United States Army.

The basic course requires classroom attendance two hours each week and drill one hour each week. The advanced course requires classroom attendance four hours each week, drill one hour each week, and a summer camp of six weeks in the Summer Quarter following the junior year. In addition to the regular courses of instruction, light aircraft flight instruction is offered to a limited number of senior cadets.

When a cadet completes the advanced course, and is graduated from the University, he receives a commission as second lieutenant in the United States Army Reserve. A cadet graduating with a high academic rating and an outstanding ROTC record may be designated a Distinguished Military Graduate and may, thereby, be qualified for commissioning in the Regular Army.

Cadets for the advanced course are selected from applicants who show special aptitude during the basic course. In certain cases previous active service in the

In addition, with the consent of their parents, they must agree to complete the four-year course unless released by the Secretary of the Navy, and to make one summer cruise of approximately three weeks. This cruise is normally scheduled during the summer between the junior and senior years.

Students who attain junior or senior standing in the Naval ROTC must complete the program as a condition of graduation from the University unless excused or dismissed from this requirement by authority of the Secretary of the Navy.

Entrance to the Naval ROTC program entitles students to deferment from the draft under the Selective Service Act of 1948 as amended. The Naval ROTC student, upon completion of program requirements, is required to accept a commission in the United States Naval Reserve or Marine Corps Reserve, if offered. Active duty of reserve officers commissioned from the Naval ROTC contract program is contingent upon the needs of the service at the time of graduation.

Naval ROTC students have the status of civilians entering into a mutual agreement with the Navy, and are in training for commissions in the Naval Reserve or Marine Corps Reserve. They pay their own college expenses but receive a subsistence allowance of 90 cents a day during their junior and senior years, including the intervening summer. The Navy furnishes the uniforms and books used in naval science courses.

Students in the Naval ROTC program may enter any University curriculum that can normally be completed in four years. Students working toward a bachelor's degree in certain fields which may require more than four years for completion, such as engineering, architecture, and education, are eligible for entrance to the program. The Navy Class A swimming test must be passed and mathematics through trigonometry satisfactorily completed (unless previously completed in high school) by the end of the second year.

All Naval ROTC students take the same naval science courses for the first two years. Students who plan to be commissioned in the Marine Corps or Marine Corps Reserve take Marine Corps subjects during their third year and the first two quarters of their fourth year; those who plan to be commissioned in the Supply Corps of the Navy or the Naval Reserve take Supply Corps subjects during this period.

High school graduates interested in entering the Naval ROTC program should write to the Professor of Naval Science during the summer before University entrance.

## MIDSHIPMEN, USNR (REGULAR PROGRAM)

Each year, at the beginning of Autumn Quarter, the Navy assigns a limited number of students to the Naval ROTC Unit, University of Washington, for appointment

Army may be substituted for the basic course in qualifying for enrollment in the advanced course. To enroll in the advanced course a cadet must meet requirements as to scholarship, physical fitness, and leadership potential, and must be of such an age that he may qualify for graduation and completion of ROTC training before his twenty-eighth birthday. Advanced ROTC cadets receive subsistence allowances of approximately \$27.00 per month throughout the two years in which they are under contract and are paid approximately \$106.00 for summer camp training.

Cadets of all classes are issued the regulation U.S. Army uniform, with distinctive ROTC insignia, and are required to wear it on drill day each week. Upon registration, a deposit of \$25.00 is required for the uniform and other government equipment issued. Upon return of the uniform and other equipment a refund is made. The Army furnishes the textbooks and equipment needed for military science instruction.

Inquiries about the ROTC should be addressed to the Professor of Military Science and Tactics.

## COURSES FOR UNDERGRADUATES

- 101, 102, 103 Military Science I—Basic (2,2,2)** **Staff**  
Organization of the Army and ROTC; American military history; individual weapons and marksmanship; school of the soldier and exercise of command.
- 201, 202, 203 Military Science II—Basic (2,2,2)** **Staff**  
Crew-served weapons and gunnery; map and aerial photograph reading; school of the soldier and exercise of command.
- 301, 302, 303 Military Science III—Advanced (3,3,3)** **Staff**  
Small unit tactics and communications; organization, function, and mission of the arms and services; military teaching methods; leadership; school of the soldier and exercise of command.
- 360 Military Science III—Advanced Camp (3)** **Staff**  
Six-weeks training at an army installation. Emphasis is placed on field training and the practical application of subjects taught during the academic year. (Offered Summer Quarter only.)
- 401, 402, 403 Military Science IV—Advanced (3,3,3)** **Staff**  
Supply and evacuation; troop movements; motor transportation; command and staff; estimate of the situation and combat orders; military intelligence; the military team; training management; military administration; military justice; the role of the United States in world affairs and the present situation; leadership; officer indoctrination; school of the soldier and exercise of command.

## NAVAL SCIENCE

**Professor of Naval Science: Col. T. J. COLLEY, USMC, 309 Clark Hall**

The Department of Naval Science offers to selected students a four-year program, taken concurrently with their work toward a baccalaureate or higher degree, which prepares them for commissions in the regular or reserve components of the United States Navy or Marine Corps.

## NAVAL ROTC STUDENTS (CONTRACT PROGRAM)

At the beginning of Autumn Quarter each year the Professor of Naval Science selects approximately fifty students to enter the Naval ROTC contract program. These students must have the following general qualifications:

1. Be eligible for admission to the University.
2. Be male citizens of the United States between the ages of seventeen and twenty-one on July 1 of the year of entrance.
3. Meet physical requirements, which include vision of 20/20, no cavities in teeth, and height between 64 and 78 inches.
4. Be unmarried and agree to remain unmarried until commissioned.

- 211 Naval Weapons (3)** **Staff**  
Gun ammunition; principles of gun construction; semi-automatic and rapid fire guns; introduction to fire control; theory and operation of fire control systems; general concept of anti-submarine warfare.
- 213 Naval Weapons (3)** **Staff**  
Guided missiles; nuclear weapons; concept and organization of the attack carrier striking force; mine warfare; concept and organization of amphibious warfare; space technology.
- 214 Weapons Laboratory (1)** **Staff**  
Practical work on naval weapons and fire control computers.
- LINE**
- 311 Naval Engineering (3)** **Staff**  
Principles of ship propulsion, marine steam power plants and auxiliary systems; elements of stability and damage control.
- 312 Naval Engineering and Navigation (3)** **Staff**  
Engineering department organization and administration plus marine internal combustion and nuclear power plants; terrestrial navigation including dead reckoning, piloting and electronic developments.
- 313 Navigation (3)** **Staff**  
Celestial navigation; theory and practical work required in the daily work of the navigator at sea.
- 411 Naval Operations (3)** **Staff**  
Tactical communications; rules of the nautical road; maneuvering board; screening instructions.
- 412 Naval Operations and Administration (3)** **Staff**  
Combination of fleet communications, weather, and management.
- 413 Naval Administration (3)** **Staff**  
Leadership, management, and the naval judicial system.

## MARINE CORPS

- 321 Evolution of the Art of War (3)** **Staff**  
Introduction to the art of war; broad resumé of the evolution and history of warfare from the earliest recorded battles through the Mexican War. (Formerly 311M.)
- 322 Evolution of the Art of War (3)** **Staff**  
A continuation of the resumé of the history of warfare with emphasis on the Civil War; brief coverage of the Spanish American War, World War I and World War II. (Formerly 312M.)
- 323 The Study of Modern Basic Strategy and Tactics (3)** **Staff**  
An introduction to the theoretical principles of modern strategy and tactics; brief resumé of U.S. foreign and military policy; extensive discussion of marine division organization. (Formerly 313M.)
- 421 Amphibious Warfare (3)** **Staff**  
Introduction to the development of amphibious warfare; detailed study of the amphibious campaigns of World War II; resumé of the Korean conflict. (Formerly 411M.)
- 422 Amphibious Warfare (3)** **Staff**  
A study of the detailed planning for an amphibious operation including Marine Corps Staff organizations, command relationship and task organizations. (Formerly 412M.)
- 423 Military Justice and Leadership (3)** **Staff**  
Introduction to the basic principles of the Uniform Code of Military Justice.

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# RESERVE OFFICERS TRAINING PROGRAMS

THE DEPARTMENTS of Air Science, Military Science and Tactics, and Naval Science were established under the provisions of the National Defense Act of June 4, 1920, and function under directives from the United States Department of Defense. The Secretaries of the services are responsible for the operation of the ROTC programs. At the University, the programs are coordinated by the office of the Dean of the College of Engineering.

The Departments of Air Science and Military Science and Tactics provide two years of basic military training for male students and an additional two years of advanced training for a selected group of male students. The advanced programs prepare students to receive regular or reserve commissions in the United States Army and Air Force. The Department of Naval Science offers a four-year program which prepares selected male students for regular or reserve commissions in the United States Navy or Marine Corps. Students who take advanced training in the Air Force or Army ROTC program, and students in the Naval ROTC program, must agree in writing to accept a commission, if offered, to serve on active duty, subject to the call of the Secretary of their service for such a period of time as is required by regulations at the time of their commission, and to serve with the reserve forces for the period thereafter, which is required by law.

ROTC courses are included in the freshman and sophomore curricula of all male students (see page 32). The first six quarters of study in either of the three departments satisfy the military training requirements of the University, but students who attain junior or senior standing in the Naval ROTC program, and those who enter the advanced Air Force or Army ROTC program, must complete the program as a condition of graduation unless excused or released by authority of the Secretary of the service concerned.

## AIR SCIENCE

**Professor of Air Science: Col. WILLIE O. JACKSON, JR., Air Science Building**

Eligibility to enroll in the Basic Course, Air Force Reserve Officers Training Corps, is limited to students who are citizens of the United States and have not yet reached their twenty-third birthday at the time of initial enrollment. Students

enrolled in the Air Force ROTC may be deferred from the draft subject to the approval of the Professor of Air Science.

First-year Air Force ROTC cadets are given an introductory course in Foundations of Air Power, a general survey of air power, designed to provide the student with an understanding of the elements of air power and basic aeronautical science. This sequence of courses requires classroom attendance two hours each week. First-year cadets are also introduced to the principles of leadership and command through practice of basic elements of drill one hour each week. In the second year of the basic program, a year-long survey of the development of aerial warfare, with emphasis on principles of war, concepts of employment of forces, and changing weapon systems is given. Practice in leadership, drill, and exercise of command extends throughout the two years of the basic program and continues two additional years for students in the advanced program.

After completing the basic program, students may apply for entrance to the Advanced Air Force ROTC, which is designed to select and train college men as future Air Force officers. A limited number of outstanding students, including veterans, are selected for the advanced program, and each student selected must:

1. Successfully complete the two-year Basic Air Force ROTC program or, if a veteran, complete as much of the basic program as determined by the Professor of Air Science.
2. Execute a written agreement with the government to complete the advanced program, contingent upon remaining in the University, and to attend a summer training camp at the time specified.
3. Request immediate discharge from any reserve or National Guard organization other than the Air Force Reserve (according to law, discharge from any reserve unit must be granted).
4. Agree to complete all requirements for appointment as a second lieutenant before his twenty-eighth birthday. This age requirement is reduced to twenty-six and one-half years for flying personnel.
5. Successfully complete general survey and screening tests as prescribed.
6. Be selected by the Professor of Air Science and the President of the University.
7. Complete the advanced program as a prerequisite for graduation from the University.

The two-year advanced course requires classroom attendance four hours a week, plus one hour of practice in the leadership laboratory. In the first year of the advanced course, cadets study the knowledge and skills required of a junior officer in the Air Force with special emphasis on staff duties and leadership. This includes Air Force leadership doctrine, staff organization and functions, communicating, instructing, problem solving techniques, leadership principles and practices, and the military justice system. Between the junior and senior years, advanced-course cadets are required to attend a four-week summer camp. During the senior year, cadets participate in a study of global relations of special concern to the Air Force officer with attention to such aspects as weather, navigation, geography, international relations and their service as commissioned officers.

Advanced Air Force ROTC students are paid subsistence allowances of approximately \$27.00 a month. While attending summer camp they are paid at the rate of \$75.00 a month and are furnished travel to and from the camp, subsistence, housing, uniforms, and medical attention.

Students in the basic program are furnished complete uniforms of the type worn by Air Force personnel. Students in the advanced program are furnished officers' uniforms which become their personal property when commissioned. They are normally required to wear the uniform on drill days; wearing it to ROTC classes other than drill is optional. The Air Force furnishes all textbooks used in air science courses. At the time of registration each student must make a \$25.00

deposit, which, except for a \$2.50 laundry and cleaning charge to students in the basic program, is refunded when the uniform and textbooks are returned undamaged.

Inquiries about enrollment or other information should be addressed to the Professor of Air Science, Air Science Hall, on the campus.

## COURSES FOR UNDERGRADUATES

### FOUNDATIONS OF AIRPOWER

**131, 132, 133 Air Science 1—Basic (2,2,2)** **Staff**  
A general survey of air power designed to provide the student with an understanding of the elements and potentials of air power. It includes fundamentals of air power; military air powers of the world; military research and development; air vehicle industries; airlines and airways; leadership laboratory; a general survey of aeronautical science; general aviation; elements of an aircraft; aerodynamics; guidance, control, navigation, propulsion systems; leadership laboratory; a general survey of space flight; military instruments of national security; professional opportunities in the United States Air Force; leadership laboratory.

**231, 232, 233 Air Science 2—Basic (2,2,2)** **Staff**  
A survey of the development of aerial warfare with emphasis on principles of war, concepts of employment of forces, changing weapon systems. Treatment of aerial warfare is undertaken to include targets, weapons, aircraft, and missiles; bases and facilities, aerial operations. Cadet noncommissioned officer training.

### AIR FORCE OFFICER DEVELOPMENT

**301, 302, 303 Air Science 3—Advanced (3,3,3)** **Staff**  
Military staff and command organization and functions; communicating and instructing in the Air Force; problem solving techniques as applied to Air Force staff and command functions; basic principles of leadership psychology; problems in leadership and management; military justice; and cadet junior officer training.

**304 Air Science 3—Advanced Camp (3)** **Staff**  
Four weeks training at an Air Force base; familiarization with the duties and problems encountered by the Air Force junior officer.

**491, 492, 493 Air Science 4—Advanced (3,3,3)** **Staff**  
Military application of weather and aerial navigation; military aspects of the geography of climate, political geography, and international relations; flying training for pilot candidates; preparation for commissioned service; and cadet senior officer training.

## MILITARY SCIENCE AND TACTICS

**Professor of Military Science and Tactics: Col. CORSTON A. GREENE,**  
**Army ROTC Building**

The Army Reserve Officers Training Corps is established by agreement between the University and the United States government in conformity with the provisions of Title 10, United States Code, Section 4382. Its purpose is to procure and train college students for qualification, upon graduation, as commissioned officers in the Army of the United States.

By taking the two-year basic course, students satisfy the University ROTC requirement. The advanced course is elective and is taken in the third and fourth years under contract with the United States Army.

The basic course requires classroom attendance two hours each week and drill one hour each week. The advanced course requires classroom attendance four hours each week, drill one hour each week, and a summer camp of six weeks in the Summer Quarter following the junior year. In addition to the regular courses of instruction, light aircraft flight instruction is offered to a limited number of senior cadets.

When a cadet completes the advanced course, and is graduated from the University, he receives a commission as second lieutenant in the United States Army Reserve. A cadet graduating with a high academic rating and an outstanding ROTC record may be designated a Distinguished Military Graduate and may, thereby, be qualified for commissioning in the Regular Army.

Cadets for the advanced course are selected from applicants who show special aptitude during the basic course. In certain cases previous active service in the

Army may be substituted for the basic course in qualifying for enrollment in the advanced course. To enroll in the advanced course a cadet must meet requirements as to scholarship, physical fitness, and leadership potential, and must be of such an age that he may qualify for graduation and completion of ROTC training before his twenty-eighth birthday. Advanced ROTC cadets receive subsistence allowances of approximately \$27.00 per month throughout the two years in which they are under contract and are paid approximately \$106.00 for summer camp training.

Cadets of all classes are issued the regulation U.S. Army uniform, with distinctive ROTC insignia, and are required to wear it on drill day each week. Upon registration, a deposit of \$25.00 is required for the uniform and other government equipment issued. Upon return of the uniform and other equipment a refund is made. The Army furnishes the textbooks and equipment needed for military science instruction.

Inquiries about the ROTC should be addressed to the Professor of Military Science and Tactics.

## COURSES FOR UNDERGRADUATES

- |  |              |
|--|--------------|
| <b>101, 102, 103 Military Science I—Basic (2,2,2)</b>  | <b>Staff</b> |
| Organization of the Army and ROTC; American military history; individual weapons and marksmanship; school of the soldier and exercise of command.  |              |
| <b>201, 202, 203 Military Science II—Basic (2,2,2)</b>   | <b>Staff</b> |
| Crew-served weapons and gunnery; map and aerial photograph reading; school of the soldier and exercise of command.   |              |
| <b>301, 302, 303 Military Science III—Advanced (3,3,3)</b>   | <b>Staff</b> |
| Small unit tactics and communications; organization, function, and mission of the arms and services; military teaching methods; leadership; school of the soldier and exercise of command.   |              |
| <b>360 Military Science III—Advanced Camp (3)</b>  | <b>Staff</b> |
| Six-weeks training at an army installation. Emphasis is placed on field training and the practical application of subjects taught during the academic year. (Offered Summer Quarter only.)   |              |
| <b>401, 402, 403 Military Science IV—Advanced (3,3,3)</b>  | <b>Staff</b> |
| Supply and evacuation; troop movements; motor transportation; command and staff; estimate of the situation and combat orders; military intelligence; the military team; training management; military administration; military justice; the role of the United States in world affairs and the present situation; leadership; officer indoctrination; school of the soldier and exercise of command. |              |

## NAVAL SCIENCE

**Professor of Naval Science: Col. T. J. COLLEY, USMC, 309 Clark Hall**

The Department of Naval Science offers to selected students a four-year program, taken concurrently with their work toward a baccalaureate or higher degree, which prepares them for commissions in the regular or reserve components of the United States Navy or Marine Corps.

## NAVAL ROTC STUDENTS (CONTRACT PROGRAM)

At the beginning of Autumn Quarter each year the Professor of Naval Science selects approximately fifty students to enter the Naval ROTC contract program. These students must have the following general qualifications:

1. Be eligible for admission to the University.
2. Be male citizens of the United States between the ages of seventeen and twenty-one on July 1 of the year of entrance.
3. Meet physical requirements, which include vision of 20/20, no cavities in teeth, and height between 64 and 78 inches.
4. Be unmarried and agree to remain unmarried until commissioned.

In addition, with the consent of their parents, they must agree to complete the four-year course unless released by the Secretary of the Navy, and to make one summer cruise of approximately three weeks. This cruise is normally scheduled during the summer between the junior and senior years.

Students who attain junior or senior standing in the Naval ROTC must complete the program as a condition of graduation from the University unless excused or dismissed from this requirement by authority of the Secretary of the Navy.

Entrance to the Naval ROTC program entitles students to deferment from the draft under the Selective Service Act of 1948 as amended. The Naval ROTC student, upon completion of program requirements, is required to accept a commission in the United States Naval Reserve or Marine Corps Reserve, if offered. Active duty of reserve officers commissioned from the Naval ROTC contract program is contingent upon the needs of the service at the time of graduation.

Naval ROTC students have the status of civilians entering into a mutual agreement with the Navy, and are in training for commissions in the Naval Reserve or Marine Corps Reserve. They pay their own college expenses but receive a subsistence allowance of 90 cents a day during their junior and senior years, including the intervening summer. The Navy furnishes the uniforms and books used in naval science courses.

Students in the Naval ROTC program may enter any University curriculum that can normally be completed in four years. Students working toward a bachelor's degree in certain fields which may require more than four years for completion, such as engineering, architecture, and education, are eligible for entrance to the program. The Navy Class A swimming test must be passed and mathematics through trigonometry satisfactorily completed (unless previously completed in high school) by the end of the second year.

All Naval ROTC students take the same naval science courses for the first two years. Students who plan to be commissioned in the Marine Corps or Marine Corps Reserve take Marine Corps subjects during their third year and the first two quarters of their fourth year; those who plan to be commissioned in the Supply Corps of the Navy or the Naval Reserve take Supply Corps subjects during this period.

High school graduates interested in entering the Naval ROTC program should write to the Professor of Naval Science during the summer before University entrance.

## **MIDSHIPMEN, USNR (REGULAR PROGRAM)**

Each year, at the beginning of Autumn Quarter, the Navy assigns a limited number of students to the Naval ROTC Unit, University of Washington, for appointment as midshipmen in the Naval Reserve. Qualifications are, in general, the same as those listed above for contract students. Midshipmen are appointed after a nation-wide competitive examination held in December of each year and selection by state selection committees. They are deferred from induction until graduation and receive tuition, all textbooks, uniforms, and \$50.00 per month for four years. Application to take the annual examination must reach the Naval Examining Section, Science Research Associates, 104 Pearl Street, McHenry, Illinois, before a deadline date set in November of each year for entrance to college the following year.

Further information about the regular program may be obtained from the University Naval ROTC headquarters.

## **COURSES FOR UNDERGRADUATES**

### **111, 112, 113 Naval Orientation (3,3,3)**

### **Staff**

Naval courtesy and customs; leadership; naval history; naval regulations; ship construction and characteristics; standard ship organization; orientation in underseas, amphibious, logistics, communications, security, intelligence, seamanship, and rules-of-the-road phases of the naval service.



- 211 Naval Weapons (3) Staff**  
Gun ammunition; principles of gun construction; semi-automatic and rapid fire guns; introduction to fire control; theory and operation of fire control systems; general concept of anti-submarine warfare.
- 213 Naval Weapons (3) Staff**  
Guided missiles; nuclear weapons; concept and organization of the attack carrier striking force; mine warfare; concept and organization of amphibious warfare; space technology.
- 214 Weapons Laboratory (1) Staff**  
Practical work on naval weapons and fire control computers.

## LINE

- 311 Naval Engineering (3) Staff**  
Principles of ship propulsion, marine steam power plants and auxiliary systems; elements of stability and damage control.
- 312 Naval Engineering and Navigation (3) Staff**  
Engineering department organization and administration plus marine internal combustion and nuclear power plants; terrestrial navigation including dead reckoning, piloting and electronic developments.
- 313 Navigation (3) Staff**  
Celestial navigation; theory and practical work required in the daily work of the navigator at sea.
- 411 Naval Operations (3) Staff**  
Tactical communications; rules of the nautical road; maneuvering board; screening instructions.
- 412 Naval Operations and Administration (3) Staff**  
Combination of fleet communications, weather, and management.
- 413 Naval Administration (3) Staff**  
Leadership, management, and the naval judicial system.

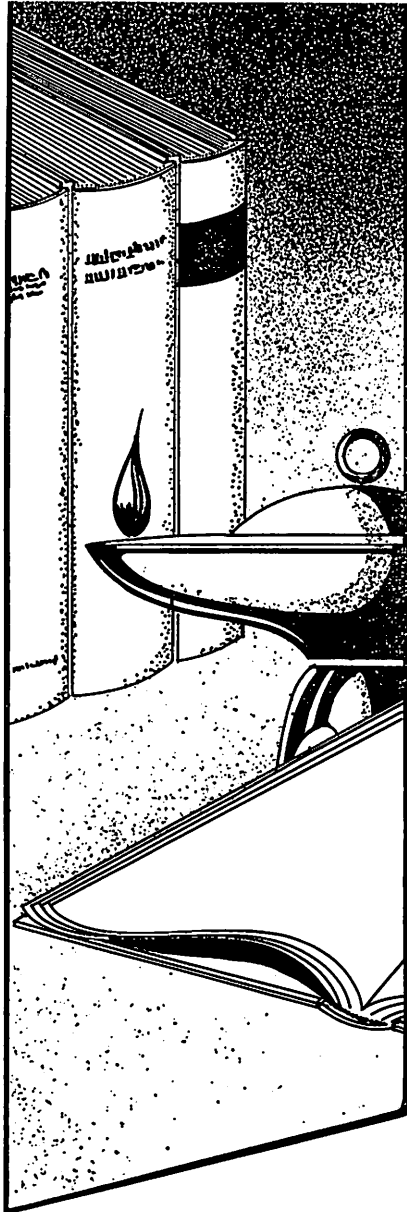
## MARINE CORPS

- 321 Evolution of the Art of War (3) Staff**  
Introduction to the art of war; broad resumé of the evolution and history of warfare from the earliest recorded battles through the Mexican War. (Formerly 311M.)
- 322 Evolution of the Art of War (3) Staff**  
A continuation of the resumé of the history of warfare with emphasis on the Civil War; brief coverage of the Spanish American War, World War I and World War II. (Formerly 312M.)
- 323 The Study of Modern Basic Strategy and Tactics (3) Staff**  
An introduction to the theoretical principles of modern strategy and tactics; brief resumé of U.S. foreign and military policy; extensive discussion of marine division organization. (Formerly 313M.)
- 421 Amphibious Warfare (3) Staff**  
Introduction to the development of amphibious warfare; detailed study of the amphibious campaigns of World War II; resumé of the Korean conflict. (Formerly 411M.)
- 422 Amphibious Warfare (3) Staff**  
A study of the detailed planning for an amphibious operation including Marine Corps Staff organizations, command relationship and task organizations. (Formerly 412M.)
- 423 Military Justice and Leadership (3) Staff**  
Introduction to the basic principles of the Uniform Code of Military Justice; a study of the principles of military leadership. (Formerly 413M.)

## SUPPLY CORPS

- 331 Organization and Logistics Navy Accounting and Finance (3) Staff**  
Introduction to supply corps: national security organization; Navy Bureau system; supply demand control point concept; naval finance; appropriation, property and cost accounting. (Formerly 311S.)
- 332 Advanced Navy Accounting and Basic Supply Afloat (3) Staff**  
Naval accounting; balance sheet reconciliation; reports and returns; organization and administration of supply afloat; afloat requirements determination and stock control. (Formerly 312S.)
- 333 Advanced Supply Afloat (3) Staff**  
Afloat custody and stowage and security of material; surveys; issues, transfers, and financial management of afloat inventories; special supply systems. (Formerly 313S.)
- 431 Ship's Stores Afloat: Clothing and Small Stores (3) Staff**  
Operating procedures, records, reports, and returns for ship's stores afloat; operating procedures, records, reports, and returns for clothing and small stores afloat. (Formerly 411S.)

**BULLETIN  
UNIVERSITY  
OF  
WASHINGTON**



**DEPARTMENT OF  
CORRESPONDENCE  
STUDY**

**1960-62**

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**BULLETIN, UNIVERSITY OF WASHINGTON** is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Department of Correspondence Study and the Department of Extension Classes, the correspondence study and evening classes announcements.

**INTRODUCTION TO THE UNIVERSITY**, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. **UNIVERSITY RULES AND REGULATIONS**, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Addressograph Service.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS  
INTRODUCTION TO THE UNIVERSITY  
UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING  
COLLEGE OF ARTS AND SCIENCES  
COLLEGE OF BUSINESS ADMINISTRATION  
SCHOOL OF DENTISTRY  
COLLEGE OF EDUCATION  
COLLEGE OF ENGINEERING  
COLLEGE OF FISHERIES  
COLLEGE OF FORESTRY  
GRADUATE SCHOOL  
SCHOOL OF LAW  
SCHOOL OF MEDICINE  
SCHOOL OF NURSING  
COLLEGE OF PHARMACY  
SCHOOL OF SOCIAL WORK

### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT  
SUMMER QUARTER ANNOUNCEMENT  
CENTER FOR GRADUATE STUDY AT HANFORD  
CORRESPONDENCE STUDY  
EVENING CLASSES

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# CONTENTS

ADMINISTRATION . . . . .	4
Board of Regents	
Officers of Administration	
Faculty	
 GENERAL INFORMATION . . . . .	 9
How to Register	
Dropping Students	
University Credit	
Noncredit Enrollment	
Preparatory Courses	
Resident Students	
Books and Materials	
Fees	
Final Examinations	
Lessons in Summer	
Transfer of Credits	
Grades	
Notice to Veterans	
Application for Registration	
 HOME STUDY COURSES . . . . .	 17
Home Study Courses	
Preparatory Home Study Courses	

## ADMINISTRATION

### BOARD OF REGENTS

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ANDERSON, SYLVIA FINLAY, M.A.	<i>Assistant Professor of English</i>
ARESTAD, SVERRE, Ph.D.	<i>Associate Professor of Scandinavian Languages</i>
BAILY, ATHOL R., Ph.D.	<i>Associate Professor of Education</i>
BARTH, E. A. T., Ph.D.	<i>Instructor in Sociology</i>
BATIE, HARRIETT VIRGINIA, Ph.D.	<i>Assistant Professor of Education</i>
BENTLEY, G. NELSON, M.A.	<i>Assistant Professor of English</i>
BIJOU, SIDNEY WILLIAM, Ph.D.	<i>Professor of Psychology</i>
BOEHMER, HERBERT, M.S.	<i>Associate Professor of General Engineering</i>
BONE, HUGH A., Ph.D.	<i>Professor of Political Science</i>
BOROUGH, HOMER, JR., Ph.D.	<i>Associate Professor of Education</i>
BRABB, GEORGE J., M.S.	<i>Acting Assistant Professor of Statistics</i>
BROCKMAN, C. FRANK, M.S.	<i>Associate Professor of Forestry</i>
BROWN, MALCOLM J., Ph.D.	<i>Associate Professor of English</i>
BROWN, STEPHEN D., LL.M.	<i>Associate Professor of Business Law</i>
BURKE, ROBERT E., Ph.D.	<i>Assistant Professor of History</i>
COHEN, JOSEPH, Ph.D.	<i>Assistant Professor of Sociology</i>
CONWAY, JOHN ASHBY, B.A.	<i>Professor of Drama</i>
COOMBS, HOWARD A., Ph.D.	<i>Professor of Geology</i>
CORBALLY, JOHN E., Ph.D.	<i>Professor of Secondary Education</i>
DAVID, JEAN FERDINAND, Ph.D.	<i>Associate Professor of Romance Languages</i>
DEMERY, JOSEPH, M.A.	<i>Professor of General Business</i>
DOUGLASS, CLARENCE EADER, B.S.	<i>Associate Professor of General Engineering</i>
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EBY, EDWIN HAROLD, Ph.D.	<i>Professor of English</i>

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FEA, HENRY R., Ph.D.	Assistant Professor of Education
FOSTER, CLIFFORD D., Ph.D.	Assistant Professor of Education
GARFIELD, VIOLA E., Ph.D.	Associate Professor of Anthropology
GATES, CHARLES M., Ph.D.	Professor of History
GORDON, DONALD F., Ph.D.	Associate Professor of Economics
GOTTFRIED, ALEX, Ph.D.	Assistant Professor of Political Science
GRATHWOHL, HARRISON L., DBA	Assistant Professor of Marketing, Transportation, and Foreign Trade
GRAY, ROBERT S., M.A.	Assistant Professor of Drama
GREENGO, ROBERT E., Ph.D.	Assistant Professor of Anthropology
GUNTHER, ERNA, Ph.D.	Professor of Anthropology
HAMACK, FRANK H., LL.B.	Lecturer in Accounting
HANZELI, VICTOR EGON, M.A.	Instructor in Romance Languages and Literature
HATCH, MELVILLE HARRISON, Ph.D.	Professor of Zoology
HEATHERS, LOUISE B., Ph.D.	Assistant Professor of Psychology
HENNING, CHARLES N., Ph.D.	Professor of Accounting, Finance, and Statistics
HERRMAN, ARTHUR P., B.A.	Professor of Architecture and Urban Planning
HITCHNER, DELL GILLETTE, Ph.D.	Associate Professor of Political Science
JESSUP, JOHN H., M.A.	Associate Professor of Educational Sociology
JOHNSON, WALTER GILBERT, Ph.D.	Associate Professor of Scandinavian Languages
LITTLE, WALLACE I., Ph.D.	Associate Professor of Transportation
LUTEY, WILLIAM GLEN, M.A.	Assistant Professor of Liberal Arts
MCCAFFREE, KENNETH MAURICE, Ph.D.	Associate Professor of Economics
McKEEVER, BENJAMIN BUTLER, Ph.D.	Associate Professor of Psychology
MARTIN, CHARLES E., Ph.D.	Professor of Political Science
MEYER, HERMAN CARL HENRY, Ph.D.	Associate Professor of Germanic Languages
MILLER, CHARLES J., M.B.A.	Professor of Marketing
MIYAMOTO, FRANK, Ph.D.	Associate Professor of Sociology
MUELLER, FRED J., Ph.D.	Assistant Professor of Accounting and Finance
NELSON, ROBERT A., Ph.D.	Associate Professor of Transportation
NORTH, DOUGLAS CECIL, Ph.D.	Associate Professor of Economics
PECK, C. E., Ph.D.	Associate Professor of Marketing, Transportation, and Foreign Trade
PERSON, HENRY A., Ph.D.	Assistant Professor of English
PHILLIPS, WILLIAM L., Ph.D.	Assistant Dean of the College of Arts and Sciences
POWERS, FRANCIS FOUNTAIN, Ph.D.	Professor of Educational Psychology
REED, CARROLL E., Ph.D.	Associate Professor of Germanic Languages
ROLLER, JULIUS A., B.B.A.	Associate Professor of Accounting, Finance, and Statistics
RUSTAD, JOHN R., M.A.	Assistant Professor of Humanistic-Social Studies
SALYER, RUFUS COLEMAN, JR., Ph.D.	Assistant Professor of Education
SARASON, IRWIN G., Ph.D.	Assistant Professor of Psychology
SIMPSON, LURLINE VIOLET, Ph.D.	Associate Professor of Romance Languages
SOKOL, VILEM MARK, M.Mus.	Assistant Professor of Music
SOUTHER, JAMES W., M.A.	Associate Professor of Humanistic-Social Studies
SPECTOR, IVAR, Ph.D.	Associate Professor of Far Eastern and Slavic Languages and Literature
STOREY, REED K., B.S.	Acting Assistant Professor of Accounting
STOTLAND, EZRA, Ph.D.	Assistant Professor of Psychology
STRAYER, GEORGE DRAYTON, JR., Ph.D.	Professor of Educational Administration
SUH, DOO SOO, Ph.D.	Visiting Lecturer in Far Eastern and Slavic Languages and Literature
VARGAS-BARÓN, ANIBAL, Ph.D.	Associate Professor of Spanish
VOPNI, SYLVIA, Ph.D.	Assistant Professor of Education

WAGNER, LOUIS C., M.A.	<i>Professor of Marketing, Transportation, and Foreign Trade</i>
WALTERS, MARGARET C., M.A.	<i>Assistant Professor of English</i>
WATSON, WALTER B., Ph.D.	<i>Assistant Professor of Sociology</i>
WEBSTER, DONALD H., Ph.D.	<i>Professor of Political Science</i>
WHEELER, BAYARD O., Ph.D.	<i>Professor of General Business</i>
WICKMAN, JAMES A., M.B.A.	<i>Instructor in Insurance</i>
WILLIS, LEOTA SNIDER, Ph.D.	<i>Lecturer in English</i>
WILSON, CLOTILDE M., Ph.D.	<i>Assistant Professor of Romance Languages</i>
WILSON, WILLIAM CHARLES E., Ph.D.	<i>Professor of Romance Languages</i>
WINTHER, SOPHUS KEITH, Ph.D.	<i>Professor of English</i>
WORCESTER, DEAN A., JR., Ph.D.	<i>Associate Professor of Economics</i>
ZILLMAN, LAWRENCE J., Ph.D.	<i>Professor of English</i>

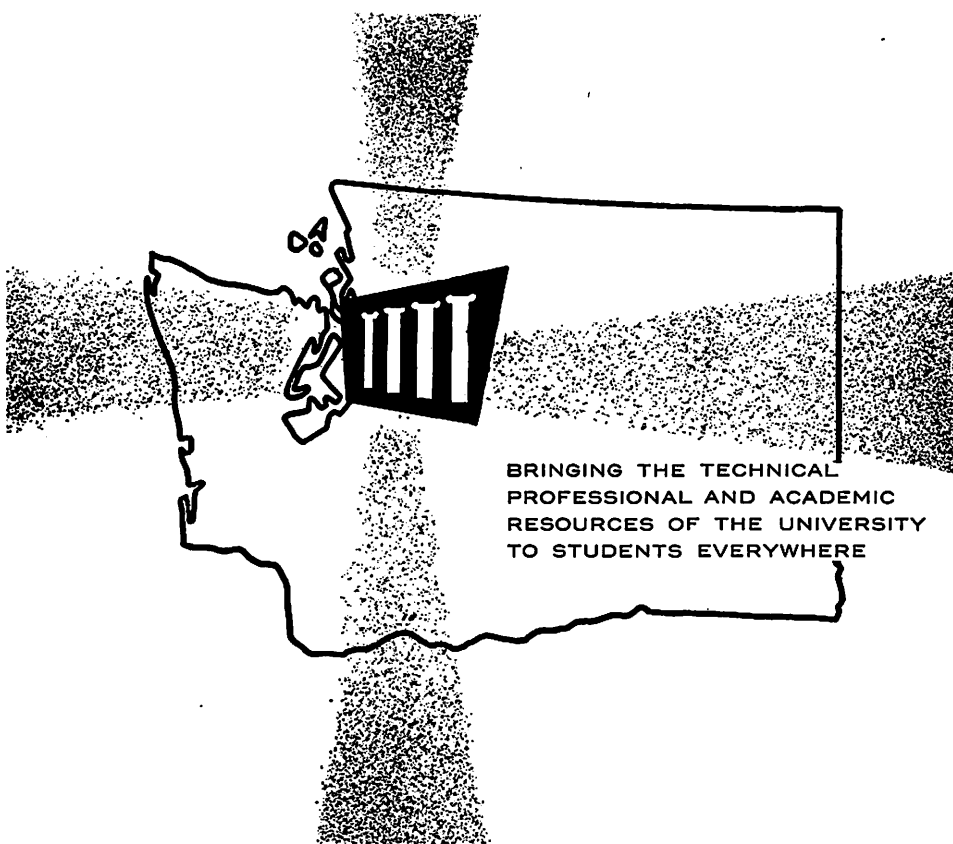
### COOPERATING FACULTY

BOTHUN, VIRGINIA, M.A.	<i>English</i>
CORNU, ELIZABETH, M.A.	<i>English</i>
HEFFELFINGER, CHARLES H., M.A.	<i>History</i>
RYBERG, VIOLET, M.A.	<i>Geography</i>
THOMPSON, JOHN W., M.A.	<i>Botany</i>
ZUCKERMAN, HELEN C., M.S.	<i>Mathematics</i>

### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*



## GENERAL INFORMATION



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## GENERAL INFORMATION

**T**HE UNIVERSITY OF WASHINGTON offers more than three hundred courses which any adult may study in his home. These Home Study courses are open to anyone over eighteen years of age who is not attending high school and to any high school graduate who may be under eighteen.

The courses, taught by regular members of the University faculty, are not easy, but they can yield rich benefits to the student who is willing to work steadily at them until he completes the assigned studies.

Once enrolled, the student receives in the mail the assignments prepared by his instructor at the University. When he has completed an assignment the student mails it to the University, where the instructor grades it and returns it with corrections and suggestions. In this way, Home Study courses approach the ideal in teaching—individual contact between the instructor and the student.

When the student completes all the assignments, he takes a final examination. He may either come to the University for the examination or can take it in his home town under supervision of a local school officer. If he passes satisfactorily, he receives a Certificate of Completion and his grade and earned credits are entered in the University records.

Anyone planning to take a subject should allow an average of one hour a day for study, preferably the same hour so that a regular routine is established. Ordinarily it is best to take and complete one subject at a time. Two subjects should be the maximum.

A student may begin a Home Study course at any time of year and may proceed as rapidly or as slowly as he wishes, within reasonable limits.

Fees are \$8.00 per credit. A 2-credit course costs \$16.00; a 3-credit course, \$24.00; a 4-credit course, \$32.00; and a 5-credit course, \$40.00. The number of credits for each course is given with its description in this Bulletin.

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*Address all communications concerning Home Study to:*

DEPARTMENT OF CORRESPONDENCE STUDY  
UNIVERSITY OF WASHINGTON  
SEATTLE 5, WASHINGTON

## HOW TO REGISTER

To enroll in a Home Study course use the Application for Registration form on page 14 of this Bulletin. If this has been torn out, send in the following information so that the form can be filled out in the office:

Name; full address; telephone; occupation; date of birth; father's name; mother's maiden name; name of high school and number of years attended; name of any school attended beyond high school; object of taking this course, whether for University credit, general culture, or some special purpose; title of the course you wish to take.

Please indicate whether you are now a regular resident student in the University. Resident students must have special permission to take Home Study courses.

Fees must accompany the application form, together with 25 cents for the regulation stationery. If you want the Home Study Office to order the textbooks needed, indicate that also.

As soon as the application is accepted, lessons will be sent and the student may begin work at once. If for any reason an application is not accepted, all fees will be returned.

## DROPPING STUDENTS

A student may be dropped from a course for any of the following four causes:

1. Failure to submit the first lesson within sixty days of registration.
2. Failure to submit subsequent assignments for a period of ninety days.
3. Failure to complete a course within the required time, which is one year for a 5-credit course, eight months for a 3-credit course, and five months for a 2-credit course.
4. Failure to take the final examination within sixty days after the last assignment is received in the Home Study Office.

A student may avoid being dropped by applying in writing to the Executive Officer of the Home Study Office before a time limit has expired, stating why compliance with the rules is not possible.

A dropped student may be reinstated when he has paid a reinstatement fee of \$1.00 per credit; for example, \$5.00 for a 5-credit course. No reinstatement can be made if the Home Study course is no longer given or if more than four years have elapsed since the date of registration.

If a Home Study student subsequently registers as a regular resident student at the University, he may obtain an extension of time to finish his Home Study course equal to the time he spends in residence.

## UNIVERSITY CREDIT

Most Home Study courses may be taken for University credit toward a bachelor's degree by students who meet regular University entrance requirements. Credit work in Home Study is subject to substantially the same University regulations that apply to regular residence work. *No more than 5 credits of Home Study may be completed in one month, 3 credits in twenty-one days, or 2 credits in fourteen days. No more than one lesson per day may be submitted and if more than one course is carried simultaneously no more than one lesson per day may be submitted in either course.*

Credits are on a *quarter* basis. (A quarter credit equals 2/3 of a semester credit; a semester credit equals 1½ quarter credits.)

In many academic fields, a student may earn up to half the credits required for a bachelor's degree through Home Study. However, he may earn only 10 of his last 45 credits by Home Study. The others must be earned as a resident student. If a student plans to take a large part of his undergraduate work in Home Study, he should consult with faculty advisers and plan his program several years in advance. In general, it is better to take the *first* rather than the latter part of a University program by Home Study.

A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of these credits can apply toward the work of the senior year. Extension and correspondence credits from schools that are members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination. No correspondence credit is accepted in the combined arts-law program.

Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Department of Extension Classes and Department of Correspondence Study. All credits earned by advanced-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum. Up to 10 extension or correspondence credits from this University can apply toward the work of the senior year.

#### **ADVANCED DEGREE CREDITS**

Home Study courses may not be used to earn credit toward graduate degrees. However, up to 12 credits may be earned in the fifth year toward the Standard General Certificate by Home Study. The remaining 33 credits required for this Certificate must be taken in residence.

#### **SUMMER CREDITS**

Some courses offered both in Home Study and in Summer Quarter may be half completed in Summer Quarter and finished in Home Study. Students should inquire specifically about a course before planning this division of work, since not all courses may be so taken. Such combinations must be approved at time of registration by the instructor of the course and by the Executive Officer of Home Study.

#### **NONCREDIT ENROLLMENT**

Many mature students may be interested in Home Study but not interested in obtaining academic credit. In such a case, a student may enroll as an auditor in a course. As an auditor, a student may ask permission to take advanced courses without the usual prerequisites. To obtain such permission, the student should submit in writing his reasons for taking the course together with indications of previous study or occupation which provide him with a reasonable background for the course. On the basis of satisfactory background information, the instructor will grant permission to take the course.

A student may receive credit in audited courses only by enrolling in them later as a regular student. For such enrollment, the regular prerequisites prevail. The fees and other conditions for noncredit audited courses are the same as those for regular courses. Auditors are given the same careful instructions and helpful criticism as those who are studying for credit.

#### **PREPARATORY COURSES**

Several Home Study courses designed to fulfill University of Washington entrance requirements are offered. Detailed information on these preparatory courses may be found on page 29 of this Bulletin.

#### **RESIDENT STUDENTS (attending day classes)**

Many resident University students find Home Study courses helpful in removing deficiencies or in speeding their undergraduate work.

The resident student must obtain his dean's consent in writing and submit it when applying for Home Study registration. If the student has begun a Home

Study course while not in residence and desires to complete it after he begins his residence studies, he may obtain a blank for this purpose at the Home Study Office or from the dean of the college in which the student is enrolled.

## BOOKS AND MATERIALS

The student must buy one or more textbooks for most courses. These are not included in the tuition charge. The Home Study Office, at the student's request, will order textbooks from the University Book Store, and the books will be sent parcel post, C.O.D., to points in the United States. Since books cannot be sent C.O.D. in Canada, the Office will inform Canadian students of the cost of texts and will order them on receipt of funds from the student. No books will be ordered except upon request.

Some courses also require collateral reading. These books often are available from public libraries near the student's home. Upon payment of \$1.00, the Home Study Office will issue a University Library card to students enrolled in courses requiring reference reading. This card, valid for one year, entitles a student to borrow University Library books for one-month periods, provided the same volumes are not required for use by resident students. The card, when first presented to the Library, will be held there. Students requesting books by mail should address: Circulation Department, University of Washington Library, Seattle 5. The student is expected to pay transportation charges both ways.

Many texts and reference books will prove valuable additions to the student's personal library. When he can afford it, the student may find this a wise investment.

## STATIONERY

For the convenience of both instructor and student, Home Study students are asked to use a special first sheet with each assignment. For the following pages, any good 8½" x 11" paper may be used. First sheets with printed headings may be obtained from the Home Study Office in blocks of forty for 25 cents. Plain second sheets in blocks of approximately fifty may also be obtained from this office for 20 cents a block. Each thirty-assignment course requires one block of printed sheets and two or more blocks of second sheets.

## FEES

1. *Rates.* Fees are \$8.00 per credit for students living anywhere in the world.
2. *When Paid.* Fees are due and payable at the time of enrollment. They are refunded if the University rejects the student or fails to give the course. Enrollment constitutes an agreement by the student to complete the course and he must take the responsibility for any failure on his part to do so.
3. *No Discounts.* Fees are not subject to discount.
4. *Changing Courses.* With the consent of the Home Study Executive Officer, students may transfer from one course to another before the work actually has begun, if the student requests transfer within sixty days after enrollment. This necessitates an additional fee of \$1.00 per credit, plus \$1.00 for change of registration. After the student has sent in one or more assignments, transfer to another course will be permitted only under exceptional circumstances. In addition to the transfer fees mentioned above, an additional charge of \$1.00 will be assessed for each assignment already submitted.
5. *Sixty-day Limit.* Students failing to make any report within sixty days after enrollment will be dropped and no fees will be refunded. Once enrolled, the student is expected to begin the work or to report promptly his reason for not doing so.
6. *Refunds.* No refund of fees will be made after thirty days from the date of registration unless illness makes it impossible for the student to continue his work. A statement showing the nature and probable duration of the illness must accom-

pany the request for a refund. In case of withdrawal from a course within thirty days after registration or because of illness, the Home Study Office will retain a fee of \$1.00 per credit carried by the course and \$1.00 for each assignment submitted. The balance of fees paid will be refunded, provided that all charges for materials, books, and other supplies have been met. Laboratory fees and fees paid for loan of books and materials are not returnable.

## FINAL EXAMINATIONS

Most courses conclude with a supervised, written examination at a time and place as convenient as possible for the student. The student should not take the final examination until all corrected assignments have been returned to him and he has had a chance to study them.

The examination will be given only after all assignments have been completed and all fees have been paid.

Whenever Home Study credits are needed for entrance into the University, or for reinstatement or graduation, the student must take the final examination and send it to the Home Study Office at least one week before the grade is required by the Registrar's Office.

## LESSONS IN SUMMER

The Home Study Office cannot guarantee that all lessons will be corrected promptly during the summer, especially during September, which is the vacation period between the Summer and Autumn Quarters. At such times, the Office will attempt either to provide a substitute while the instructor is away or to forward lessons to the instructor, but delays may occur. A student should keep this in mind if he wishes to complete a course before Autumn Quarter opens. He should consult the Home Study Office to learn which courses are least likely to encounter delay.

## TRANSFER OF CREDITS

Most other institutions of higher learning accept, in transfer, credits earned in University of Washington Home Study courses. The University, however, has no control over acceptance of credits by other schools. A student who enrolls in a Home Study course expecting to use the credits toward a degree in another institution should communicate with that institution to determine whether it will accept the credits. A student desiring to have an official transcript forwarded to another institution should apply at the Transcript Office, 109 Administration Building, *after* he has completed the course.

The University of Washington accepts home study and extension credits from other institutions belonging to the National University Extension Association.

## GRADES

The regular University grading system is used in Home Study courses, as follows (grade points are in parentheses): A, Honor (4); B, Good (3); C, Medium (2); D, Poor (low pass) (1); E, Failed (0); I, Incomplete. No grades are given for noncredit work.

## NOTICE TO VETERANS

Most courses are available to veterans under Public Law 550. Information on the regulations may be obtained from the Department of Correspondence Study upon request.

However, veterans must keep in mind that eligibility to use their educational benefits for correspondence study work is determined by the Veterans Administration. In order to establish his eligibility, a veteran must obtain a Certificate for Education and Training from the Veterans Administration before his delimiting date under Public Law 550.

Students who have not already been formally admitted to the University of Washington are urged to consult with the University's Veterans Division, 1B Administration Building, for instruction in the proper procedure and to obtain a clearance card for their enrollment in correspondence courses.

### APPLICATION FOR REGISTRATION

Mail to: DEPARTMENT OF CORRESPONDENCE STUDY, Lewis Hall

University of Washington, Seattle 5, Washington

Name of applicant in full, Mr., Mrs., Miss:

-----  
 Last Name First Name Middle Name Maiden Name

Address in full -----  
 Street and Number City and Zone State

Tel. No. ----- Occupation ----- Date of Birth -----

Father's Name ----- Mother's Maiden Name -----

What correspondence instruction have you had? -----  
 Have you completed any course at the University of Washington by:

Correspondence Study ----- Evening Classes ----- Residence Study? -----

Do you wish the Department of Correspondence Study to order the required text? -----

(Textbooks will be sent C.O.D.)

#### REGISTRATION

Course No.	Department	Subject	Price

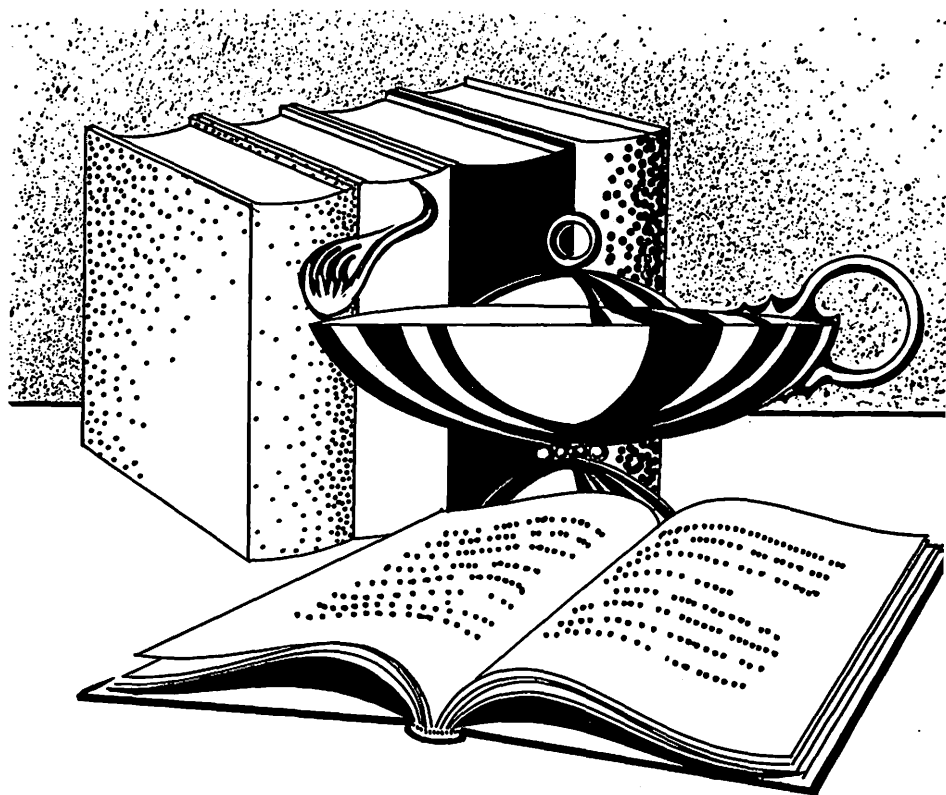
Lesson Paper: Printed First Sheets \$0.25  
 Plain Second Sheets at 20 cents a block

Total \_\_\_\_\_

All fees are payable at the time of registration; check should be made payable to the UNIVERSITY OF WASHINGTON.

In signing this application I agree to abide by the rules and regulations governing HOME STUDY courses.

Date ----- Signature -----



HOME STUDY COURSES

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# HOME STUDY COURSES

## ANTHROPOLOGY

- 202c Cultural Anthropology: Comparison and Analysis (5)** **Garfield**  
Man's social customs, political institutions, religion, art, literature, and language. (30 lessons, \$40.00)
- 311c Indian Cultures of the Pacific Northwest (3)** **Garfield**  
A study of the Indians of Western Washington and their relation to other tribes of the Northwest. Social customs, religion, and material culture are the principal topics discussed. (18 lessons, \$24.00)
- 370c Methods and Problems of Archaeology (5)** **Greengo**  
Field experience in this locality is included. Prerequisite, 203. (30 lessons, \$40.00)
- 433c Primitive Art (3)** **Gunther**  
Aesthetic theories and artistic achievements of preliterate peoples. Museum material is used for illustration. Prerequisite, 10 credits in anthropology or art. (18 lessons, \$24.00)

## ARCHITECTURE

- 105c The House (2)** **Herrman**  
Analysis of domestic architecture. (12 lessons, \$16.00)

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a: First half of a course.

b: Second half of a course.

c: Correspondence course.

-: Hyphen indicates a hyphenated course, which must be followed or preceded by a companion course before the student can receive credit for either course.

Credits: Credits are indicated by the number in parentheses following the course title.

Numbers:

0 to 299—Lower-division (freshman and sophomore) classes.

300 to 499—Upper-division (junior and senior) classes.

Permission: Permission of instructor.

Prerequisite: Courses or training which must have been taken previously either through correspondence, extension, or residence. Course numbers listed as prerequisites are in the same department unless otherwise indicated.



**ART**

- 205c Lettering (3)** **Anderson**  
 Design in letters and the composition of letters. Prerequisite, 107 and 111, or permission.  
 (18 lessons, \$24.00)

**BOTANY**

- 111c Elementary Botany (5)** **Thompson**  
 Structure, physiology, and reproduction of seed plants. Open to those who have taken  
 105 only by permission of instructor. (30 lessons, \$40.00)
- 113c Elementary Botany (5)** **Thompson**  
 Local flora. Identification of a minimum of 90 or more wild plants collected in student's  
 vicinity. (30 lessons, \$40.00)

**BUSINESS ADMINISTRATION****ACCOUNTING**

- 150c Fundamentals of Accounting (4)** **Hamack**  
 Basic principles and procedures, including recording of business transactions and preparation of financial statements. (24 lessons, \$32.00)
- 151c Fundamentals of Accounting (3)** **Hamack**  
 Elements of manufacturing, partnership, and corporation accounting. Prerequisite, 150.  
 (18 lessons, \$24.00)
- 255c Basic Accounting Analysis (3)** **Hamack**  
 Financial and cost analysis and interpretation. Prerequisite, 151. (18 lessons, \$24.00)
- 310c Intermediate Accounting (5)** **Storey**  
 Concepts and principles underlying accounting processes. Theory and problems of financial accounting, including financial statement analysis. Prerequisite, 255. (30 lessons, \$40.00)
- 320c Income Tax I (3)** **Roller**  
 Federal income tax and its application to returns of the individual. Prerequisite, 310.  
 (18 lessons, \$24.00)
- 330c Cost Accounting (5)** **Storey**  
 Theory of cost accounting; accumulation and allocation of costs; managerial control through cost data. Prerequisite, 310 or permission. (30 lessons, \$40.00)
- 420c Income Tax II (3)** **Roller**  
 Special problems in federal income tax, including partnerships, fiduciaries, and corporations; appeals. (18 lessons, \$24.00)

**BUSINESS LAW**

- 201c Business Law (5)** **Brown**  
 Introduction to the study of law, its origin and development; formation, performance and discharge of contracts; rights of third parties and remedies available at law and equity; law of principal and agent and partnership relationships. (30 lessons, \$40.00)
- 302c Business Law (5)** **Brown**  
 Real and personal property, security transactions, sales, and negotiable instruments. Prerequisite, 201. (30 lessons, \$40.00)

**BUSINESS STATISTICS**

- 201c Statistical Analysis (5)** **Brabb**  
 A nonmathematical survey of the basic elements of descriptive statistics; use of the library as a source of business data; measurements useful in the analysis of data; some methods of data presentation. Prerequisite, General Business 101. (30 lessons, \$40.00)

**BUSINESS WRITING**

- 310c Business Correspondence (5)** **Peck**  
 Principles, including "you" attitude, tone, and positive approach, psychology, and organization applied to requests, replies to inquiries, acknowledgements of orders, sales, claims, adjustments, credits, collections, and public relations. Preparation of an application letter and accompanying data sheet. (30 lessons, \$40.00)

**FINANCE**

- 201c Banking and Business (5)** **Henning**  
 Functions of the important financial institutions, including commercial banks and the banking system of the United States; investment banking, security markets, savings institutions, consumer credit agencies, governmental credit agencies, and international financial relationships. The role each institution plays in meeting the short-, intermediate-, and long-term credit needs of business and individuals is emphasized. Prerequisites, Accounting 151 and Economics 201. (30 lessons, \$40.00)

- 301c Financial Management (5)** **Mueller**  
Problems dealing with the sources, uses, and control of funds in business enterprises. Major emphasis is devoted to sources of long- and short-term funds, policies relating to working capital, income management, and the financing of growth and expansion. Prerequisites, 201, Accounting 255. (30 lessons, \$40.00)
- 344c Principles of Investment (5)** **Mueller**  
Designed both for students who expect to enter financial work and for those who desire a knowledge of investment for personal use. Basic principles in the selection of investment media; determination of individual and institutional investment policies; fundamental analysis of industries and securities. Prerequisite, 301. (30 lessons, \$40.00)

**GENERAL BUSINESS**

- 101c Introduction to Business (5)** **Wheeler**  
The nature, scope, and problems of business; management of the business firm; types of ownership; production, personnel, marketing, financing, and other management functions; managerial controls, including accounting, statistics, and budgeting; and the influence of environmental forces upon business, including government, labor, consumer, and public. (30 lessons, \$40.00)
- 439c Analysis of Business Conditions (5)** **Demmery**  
Analysis of the basic variations affecting general business conditions as a background for business and investment decisions; appraisal of proposals for controlling cycles and of forecasting techniques. Prerequisites, Finance 301, Marketing 301, Production 301, and Business Statistics 201. (30 lessons, \$40.00)

**INSURANCE**

- N31c Insurance Agent's Review Course (0)** **Wickman**  
A course designed to assist the prospective applicant for a license as an insurance agent to prepare himself for the examination given by the State Insurance Commission. (30 lessons, \$40.00)
- 301c Principles of Insurance (5)** **Wickman**  
Nature of risk and uncertainty; methods of meeting risk; the insurance mechanism; legal problems of insurance; various types of contracts and carriers; purchase of insurance by the individual. Prerequisite, General Business 101. (30 lessons, \$40.00)

**MARKETING**

- 301c Principles of Marketing (5)** **Miller**  
Analytical survey of institutions, functions, problems, and policies involved in the distribution of goods from producer to consumer. Pricing, marketing costs, and governmental regulations. Should be taken in the sophomore year by marketing majors. (30 lessons, \$40.00)
- 391c Advertising (5)** **Wagner**  
To develop an understanding of, and ability to appraise, advertising as a part of the selling program. Among the topics covered are: purposes and functions, product and market analysis, preparation of advertisements, evaluation of media, testing effectiveness, coordination with other means of selling, advertising organization, social and economic aspects. Prerequisite, 301. (30 lessons, \$40.00)
- 401c Sales Management (5)** **Grathwohl**  
Analysis of sales methods, policies, and costs; sales organization; management of the sales force (selection, training, compensation, and supervision); sales planning; sales and distribution policies, problems. Prerequisite, 301. (30 lessons, \$40.00)

**REAL ESTATE**

- 301c Principles of Urban Real Estate (5)** **Demmery**  
Economic principles underlying the utilization of land; determining factors for the location and development of residential, commercial, industrial, and financial districts; public control. Prerequisite, General Business 101. (30 lessons, \$40.00)

**TRANSPORTATION**

- 301c Principles of Transportation (5)** **Nelson**  
Survey of air, water, highway, and railroad transportation. The relation of transportation to business activities and the movement of passengers, raw materials, and finished products. Business practices and policies of transportation companies. Federal regulation of transportation industries. (30 lessons, \$40.00)
- 317c Water Transportation (5)** **Little**  
Problems of ocean water carriage relating to routes, rates, services, traffic, operation, and regulation; economics of shipping. Prerequisite, 301. (30 lessons, \$40.00)

**DRAMA**

- 427c History of the Theatre (2)** **Conway**  
The primitive, Classic Oriental, and Medieval Theatre. A study of the physical playhouse, its methods of production, stage techniques, machinery, settings and lighting, masks and costumes, great actors and actor-managers. (12 lessons, \$16.00)

- 428c History of the Theatre (2)** **Conway**  
Theatres of the Renaissance and Baroque periods. (12 lessons, \$16.00)
- 429c History of the Theatre (2)** **Conway**  
Theatres of England and America in the 18th and 19th centuries. The modern theatre. (12 lessons, \$16.00)
- 451c, 452c, 453c Representative Plays (3,3,3)** **Gray**  
Great playwrights of all important periods. Theories of the drama. (18 lessons each, \$24.00 each)

## ECONOMICS

- 160c American Economic History (5)** **North**  
American economic institutions, their European background and development; the impact of industrialization on the American economy from 1850 to the present. (30 lessons, \$40.00)
- 200c Introduction to Economics (5)** **Worcester**  
Organization and operation of the American economy; consideration of contemporary economic problems of money, banking, labor, international trade, and employment; proposals for promoting social welfare. Open to freshmen. Prerequisite to all upper-division economic courses. (30 lessons, \$40.00)
- 201c Principles of Economics (5)** **McCaffree**  
Operation of the American economy in determining prices, wages, production, distribution of income and wealth; problems of the world economy; alternative economic systems—communism, socialism, fascism, mixed economies. Prerequisite, 200. (30 lessons, \$40.00)
- 302c Intermediate Economics (5)** **Gordon**  
The fundamental concepts and principles of economics. Markets, market price, and the determination of price under monopolistic conditions. The relations of price and cost; income and its functional distribution in capitalistic society. Prerequisite, 201. (30 lessons, \$40.00)

## EDUCATION

- 209c Educational Psychology (3)** **Powers**  
Psychological basis of education; principles applied to teaching procedures. Emphasizes conduct as a conditioning process. Prerequisites, Psychology 100 and a course in child development. (18 lessons, \$24.00)
- 327c Teachers' Course in Trade and Industrial Education (3)** **Baily**  
Methods and techniques of teaching industrial education; shop management; motivation of learning in the shop; measurement of achievement; inter-school and community relations. (18 lessons, \$24.00)
- 329c Teachers' Course in French (2)** **Simpson**  
Examination and critical consideration of aims, problems, methods, and modern techniques and devices for teaching French. Prerequisite, permission of instructor. (12 lessons, \$16.00)
- 331c Teachers' Course in History (2)** **Boroughs**  
A critical examination of the objectives, methods, and specific techniques for teaching history in the junior and senior high school. Prerequisites, 209, 370. (12 lessons, \$16.00)
- 343c Teachers' Course in Spanish (2)** **Simpson**  
Examination and critical consideration of aims, problems, methods, and modern techniques and devices for teaching Spanish. Prerequisite, permission of instructor. (12 lessons, \$16.00)
- 360c Principles of Education (3)** **Draper**  
Analytical studies in the areas of professionalization of teachers, foreign education systems, guidance and counseling, vocational education, extra-class activities, and curriculum improvement. Reading assignments. (18 lessons, \$24.00)
- 370c Introduction to Teaching Procedures (5)** **Boroughs**  
A general orientation to the teaching profession with an examination of the basic methods of teaching with emphasis upon practical considerations. Actual classroom teaching situations are observed on the elementary, junior, and senior high school levels. Prerequisite, 209. (30 lessons, \$40.00)
- 373c Washington State Manual (2)** **Corbally, Jessup**  
For out-of-state applicants for teaching certificates from the State Department of Education and students certifying in the state of Washington for teaching. (12 lessons, \$16.00)
- 374c Fundamentals of Reading Instruction (5)** **Fea**  
A basic course in the methods, techniques, and materials used in the teaching of reading from the readiness period in the kindergarten-primary area through the study-techniques of the high school grades. (30 lessons, \$40.00)
- 379c Arithmetic for Elementary Teachers (3)** **Vopni**  
A re-examination of elementary arithmetic from a mature point of view, with emphasis upon a sound knowledge of arithmetic processes and the problems encountered in teaching these to elementary students. The subject matter includes that normally taught in grades one through eight. One credit may count as mathematics toward the basic academic field and 2 as education. (18 lessons, \$24.00)

- 388c Selection and Organization of Industrial Education Subject Matter (3)** **Baily**  
Problems, techniques, and procedures in the selection and organization of teaching content for industrial education; preparation of job and informational assignments and testing devices for shop teachers. (18 lessons, \$24.00)
- 390c Evaluation in Education (3)** **Dvorak**  
Measurement in today's schools; construction of achievement tests; principles and applications of tests and standardized tests and scales in classroom management, educational diagnosis, and remedial education. Prerequisites, 209 and 370. (18 lessons, \$24.00)
- 401c Advanced Educational Psychology (3)** **Powers**  
An intermediate course stressing consideration of the major topics in the general field of educational psychology with emphasis upon the applied psychology of learning. (18 lessons, \$24.00)
- 402c Child Study and Development (3)** **Powers**  
Stages of child development; theories of leaders in child study; interplay between forces in the growing organism and the impact of various aspects of development upon each other; the influence of the cultural environment and the attitude of others on a child's behavior and adjustment. (18 lessons, \$24.00)
- 403c Psychology of Elementary School Subjects (3)** **Powers**  
A study of important and recent research in the subjects of the elementary school curriculum, and a consideration of the practical implications for teaching. (18 lessons, \$24.00)
- 405c Problems of Adolescence (5)** **Powers**  
A survey of the problems of adolescence, with analysis and discussion of their educational and social implications. (30 lessons, \$40.00)
- 406c Character Education (3)** **Powers**  
Experimental background of the modern effort toward character development. For teachers interested in giving maximum character and social values to teaching subjects. (18 lessons, \$24.00)
- 408c Mental Hygiene for Teachers and Administrators (3)** **Batio**  
A study of the mental hygiene of school children, teachers, and administrators, including genetic factors and the influence of various school situations upon the formation of adjustment patterns. Special problems of teachers and administrators will be emphasized. (18 lessons, \$24.00)
- 410c Educational Sociology (3)** **Corbally**  
A systematic view of the larger social factors and relationships underlying the school as an institution. Pivotal topics are: individual-group interaction; agencies of person-group interaction; and outcomes of individual-group interaction. Special emphasis is given to the relationship of the school to the community. (18 lessons, \$24.00)
- 415c Principles of Safety Education (3)** **Corbally**  
Designed primarily for teachers and administrators interested in developing a school safety program in elementary, junior, and senior high schools. Special emphasis is placed on the need for a safe school environment and the legal responsibility of the teacher in promoting safety. (18 lessons, \$24.00)
- 417c Adult Education (3)** **Jessup**  
Principles and methods of directing the continued educational growth of adults. (18 lessons, \$24.00)
- 425c Remedial Reading (3)** **Foa**  
Experience in and study of analysis of difficulties in reading, and application of appropriate remedial instruction, such analysis and instruction to be that which is both feasible and practical for the classroom teacher working with individuals or with a group. Prerequisite, 374 or equivalent. (18 lessons, \$24.00)
- 430c Public School Administration (3)** **Strayer**  
Selection, organization, function, and duties of school boards; relation of the superintendent of schools to the board, principals, supervisors, teachers, and pupils; selection and assignment of personnel; interpretation of the school program to the public; formation of policies; administration of the instructional program; finance and business management; appraisal of the school system; leadership in democratizing school administration and in community life. For superintendents, principals, supervisors, and those who wish to qualify for these positions. Prerequisite, permission. (18 lessons, \$24.00)
- 433c Elementary School Organization and Administration (3)** **Jessup**  
The work of the elementary school principal: plans of organization, promotion schemes, supervisory duties, teacher welfare, student organizations, and public relations. (18 lessons, \$24.00)
- 434c High School Organization and Administration (3)** **Strayer**  
The executive function; types of secondary schools in our democracy. The high school principal's relationships to the staff, the superintendent, and the board. General and specialized education; student organizations; schedule making and the modified day and year; special services. Pupil personnel policies. Business and school plant management. The high school and its community. (18 lessons, \$24.00)
- 435c Administration and Supervision of Junior High Schools (3)** **Strayer**  
Development, philosophy and effectiveness. The core curriculum and curriculum trends and fields; learning activities and individual differences. Guidance and the homeroom; co-curricular activities. Pupil personnel records, reports and progress; organization and schedule construction. Staff and other problems. (18 lessons, \$24.00)

- 437c School Supervision (3)** **Jessup**  
Analysis of the problems and techniques of the improvement of schoolwork. Special emphasis is given to facilitating pupil growth, facilitating teacher growth, improving curriculum, and using teaching aids to greatest advantage. (18 lessons, \$24.00)
- 439c Pupil Personnel and Progress Reporting (3)** **Vopni**  
Development of practical techniques in pupil personnel and progress reporting at the elementary and secondary school level. Special emphasis will be given to the parent-teacher conference as a part of progress reporting. The teacher-parent-pupil relationship in personnel procedures. (18 lessons, \$24.00)
- 445Vc Principles and Objectives of Vocational Education (3)** **Baily**  
Aims and objectives of vocational education; materials of instruction; standards of work; judging measurement of work. (18 lessons, \$24.00)
- 447c Principles of Guidance (3)** **Corbally**  
An introduction to guidance and normally the first course taken by those who plan to offer guidance as a field for an advanced degree. Special emphasis on types of programs in elementary and secondary schools together with an introduction to tools, techniques, organization, and evaluation for teachers and administrators. (18 lessons, \$24.00)
- 448c Improvement of Guidance Techniques (3)** **Salyer**  
Designed for teachers, administrators, and counselors. Special emphasis is given to the improvement of guidance techniques. (18 lessons, \$24.00)
- 461c Elementary School Curriculum (3)** **Jessup**  
The child as a growing organism developing personality and as a learner. The curriculum as the guiding life of the school: the development of units, utilization of materials of instruction, social experiences, creative experiences, and evaluation of curriculum material. (18 lessons, \$24.00)
- 466c Workshop in Curriculum Improvement (5)** **Draper**  
Organized to assist the classroom teacher in dealing with units of work and courses of study materials for her class or classes. Readings in curriculum are assigned to enable the teacher to prepare the lessons from her experimentation with units of work preparation in her own classes. (30 lessons, \$40.00)
- 467c Principles and Techniques of Curriculum Improvement (3)** **Draper**  
Intensive study of the basic principles and techniques utilized in the development of curriculum materials at all levels in the public schools; action research studies in the development and evaluation of objectives, learning experiences, resource units, and learning units. (18 lessons, \$24.00)
- 470c Historical Backgrounds of Educational Methods (3)** **Foster**  
Readings in the educational classics from the Greeks to the present, to trace their influence upon the development of educational theory and practice. Principal sources are Plato, Aristotle, Quintilian, Plutarch, Comenius, Vives, Montaigne, Locke, Milton, Rousseau, Pestalozzi, Herbart, Froebel, and Spencer. (18 lessons, \$24.00)
- 475Bc Improvement of Teaching: Arithmetic (3)** **Vopni**  
Designed for teachers of arithmetic, grades one through nine. Emphasis is placed on the contributions of research to the improvement of the teaching of arithmetic. (18 lessons, \$24.00)
- 475Nc Introduction to the Literature of Nature Study (2)** **Vopni**  
Study of books dealing with elementary nature work, suitable for use by elementary teachers and group leaders as reference material, and for use as readers for children. Nontechnical books dealing with the various branches of nature study are assigned to be evaluated from the point of view of accuracy and usefulness. (12 lessons, \$16.00)
- 475Sc Improvement of Teaching: Elementary School Science (3)** **Batie**  
Designed for the nonspecialized classroom teacher with reference to the teaching and learning of science from kindergarten through junior high school. Emphasis is placed on the aims, methods, materials, and concepts of science as well as the use of the scientific method of solving problems. (18 lessons, \$24.00)
- 475Tc Improvement of Teaching: Secondary School Science (3)** **Vopni**  
Survey of the status and potential role of science in education; trends and their implications for the teaching of both biological and physical sciences in the junior and senior high schools; representative curriculum proposals and related teaching procedures; the psychology of concept formation and problem solving; and guidance implications of the science program. Of special interest to science teachers, administrators, and curriculum consultants. (18 lessons, \$24.00)
- 477c The Teaching of Reading (3)** **Powers**  
The teaching of reading in the intermediate and upper grades of the elementary school and high school with consideration of the following topics: speed and comprehension; phonics; silent and oral reading; motivation of reading, and other major topics in the methodology of reading instruction. (18 lessons, \$24.00)
- 480c History of Education (5)** **Jessup**  
A social interpretation of the preliterate education; beginnings in the Orient, Greece, Rome, the Medieval period, the Renaissance, and modern times. The relationship of education to democracy, fascism, communism, and the newer concepts involving the world-wide spread of democracy and education. (30 lessons, \$40.00)
- 483c Organization and Administration of Industrial Education (3)** **Baily**  
Types of programs of vocational-industrial education and industrial arts; organization and administration of these programs, the relationships between them, and their place in public school programs.

- 484c Comparative Education (5)** **Jessup**  
The school systems of England, Germany, France, Italy, and the Soviet Union; an interpretation in terms of the political philosophy of each country. World trends in education. (30 lessons, \$40.00)
- 486c Trends in Industrial Education (3)** **Baily**  
A study of the leaders, agencies, movements, experiments and publications that have contributed to the development of industrial education, with special attention to the economic, social, and philosophical factors which have motivated and influenced this development in America. (18 lessons, \$24.00)
- 487c Instructional Analysis for Industrial Education Teachers (3)** **Baily**  
A study of the techniques and procedures used in analyzing instructional areas into their basic elements as has been developed by various leaders in industrial education. Arranging the elements into a teaching plan and sequence for industrial arts and vocational industrial education courses. (18 lessons, \$24.00)
- 488c Philosophy of Education (3)** **Jessup**  
The philosophy responsible for the American school system. The fundamental philosophy of education on which the aims and objectives of a democratic society may be developed. Education in relation to other factors in twentieth-century life. Aims of education, problems of methods, curriculum building, etc. (18 lessons, \$24.00)

## ENGINEERING—GENERAL ENGINEERING

- 101c Engineering Graphics (3)** **Boehmer**  
Orthographic projection, including three-view drawing and all related views; use of instruments, sections, sketching, isometric and scale practice; stressing readings of drawings and techniques of letter and linework. (18 lessons, \$24.00)
- 102c Engineering Graphics (3)** **Douglass**  
Training in making acceptable shop drawings; ink and pencil tracings; standards and conventions; practice in reading commercial drawings. Prerequisite, 101. (18 lessons, \$24.00)
- 103c Applied Descriptive Geometry (3)** **Douglass**  
Applied descriptive geometry. Practical application of descriptive geometry principles to the solution of problems in the different fields of engineering by drafting room methods. Includes point, line, plane problems, intersections, and developments. Prerequisites, 101 and 102. (18 lessons, \$24.00)

## ENGLISH

- N45c Current Reading for Enjoyment (0)** **Adams**  
Reviews and written discussion of new books chosen primarily for the reader's enjoyment. (12 lessons, \$16.00)
- N50c Basic Grammar (0)** **Bothun**  
For those who fail in entrance tests for 101. A review of English grammar. (18 lessons, \$24.00)
- 101c, 102c, 103c Composition (3,3,3)** **Cornu (101c, 102c), Anderson (103c)**  
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form. Not only is adapted to the needs of any mature student who wishes to learn to express himself clearly, but it also meets the University requirements in freshman English. The courses are arranged in order of progressive difficulty. Adequate preparation for 102 and 103 is based largely on satisfactory performance in the work of the previous course of the sequence or its equivalent. (18 lessons each, \$24.00 each)
- 251c Factual Writing (3)** **Walters**  
Expository and critical writing. Biographical and informational writing. Prerequisites, 101, 102, 103, or equivalent. (18 lessons, \$24.00)
- 252c Factual Writing (3)** **Walters**  
Writing for essays, feature articles, and biography; opinion writing. (18 lessons, \$24.00)
- 257c Introduction to Poetry (3)** **Zillman**  
Poetry as an art; its relationship to other arts and to the creative mind. No verse writing required. (30 lessons, \$40.00)
- 258c Introduction to Fiction (5)** **Phillips**  
Critical analysis of narrative poems, short stories, novels, and plays. For majors in literature and drama and others who desire to study the organization of narrative literature. (30 lessons, \$40.00)
- 261c, 262c, 263c Verse Writing (5,5,5)** **Zillman**  
Prerequisites, 101, 102, 103, or equivalent. (30 lessons each, \$40.00 each)
- 264ac, 264bc Literary Backgrounds (2½,2½)** **Person**  
Historical survey of chief English classics from Beowulf and Chaucer to Shakespeare's early plays. Prerequisite for 264b is 264a. (15 lessons each, \$20.00 each)
- 265ac, 265bc Literary Backgrounds (2½,2½)** **Person**  
Historical survey of English classics, especially Shakespeare's tragedies, Milton, Dryden, Defoe, Swift, Pope, Addison, Steele, Gay, Gray, Johnson, and Goldsmith. Prerequisite for 265b is 265a. (15 lessons each, \$20.00 each)

- 267c Survey of American Literature (3)** **Phillips**  
American literature in relation to its social and historic background. Not open for credit to students who have taken or are taking 361, 362, or 363. (18 lessons, \$24.00)
- 269c Survey of American Literature (3)** **Phillips**  
A study of American fiction from Washington Irving through Stephen Crane. Not open for credit to students who have taken or are taking 361, 362, or 368. (18 lessons, \$24.00)
- 272c Introduction to Modern Literature (3)** **Brown**  
Essays, poetry, novels, plays. Not open for credit to students who have taken or are taking 404, 406, or 466. (18 lessons, \$24.00)
- 277c, 278c, 279c Narrative Writing (3,3,3)** **Thorpe**  
Elementary narrative writing for students beginning work in short story. Prerequisites, 101, 102, 103, or equivalent. (18 lessons each, \$24.00 each)
- 362ac, 362bc American Literature (2½,2½)** **Eby**  
A survey from 1815 to 1870 with emphasis on Emerson, Thoreau, Hawthorne, Melville, and Whitman. Prerequisite for 362b is 362a. (15 lessons each, \$20.00 each)
- 367c Seventeenth-Century Literature (5)** **Willis**  
A survey with emphasis on Bacon, Donne, Thomas Browne, Dryden, and others. (30 lessons, \$40.00)
- 368ac, 368bc Seventeenth-Century Literature (2½,2½)** **Willis**  
A study of Milton with particular emphasis on *Paradise Lost*. Prerequisite for 368b is 368a. (15 lessons each, \$20.00 each)
- 370ac, 370bc Shakespeare (2½,2½)** **Adams**  
A sampling of the plays, so arranged as to suggest the essential outlines of Shakespeare's over-all power as an entertaining dramatist, with emphasis given to the broadest kinds of popular appeal. (15 lessons each, \$20.00 each)
- 371ac, 371bc Shakespeare (2½,2½)** **Adams**  
A study of some of Shakespeare's more complex and penetrating dramas, including at least one of the profound and "universal" tragedies. (15 lessons each, \$20.00 each)
- 374ac, 374bc Late Nineteenth-Century Literature (2½,2½)** **Winther**  
Carlyle, Arnold, Hallam, Tennyson, Dickens, Eliot, and others. Prerequisite for 374b is 374a. (15 lessons each, \$20.00 each)
- 375ac, 375bc Late Nineteenth-Century Literature (2½,2½)** **Winther**  
Browning, Swinburne, Rossetti, and selections from the minor poets. Darwin, Hardy, and Thackeray. Prerequisite for 375b is 375a. (15 lessons each, \$20.00 each)
- 377ac, 377bc Early Nineteenth-Century Literature (2½,2½)** **Winther**  
Wordsworth, Coleridge, Lamb, Hazlitt, and others. Prerequisite for 377b is 377a. (15 lessons each, \$20.00 each)
- 378ac, 378bc Early Nineteenth-Century Literature (2½,2½)** **Winther**  
Shelley, Byron, Keats, and others. Prerequisite for 378b is 378a. (15 lessons each, \$20.00 each)
- 388c Current English Usage (3)** **Person**  
Observation, analysis, and discussion of present-day English grammar and word-usage, to serve as a background for good English in speaking and writing. (18 lessons, \$24.00)
- 410c, 411c, 412c Advanced Verse Writing (5,5,5)** **Zillman**  
Prerequisites, 261, 262, 263. (30 lessons each, \$40.00 each)
- 417c History of the English Language (5)** **Person**  
The growth and structure of the English language from Anglo-Saxon times to the present. Emphasis on development of present English. (30 lessons, \$40.00)
- 440ac, 440bc Social Ideas in Literature (2½,2½)** **Adams**  
A study of some of western man's most typical concepts of what forms a "good life" for the whole community or state—the kind of life in which would be realized the greatest common happiness. Readings from Plato's *Republic*, The Bible, More's *Utopia*, and other influential pre-modern and modern works and writers. (15 lessons each, \$20.00 each)
- 441ac, 441bc Social Ideas in Literature (2½,2½)** **Adams**  
A study, mainly in modern writers (including 20th century), of typical concepts of what forms the best "happiness" of the individual. Morris, Bellamy, Wells, Huxley, and others. (15 lessons each, \$20.00 each)
- 448c The English Novel (5)** **Brown**  
Novels by Dickens, Thackeray, and George Eliot compared and contrasted with a novel of Balzac. (30 lessons, \$40.00)
- 449c The English Novel (5)** **Brown**  
Novels by Maugham, James Joyce, and Marcel Proust. (30 lessons, \$40.00)
- 466ac, 466bc Modern American Literature (2½,2½)** **Bentley**  
The beginning of realism; tendencies from 1900 to 1915; contemporary fiction and poetry. (15 lessons each, \$20.00 each)

## FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE

### KOREAN

- 405c Korean Grammar (5)**  
Prerequisite 304 or equivalent. (30 lessons, \$40.00)

Suh

- 406c, 407c Advanced Korean Reading (5,5)**  
Prerequisite, 405. (30 lessons each, \$40.00 each)

Suh

**RUSSIAN**

- 102c- Elementary Russian Language (5-)** **Spector**  
The purpose of this course is to enable the student to obtain a reading knowledge of the Russian language. The emphasis will be placed on grammar and vocabulary. No credit for 102- until -103 is completed. (30 lessons, \$40.00)
- 320c Russian Literature in English (5)** **Spector**  
Introduction to Russian literature from 1782 to the present. Representative prose and poetical works of the foremost Russian and Soviet writers are discussed and analyzed. (30 lessons, \$40.00)

**GEOGRAPHY**

- 207c Economic Geography (5)** **Ryberg**  
World survey of extractive, manufacturing, and distributing activities; emphasis is placed on regional characteristics relating to the availability of resources and markets and the utilization of technological skills. (30 lessons, \$40.00)

**GEOLOGY**

- 101c Survey of Geology (5)** **Coombs**  
A survey of the field of geology including both physical and historical branches. Physical geology deals with the formation and identification of rocks and minerals and the study of mountain building and earthquakes. Historical geology is a study of the earth and its life through a succession of events from the beginning to the present. A special set of rocks, minerals, and topographic maps is used for the laboratory instruction. A deposit of \$5.00 is made for these specimens; \$4.00 is refunded at the completion of the course. (30 lessons, \$40.00)
- 205c Rocks and Minerals (5)** **Coombs**  
An introductory course; emphasis on the materials of the earth's crust. A special set of more than 120 minerals and rocks with mimeographed notes and detailed laboratory instruction sheets enables the student to proceed by the inductive method of reasoning. A deposit of \$15.00 is required at the time the specimens are borrowed; \$13.00 is refunded at the completion of the course. The set of rocks is sent express collect and is to be returned prepaid. Prerequisite, high school chemistry. (30 lessons, \$40.00)

**GERMANIC LANGUAGES AND LITERATURE**

- 110c-111c First-Year German (5-5)** **Meyer (110c-), Reed (-111c)**  
For persons who have had no previous instruction in German. Acquisition of a fairly large vocabulary; grammar; practice in reading and writing. Not open to those who have taken 101-102. No credit for 110- until -111 is completed. (30 lessons each, \$40.00 each)
- 112c First-Year Reading (5)** **Reed**  
Continuation of 110-111. Prerequisite, 110-111 or one year of high school German. Not open to those who have taken 103. (30 lessons, \$40.00)
- 204c Basic Second-Year Reading (5)** **Meyer**  
Vocabulary building, modern prose. Prerequisite, 103 or 112 or two years high school German. (30 lessons, \$40.00)
- 205c Intermediate Second-Year Reading (3)** **Meyer**  
Prerequisite, 204 or a grade of A or B in 112. (18 lessons, \$24.00)
- 206c Intermediate Second-Year Reading (2)** **Meyer**  
Prerequisite, 204 or a grade of A or B in 112. (12 lessons, \$16.00)
- 207c Second-Year Grammar Review (3)** **Reed**  
Systematic grammar review with a complete, introductory college German text as basis. Prerequisite, 103 or 112, or two years of high school German. (18 lessons, \$24.00)
- 260c Lower-Division Scientific German (3)** **Reed**  
Selected readings of German scientific material from the fields of chemistry, physics, and biology. Prerequisites, 204, or 205, or 206. (18 lessons, \$24.00)

**HISTORY**

- 464c History of Washington and the Pacific Northwest (5)** **Burke, Gates**  
Exploration and settlement, economic development, growth of government and social institutions, the period of statehood. This satisfies the state requirement for a course in the history of Washington for certification for teaching. (30 lessons, \$40.00)



**HUMANISTIC-SOCIAL STUDIES FOR ENGINEERS**

- 270c Engineering Report Writing (2)** **Rustad**  
Practical problems in making a logical, concise, and attractive presentation of technical materials; periodicals and reference works; the requirements of the reader; style; principles of spacing; illustrations; accepted abbreviations, proper bibliographical usages. Prerequisite, 265 or equivalent. For engineering students only. (12 lessons, \$16.00)
- 302c Technical Writing (3)** **Souther**  
Advanced technical report writing; technical and semitechnical articles; emphasis on organization, effective use of illustrative materials, and functional use of layout. Prerequisite, 270 or equivalent. For engineering students only. (18 lessons, \$24.00)

**LIBERAL ARTS**

- 101c Introduction to Modern Thought (5)** **Lutey**  
Man's place in the universe; cosmic origins; origin and nature of life; mind and behavior; values. (30 lessons, \$40.00)
- 111c Introduction to the Study of the Fine Arts (5)** **Lutey**  
The appreciation of masterpieces of architecture, painting, sculpture, and music; the problems common to them; the philosophy of art; the relationships of beauty and truth and morality. (30 lessons, \$40.00)

**MATHEMATICS**

- 101c Intermediate Algebra (5)** **Zuckerman**  
Similar to third-term high school algebra. Not open for credit to students who have taken one and one-half years of algebra in high school. Prerequisite, one year of high school algebra. (30 lessons, \$40.00)
- 104c Plane Trigonometry (3)** **Zuckerman**  
Trigonometric functions, identities, graphs, logarithms, and solution of triangles. Prerequisites, one and one-half years of algebra or 101, and one year of plane geometry. (18 lessons, \$24.00)
- 105c College Algebra (5)** **Zuckerman**  
Functions and graphs; linear and quadratic equations; progressions; complex numbers; theory of equations, determinants. Prerequisite, one and one-half years of algebra or 101 or 103. (30 lessons, \$40.00)
- 112c Mathematics of Business (5)** **Zuckerman**  
Discounts, simple interest, installment buying, binomial theorem, annuities, bonds, probability, and insurance mathematics. Does not count toward a mathematics major. Prerequisite, one and one-half years of high school algebra or 101. (30 lessons, \$40.00)
- 153c Analytic Geometry and Calculus (5)** **Zuckerman**  
Equations of straight lines and simple curves. Differentiation of algebraic functions, applications. Differentials; indefinite integrals. Prerequisites, 103 or 104 and 105. (30 lessons, \$40.00)
- 251c Analytic Geometry and Calculus (5)** **Zuckerman**  
Definite integrals, integration of simple algebraic functions, applications. Conic sections, polar coordinates, and differentiation of transcendental functions. Prerequisite, 153. (30 lessons, \$40.00)
- 252c Analytic Geometry and Calculus (5)** **Zuckerman**  
Parametric equations, curvature, integration of algebraic and transcendental functions, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251. (30 lessons, \$40.00)
- 253c Analytic Geometry and Calculus (3)** **Zuckerman**  
Solid analytic geometry, multiple integrals, partial derivatives. Prerequisite, 252. (18 lessons, \$24.00)
- 321c, 322c Differential Equations (3,3)** **Zuckerman**  
Elementary methods of solution, linear differential equations, systems of differential equations, series solutions. Prerequisites, 253 for 321; 321 for 322. (18 lessons each, \$24.00 each)

**MUSIC**

- 117c Music Appreciation: Symphonic Music, Nineteenth Century (2)** **Sokol**  
Presentation of important symphonic works in all major orchestral forms, including the music of Franck, Brahms, Beethoven, and Tchaikovsky. The building of a vocabulary to help in the intelligent evaluation and discussion of symphonic music. Acquaintance with orchestras, conductors, and artists through the medium of recordings. (12 lessons, \$16.00)

**POLITICAL SCIENCE**

No more than 10 credits may be used to satisfy departmental major requirements.

- 201c Modern Government (5)** **Gottfried**  
The nature and function of political institutions in the major national systems; democracy and dictatorship; introductory comparative politics of the United States, Great Britain, France, and the Soviet Union. (30 lessons, \$40.00)

- 202c American Government and Politics (5)** **Gottfried**  
Popular government in the United States; the theory and practice of national institutions. (30 lessons, \$40.00)
- 203c International Relations (5)** **Hitchner**  
An analysis of the world community, its politics and government. (30 lessons, \$40.00)
- 321c American Foreign Policy (3)** **Martin**  
Major policies as modified by recent developments; international cooperation. (18 lessons, \$24.00)
- 336c National Power and International Politics (5)** **Martin**  
Geographical, economic, and political foundations of the major powers as factors in international relations of the world. (30 lessons, \$40.00)
- 360c The American Constitutional System (3)** **Martin**  
Fundamental principles; function; evolution; unwritten constitution; recent tendencies. The framing of the American Constitution; the Constitution of the state of Washington. (18 lessons, \$24.00)
- 370c Government and the American Economy (5)** **Gottfried**  
Government regulation, promotion, and services affecting general business, public utilities, agriculture, banking, investments, and social welfare. (30 lessons, \$40.00)
- 375c Problems of Municipal Government and Administration (5)** **Webster**  
Municipal powers; structure; charters; relations with the state and other local units; municipal functions and services, with reference to municipalities in the state of Washington. (30 lessons, \$40.00)
- 376c State and Local Government and Administration (5)** **Webster**  
Structure; functions; procedures; suggested reorganization; with special reference to the state of Washington and its units of local government. (30 lessons, \$40.00)
- 450c Political Parties and Elections (5)** **Bone**  
Organization and methods; the nature and future of party government. (30 lessons, \$40.00)

## PSYCHOLOGY

- 100c General Psychology (5)** **McKeever**  
An introduction to the principles of human behavior. (30 lessons, \$40.00)
- 101c Psychology of Adjustment (5)** **Heathers**  
Applications of psychological principles to the problems of everyday life. Prerequisite, 100. (30 lessons, \$40.00)
- 301c Statistical Methods (5)** **Heathers**  
Application of statistical methods of psychological problems. Description of psychological data in terms of averages, measures of variability, and measures of relationships. Problems of prediction. Frequency distributions and elementary sampling theory. Prerequisites, 100 and Mathematics 101. (30 lessons, \$40.00)
- 306c Child Psychology (5)** **Bijou**  
The psychological development of the child and the antecedent conditions from infancy to adolescence. For nonmajors only. Not open to students who have taken 308. Prerequisite, 100. (30 lessons, \$40.00)
- 345c Social Psychology (3)** **Stotland**  
Psychology of human institutions. Prerequisite, 100. (18 lessons, \$24.00)
- 405c Personality (5)** **Sarason**  
A survey of personality theories and research, with special emphasis on Freud, Lewin, and Miller and Dollard. Prerequisites, 15 credits in psychology and permission. (30 lessons, \$40.00)

## ROMANCE LANGUAGES AND LITERATURE

### FRENCH

- 101c-102c, 103c Elementary (5-5-5)** **Simpson, Hanzeli**  
No credit for 101- until -102 has been completed. The essentials of French grammar. Prerequisites, 101- or second high school semester with grade of C or D for -102; -102, or second high school semester with A or B, or third high school semester for 103. (30 lessons each, \$40.00 each)
- 201c, 202c, 203c Intermediate (3,3,3)** **Simpson**  
Readings in French literature. Prerequisite, 103, or four high school semesters, or equivalent for 201. (18 lessons each, \$24.00 each)
- 301c, 302c, 303c Advanced Composition (2,2,2)** **Simpson**  
The first half of 301 is an intensive review of grammar at the intermediate level. Prerequisite, 203 or equivalent. (12 lessons each, \$16.00 each)
- 304c, 305c, 306c Survey of French Literature (3,3,3)** **Simpson**  
Masterpieces from the seventeenth century to the present. Lectures in French on French literature and civilization from the beginning. Prerequisite, 203, or equivalent. (18 lessons each, \$24.00 each)

- 307c, 308c Themes (2,2)** **David**  
Writing of original compositions. Prerequisite, 302 or equivalent. (12 lessons each, \$16.00 each)
- 358c, 359c Advanced Syntax (2,2)** **David**  
Syntax from the teacher's standpoint. Should precede Education 329. Prerequisite, 303 or 307. (12 lessons each, \$16.00 each)
- 390c Supervised Study (2-5, maximum 20)** **Simpson**  
Omnibus. Ordinarily noncredit, but credits may be arranged after consultation with the Department of Correspondence Study. Package assignments for reading in French on topics of individual interest. The Correspondence Study Department will prepare and supply reading lists of material in French of special interest to the student; e.g., science, art, music, education, politics, history, etc.
- 421c, 422c, 423c Prose (3,3,3)** **David**  
421c: classical prose; 422c: eighteenth-century prose; 423c: contemporary prose. Prerequisite, 203 or equivalent. (18 lessons each, \$24.00 each)
- 426c Modern Prose Fiction (3)** **Simpson**  
The novel, 1900-1950. Seventeen assignments plus examination. Study and critical analysis of representative twentieth-century novels. Prerequisite, 203 or equivalent. (18 lessons, \$24.00)
- 443c Drama (3)** **Simpson**  
Modern drama. Study and critical analysis of representative plays of the twentieth century. Prerequisite, 203 or equivalent. (18 lessons, \$24.00)

## ITALIAN

- 101c-102c, 103c Elementary (5-5,5)** **Romeo**  
No credit is given for 101- until -102 has been completed. (30 lessons each, \$40.00 each)
- 212c, 213c, 214c Readings in Modern Italian Literature (3,3,3)** **Romeo**  
Prose and poetry of the nineteenth and twentieth centuries. Oral practice and language laboratory exercises. Functional review of grammar. Prerequisite, 103 or permission. (18 lessons each, \$24.00 each)
- 421c, 422c, 423c Survey of Italian Literature (3,3,3)** **Romeo**  
Reading and discussion of selected literary works representative of each century; composition. (18 lessons each, \$24.00 each)

## PORTUGUESE

- 101c-102c, 103c Elementary (5-5,5)** **C. Wilson**  
Grammar and reading. Stress will be laid upon grammar, accurate translation, and composition. No credit for 101- until -102 is completed. (30 lessons each, \$40.00 each)

## SPANISH

- 101c-102c, 103c First-Year Speaking Spanish (5-5,5)** **Vargas-Baron (101c-102c), Wilson (103c)**  
Exercises on phonograph records or tape recordings will be used. Prerequisites, 101- or equivalent for -102; a grade of A, B, or C in -102, or A or B in the second high school semester, or any passing grade in the third high school semester for 103. (See also 121-) (30 lessons each, \$40.00 each)
- 121c Basic Grammar Review (5-)** **Wilson**  
Refresher course; should be taken instead of 103 by students who have received a grade of C or D in -102 or in the second high school semester. No student may receive credit for both 103 and 121-; nor will credit be granted for 121- until 201 or equivalent has been completed. (30 lessons, \$40.00)
- 201c, 202c, 203c Intermediate (3,3,3)** **Wilson**  
Modern texts, composition, and functional grammar. Prerequisite, 103 or 121- or four high school semesters or equivalent for 201. (18 lessons each, \$24.00 each)
- 210c, 211c Elementary Spanish Conversation (2,2)** **Wilson**  
Exercises on phonograph records or tape recordings will be used. Prerequisites, 103 or 121-, or equivalent for 210; 210 or permission for 211. (12 lessons each, \$16.00 each)
- 212c Modern Readings (2)** **Vargas-Baron**  
Reading for the acquisition of an extensive vocabulary. Prerequisite, 203 or equivalent. (12 lessons, \$16.00)
- 301c, 302c, 303c Advanced Composition and Conversation (3,3,3)** **Wilson (301c, 302c), Vargas-Baron (303c)**  
Prerequisite, 203 or equivalent. (18 lessons each, \$24.00 each)
- 462c, 463c Spanish Literature of the Golden Era (3,3)** **Wilson**  
462c: drama of the Golden Era; 463c: prose fiction of the Golden Era. Prerequisite, 203 or permission. (18 lessons each, \$24.00 each)
- 481c, 482c, 483c Spanish-American Literature (3,3,3)** **Vargas-Baron**  
General survey of the literature of Spanish America. 481: the colonial period and early years of independence; 482: the middle years of the nineteenth century; 483: the twentieth century. Prerequisite, 203 or equivalent. (18 lessons each, \$24.00 each)

**SCANDINAVIAN LANGUAGES AND LITERATURE****DANISH****101c-102c, 103c Elementary Danish (3-3,3)****Arestad**

The fundamentals of oral and written Danish. Courses 101-102, 103 may be taken with 104-105, 106 to make 5-credit courses. No credit for 101- until -102 is completed. (18 lessons each, \$24.00 each)

**104c-105c, 106c Danish Reading (2-2,2)****Arestad**

Reading of easy texts. A student who registers for this course need not have any knowledge of Danish. No credit for 104- until -105 is completed. Should accompany 101-102, 103. (12 lessons each, \$16.00 each)

**220c, 221c, 222c Introduction to Danish Literature (2,2,2)****Arestad**

An introduction to modern drama and prose fiction. Prerequisite, 103 or ability to read easy Danish. (12 lessons each, \$16.00 each)

**NORWEGIAN****101c-102c, 103c Elementary Norwegian (3-3,3)****Arestad**

The fundamentals of oral and written Norwegian. Courses 101-102, 103 may be taken with 104-105, 106 to make 5-credit courses. No credit for 101- until -102 is completed. (18 lessons each, \$24.00 each)

**104c-105c, 106c Norwegian Reading (2-2,2)****Arestad**

Reading of easy texts. A student need not have any previous knowledge of Norwegian. No credit for 104- until -105 is completed. Should accompany 101-102, 103. (12 lessons each, \$16.00 each)

**220c, 221c, 222c Introduction to Norwegian Literature (2,2,2)****Arestad**

An introduction to modern drama and prose fiction. Prerequisite, 103 or ability to read easy Norwegian. (12 lessons each, \$16.00 each)

**SWEDISH****101c-102c, 103c Elementary Swedish (3-3,3)****Johnson**

The fundamentals of oral and written Swedish; grammar and reading. Courses 101-102, 103 may be taken with 104-105, 106 to make 5-credit courses. No credit for 101- until -102 is completed. (18 lessons each, \$24.00 each)

**104c-105c, 106c Swedish Reading (2-2,2)****Johnson**

Reading of easy texts. A student who registers for this course should also be enrolled in 101-102, 103. No credit for 104- until -105 is completed. (12 lessons each, \$16.00 each)

**220c, 221c, 222c Introduction to Swedish Literature (2,2,2)****Johnson**

An introduction to modern Swedish literature. Prerequisite, 103 or ability to read easy Swedish. (12 lessons each, \$16.00 each)

**SOCIOLOGY****110c Survey of Sociology (5)****Cohen**

Basic principles for understanding social relationships and cultural changes. (30 lessons, \$40.00)

**223c Social Statistics (5)****Watson**

Methods and sources for quantitative investigation. Prerequisite, 110 or 310. (30 lessons, \$40.00)

**310c General Sociology (5)****Cohen**

Major concepts of sociology and the scientific point of view in dealing with social phenomena. (Juniors and seniors are advised to take this course in place of 110. Credit cannot be received for both 110 and 310. (30 lessons, \$40.00)

**352c The Family (5)****Barth**

The family as a social institution; personality development within the family; marriage adjustment; courtship and mate selection; family disorganization and reorganization. Prerequisite, 110 or 310. (30 lessons, \$40.00)

**362c Race Relations (5)****Miyamoto**

Study of interracial contacts and conflicts. Prerequisite, 10 credits in social science. (30 lessons, \$40.00)

**ZOOLOGY****114c Evolution (2)****Hatch**

Introductory course treating with evolutionary biology and the more important biological problems connected with the theory of evolution. (12 lessons, \$16.00)

**PREPARATORY HOME STUDY COURSES**

Several courses are offered by Home Study for adult students who have not completed high school. They do not carry University credit but may be used to fulfill entrance requirements if the student wishes to enter the University and has

certain entrance deficiencies. The credits are stated in terms of high school units for entrance to the University. In addition to courses listed, elementary language courses may be used to eliminate high school deficiencies. These courses may not be used for University credit for those who are not high school graduates or eighteen years of age.

## HISTORY

- Ac Preparatory Ancient History (½ unit)** **Heffelfinger**  
The narrative and descriptive history of ancient peoples. Oriental and Greek history to 200 B. C. (15 lessons, \$20.00)
- Bc Preparatory Ancient History (½ unit)** **Heffelfinger**  
Development of Roman history to 400 A.D. (15 lessons, \$20.00)
- Ac Preparatory European History (½ unit)** **Heffelfinger**  
The great field of medieval history from the breaking-up of the Roman Empire to the Protestant Revolt; from 400 A.D. to 1500 A.D. (15 lessons, \$20.00)
- Bc Preparatory European History (½ unit)** **Heffelfinger**  
Covering the early modern period from the Protestant Revolt to 1870. (15 lessons, \$20.00)
- Ac Preparatory United States History (½ unit)** **Heffelfinger**  
Covers United States history from the American Revolution through the Civil War, including a study of the mechanics of the American government. (15 lessons, \$20.00)
- Bc Preparatory United States History (½ unit)** **Heffelfinger**  
Study of the economic and political problems growing out of the changes that the end of the Revolution brought to the United States before the Civil War, but which were not felt intensely until 1880. Therefore, this is accompanied by references to current history. (15 lessons, \$20.00)

## MATHEMATICS

- Ac Survey of Elementary Algebra (½ unit)** **Zuckerman**  
Similar to the first term of high school algebra. (18 lessons, \$24.00)
- Bc Survey of Elementary Algebra (½ unit)** **Zuckerman**  
Similar to the second term of high school algebra. Prerequisite, Survey of Elementary Algebra A. (18 lessons, \$24.00)
- Cc Survey of Plane Geometry (½ unit)** **Zuckerman**  
Similar to the first term of high school plane geometry. Prerequisite, one year of high school algebra. (18 lessons, \$24.00)
- Dc Survey of Plane Geometry (½ unit)** **Zuckerman**  
Similar to the second term of high school geometry. Prerequisite, Survey of Plane Geometry C. (18 lessons, \$24.00)

**BULLETIN • UNIVERSITY OF WASHINGTON**



**SCHOOL OF  
DENTISTRY  
1960-1962**

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Division of Correspondence Study and the Division of Evening Classes, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

graph Service.

Requests for copies of any of the bulletins should be addressed to the Addressograph service.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS  
INTRODUCTION TO THE UNIVERSITY  
UNIVERSITY REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING  
COLLEGE OF ARTS AND SCIENCES  
COLLEGE OF BUSINESS ADMINISTRATION  
SCHOOL OF DENTISTRY  
COLLEGE OF EDUCATION  
COLLEGE OF ENGINEERING  
COLLEGE OF FISHERIES  
COLLEGE OF FORESTRY  
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SCHOOL OF MEDICINE  
SCHOOL OF NURSING  
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### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT  
SUMMER QUARTER  
CENTER FOR GRADUATE STUDY AT HANFORD  
CORRESPONDENCE STUDY  
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## CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	5
Board of Regents	
Officers of Administration	
School of Dentistry Faculty	
Committees	
THE DIVISION OF HEALTH SCIENCES . . . . .	15
Health Sciences Plant	
Veterans	
Part-Time Employment	
Medical Examination	
Associated Students	
Housing	
THE SCHOOL OF DENTISTRY . . . . .	21
Admission	
Application Procedure	
Processing of Applications	
Student Achievement and Promotion	
Tuition and Fees	
Textbooks and Instruments	
Estimate of Yearly Expenses	
Class Schedules	
Awards	
Omicron Kappa Upsilon	
Sigma Phi Alpha	
Scholarships and Fellowships	
Loan Funds	
Research Grants	
THE DEPARTMENTAL PROGRAMS . . . . .	35
Degrees	
Licensure	
Courses	
Basic Sciences	
Clinical Dental Sciences	
Dental Hygiene	
Continuation Dental Education	
Graduate Study in the School of Dentistry	
Dentistry	
ROSTER OF STUDENTS . . . . .	57



## CALENDAR

*All fees must be paid at the time of registration.*

### AUTUMN QUARTER, 1960

SEPT. 12—MONDAY	Instruction begins, Third Year Students (8 a.m.)
SEPT. 26—MONDAY	Instruction begins, First, Second, and Fourth Year Students (8 a.m.)
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 23-28	Thanksgiving recess
DEC. 8-13	Examinations
DEC. 13—TUESDAY	Quarter ends

### WINTER QUARTER, 1961

JAN. 3—TUESDAY	Instruction begins, All Four Classes (8 a.m.)
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
MAR. 13-16	Examinations
MAR. 16—THURSDAY	Quarter ends

### SPRING QUARTER, 1961

MAR. 27—MONDAY	Instruction begins, All Four Classes (8 a.m.)
MAY 30—TUESDAY	Memorial Day holiday
JUNE 5-8	Examinations
JUNE 8—THURSDAY	Quarter ends
JUNE 10—SATURDAY	Commencement

### SUMMER QUARTER, 1961 — For Graduate Students

JUNE 19—MONDAY	Instruction begins
AUG. 31—THURSDAY	Instruction ends

### AUTUMN QUARTER, 1961

SEPT. 11—MONDAY	Instruction begins, Third Year Students (8 a.m.)
SEPT. 25—MONDAY	Instruction begins, First, Second, and Fourth Year Students (8 a.m.)
NOV. 11—SATURDAY	State Admission Day holiday
NOV. 22-27	Thanksgiving recess
DEC. 7-12	Examinations
DEC. 12—TUESDAY	Quarter ends

### WINTER QUARTER, 1962

JAN. 2—TUESDAY	Instruction begins, All Four Classes (8 a.m.)
FEB. 22—THURSDAY	Washington's Birthday and Founder's Day holiday
MAR. 12-15	Examinations
MAR. 15—THURSDAY	Quarter ends

### SPRING QUARTER, 1962

MAR. 26—MONDAY	Instruction begins, All Four Classes (8 a.m.)
MAY 30—WEDNESDAY	Memorial Day holiday
JUNE 4-7	Examinations
JUNE 7—THURSDAY	Quarter ends
JUNE 9—SATURDAY	Commencement

### SUMMER QUARTER, 1962 — For Graduate Students

JUNE 18—MONDAY	Instruction begins
SEPT. 6—THURSDAY	Instruction ends

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*Division of Health Sciences*  
*Hospital Administrator*  
*Assistant to the Chairman, Division of Health Sciences*

## FACULTY, SCHOOL OF DENTISTRY

### DENTAL SCIENCE AND LITERATURE

- ANDERSON, Berton Emmett, 1948  
*Professor of Dental Science and Literature*  
D.M.D., 1925, Oregon
- GILBERT, Howard I., 1949  
*Clinical Associate in Dental Materials*  
D.M.D., 1917, Oregon
- MEHUS, Paul Edward, 1950  
*Clinical Associate in Dental Science and Literature*  
B.S., D.M.D., 1929, Oregon
- WILSON, Gale E., 1950  
*Clinical Associate in Jurisprudence (Dental Science and Literature)*  
B.S., 1926, Washington; M.D., 1930, Harvard

### FIXED PARTIAL DENTURES

- BRUMWELL, G. Keith, 1953  
*Clinical Associate in Fixed Partial Dentures*  
D.M.D., 1943, Oregon
- ENDZELL, Frank, 1952  
*Clinical Assistant in Fixed Partial Dentures*  
D.D.S., 1952, Washington
- GUTHRIE, John D., 1950  
*Clinical Associate in Fixed Partial Dentures*  
D.M.D., 1928, Oregon
- HAGEN, Richard B., 1958  
*Clinical Assistant in Fixed Partial Dentures*  
D.D.S., 1952, Washington
- HAGEN, William H., 1947  
*Clinical Associate in Fixed Partial Dentures*  
D.D.S., 1920, Minnesota
- HANFORD, E. Matthew, 1957  
*Instructor in Fixed Partial Dentures*  
D.D.S., 1957, Washington
- JOHNSON, Marvin A., 1958  
*Clinical Assistant in Fixed Partial Dentures*  
D.D.S., 1952, Washington
- LOOMIS, Olin M., 1955  
*Clinical Associate in Fixed Partial Dentures*  
D.M.D., 1943, North Pacific College (Oregon)
- MAHAN, Thomas G., 1952  
*Clinical Associate in Fixed Partial Dentures*  
B.A., 1943, Valley City State College (North Dakota); D.D.S., 1950, Loyola
- MORRISON, Kenneth N., 1948  
*Associate Professor of Fixed Partial Dentures; Executive Officer in Fixed Partial Dentures*  
D.D.S., 1943, Toronto (Canada); M.S., 1952, Washington
- SPROULE, W. John, 1957  
*Clinical Associate in Fixed Partial Dentures*  
D.D.S., 1944, Toronto; M.S.D., 1952, Washington
- TIMBERLAKE, Keith, 1952  
*Clinical Associate in Fixed Partial Dentures*  
D.D.S., 1952, Washington
- VIGG, John, 1959  
*Instructor in Fixed Partial Dentures*  
D.D.S., 1956, Washington
- WARNICK, Myron E., 1956  
*Instructor in Fixed Partial Dentures*  
D.D.S., 1955, Alberta

### DEPARTMENT OF OPERATIVE DENTISTRY

- BEAUDREAU, David E., 1956  
*Clinical Assistant in Operative Dentistry*  
D.D.S., 1954, Washington
- BOYDEN, Ralph W., Jr., 1960  
*Instructor in Operative Dentistry*  
D.D.S., 1960, Washington
- BURKE, Joseph L., 1954  
*Clinical Associate in Operative Dentistry*  
D.D.S., 1952, Iowa
- CANFIELD, Robert C., 1951  
*Clinical Associate in Operative Dentistry*  
D.D.S., 1951, Washington
- DAVIDSON, Gerhard B., 1960  
*Instructor in Operative Dentistry*  
D.D.S., 1957, Washington
- DEANS, Donald B., 1960  
*Clinical Assistant in Operative Dentistry*  
D.M.D., 1949, Oregon
- DOLAN, Alto F., 1954  
*Clinical Associate in Operative Dentistry*  
D.D.S., 1950, Southern California
- ELLSPERMAN, George A., 1957  
*Special Lecturer in Operative Dentistry*  
D.D.S., 1917, Southern California
- FRALEY, George T., 1959  
*Clinical Assistant in Operative Dentistry*  
D.D.S., 1958, Washington
- GREY, John M., 1955  
*Clinical Associate in Operative Dentistry*  
B.A., 1934, Carleton College; B.S., 1945, Oregon; D.D.S., 1947, Oregon
- HABERMAN, James D., 1960  
*Instructor in Operative Dentistry*  
B.A., 1952, Central Washington College of Education; D.D.S., 1960, Washington
- HAMILTON, Alexander Ian, 1949  
*Associate Professor in Operative Dentistry; Clinical Co-ordinator*  
D.D.S., 1936, Toronto; B.A., 1953, M.A., 1958, Washington
- HODSON, Jean E., 1952  
*Assistant Professor in Operative Dentistry (Ceramics and Oral Anatomy)*  
B.S., 1952, M.S., 1958, Washington
- JANISCH, Edward Robert, 1958  
*Clinical Assistant in Operative Dentistry*  
D.D.S., 1956, Washington
- MASTON, Earl C., 1959  
*Clinical Assistant in Operative Dentistry*  
D.D.S., 1953, Washington
- OSTLUND, Lyle E., 1950  
*Clinical Associate in Operative Dentistry*  
D.M.D., B.S., 1947, Oregon
- REDMAN, Robert W., 1958  
*Clinical Assistant in Operative Dentistry*  
D.D.S., 1956, Washington
- SCHEYER, Warner F., 1960  
*Clinical Assistant in Operative Dentistry*  
D.D.S., 1959, Washington
- SCHROETER, Charles, 1950  
*Assistant Professor of Oral Anatomy*  
Fortbildungs-Institut des Verbandes der Dentisten im Deutschen Reiche, Berlin, Germany
- SMITH, Bruce B., 1946  
*Clinical Associate in Operative Dentistry*  
D.M.D., 1942, North Pacific College
- STENBERG, Ralph G., 1958  
*Clinical Assistant in Operative Dentistry*  
D.D.S., 1954, Washington

STIBBS, Gerald D., 1948  
*Professor of Operative Dentistry and Fixed Partial Dentures; Executive Officer of the Department of Operative Dentistry; Director of the Dental Operator*  
 B.S., D.M.D., 1931, Oregon

WISEMAN, Ray D., 1956  
*Clinical Assistant in Operative Dentistry*  
 B.S., 1950, M.S., 1952, College of Puget Sound; D.D.S., 1956, Washington

## ORAL DIAGNOSIS

BOURASSA, Edward A., 1951  
*Senior Consultant in Oral Roentgenology*  
 D.M.D., 1925, Oregon

BUSEMAN, Ralph H., 1957  
*Instructor in Oral Diagnosis*  
 B.A., 1953, D.D.S., 1957, Washington

DEGERING, Charles Irvin, 1950  
*Assistant Professor of Oral Diagnosis and Treatment Planning*  
 B.A., 1942, Walla Walla College; D.D.S., 1950, Washington

JACOBSON, F. Lloyd, 1950  
*Associate Professor of Oral Diagnosis and Treatment Planning; Executive Officer of the Department of Oral Diagnosis and Treatment Planning*  
 D.M.D., 1943, Oregon

MC CALLUM, William Burgess, 1959  
*Clinical Associate of Oral Diagnosis and Treatment Planning*  
 D.D.S., 1953, Minnesota

REDDICK, James McLewis, 1958  
*Clinical Assistant in Oral Roentgenology*  
 B.S., 1947, Seattle Pacific College; D.D.S., 1953, Washington

ZECH, Jerome Monroe, 1955  
*Consultant in Oral Roentgenology*  
 B.S., 1949, D.D.S., 1952, Washington; M.S.D., 1957, Pennsylvania

## ORAL PATHOLOGY

SREEBNY, Leo M., 1957  
*Associate Professor of Oral Pathology; Executive Officer of the Department of Oral Pathology; Associate Professor, Department of Pathology, School of Medicine*  
 A.B., 1942, D.D.S., 1945, M.S., 1950, Ph.D., 1954, University of Illinois

YAMANE, George M., 1959  
*Assistant Professor of Oral Pathology*  
 A.B., 1946, D.D.S., 1950, Minnesota

## ORAL SURGERY

DORE, George David, Jr., 1949  
*Clinical Associate in Oral Surgery*  
 D.D.S., 1941, Northwestern

FIELD, James L., 1953  
*Clinical Assistant in Oral Surgery*  
 D.D.S., 1950, Michigan

FRANCIS, Frederick Henderson, 1949  
*Clinical Associate in Oral Surgery*  
 B.S., 1939, Washington; D.D.S., 1943, Northwestern

GEHRIG, John D., 1954  
*Associate Professor of Oral Surgery; Executive Officer of the Department of Oral Surgery*  
 D.D.S., 1946, M.S.D., 1951, Minnesota

GIESY, Archie Clair, 1959  
*Clinical Assistant in Oral Surgery*  
 D.M.D., 1929, North Pacific College

GREGERSON, Leif C., 1959  
*Clinical Assistant in Oral Surgery*  
 D.D.S., 1954, University of Washington

GROSS, J. Gordon, 1959  
*Clinical Assistant in Oral Surgery*  
 D.M.D., 1927, North Pacific College

HANSON, Lawrence E., 1959  
*Clinical Associate in Oral Surgery*  
 D.M.D., 1925, North Pacific College; M.S.D., 1932, Northwestern

HOEFFLER, Clement Louis, 1959  
*Clinical Assistant in Oral Surgery*  
 D.D.S., 1932, College of Physicians and Surgeons

HOUSEHOLDER, James R., 1955  
*Clinical Associate (Special Lecturer) in Oral Surgery*  
 M.D., 1948, Iowa

IVERSON, James R., 1957  
*Clinical Assistant in Oral Surgery*  
 D.D.S., 1953, University of Washington

JOHNSON, Robert Edward, 1949  
*Clinical Associate in Oral Surgery*  
 D.D.S., 1944, M.S., 1948, Michigan

KINNEY, Roy, 1955  
*Clinical Assistant in Oral Surgery*  
 D.D.S., 1919, Pennsylvania

McINTYRE, Thomas J., 1953  
*Clinical Associate in Oral Surgery*  
 B.S., 1947, D.D.S., 1948, Northwestern

PHILLIPS, Donald McCracken, 1958  
*Clinical Assistant in Oral Surgery*  
 A.B., 1937, Washington; M.S., 1942, D.D.S., 1945, Iowa

SWANSON, Alva Edison, 1958  
*Clinical Assistant in Oral Surgery*  
 D.D.S., 1949, Toronto; M.S., 1956, Michigan

SWENSON, Ralph D., 1958  
*Assistant Professor in Oral Surgery*  
 D.D.S., 1953, Washington; M.S., 1958, Georgetown

WESTERBERG, Milton L., 1956  
*Clinical Assistant in Oral Surgery*  
 D.D.S., 1948, Minnesota; M.S.D., 1954, Washington

## ORTHODONTICS

BISHOP, Everard Allen, 1949  
*Clinical Associate in Orthodontics*  
 D.D.S., 1952, Washington

BOLTON, Wayne A., 1954  
*Clinical Associate in Orthodontics*  
 D.D.S., 1950, M.S., 1952, Washington

ERICKSON, Leslie C., 1958  
*Clinical Assistant in Orthodontics*  
 D.D.S., 1954, M.S., 1958, Washington

FRASER, Emery James, 1949  
*Senior Consultant in Orthodontics*  
 D.D.S., 1924, Northwestern

KAHN, Kenneth S., 1950  
*Clinical Assistant in Orthodontics*  
 B.A., 1940, Washington; B.S., D.D.S., 1943, California; M.S., 1950, Washington

KRAUS, Bertram S., 1957  
*Professor of Physical Anthropology*  
 A.B., 1934, Western Reserve University; M.A., Ph.D., 1949, Chicago

LEWIS, Paul Donovan, 1949  
*Clinical Associate in Orthodontics*  
 D.M.D., 1919, Oregon

McGOVERN, William Carr, 1958  
*Clinical Assistant in Orthodontics*  
 D.D.S., 1950, M.S., 1954, Washington

McGOVERN, William P., 1949  
*Senior Consultant in Orthodontics*  
 D.D.S., 1921, California

- MOORE, Alton Wallace, 1948  
*Professor of Orthodontics; Executive  
Officer of the Department of Orthodontics*  
D.D.S., 1941, California; M.S., 1948, Illinois
- PHILBRICK, Richard C., 1953  
*Clinical Consultant in Orthodontics*  
B.S., 1942, D.D.S., 1943, California
- RAYNES, John G., 1956  
*Clinical Assistant in Orthodontics*  
D.D.S., 1952, M.S., 1956, Washington
- RIEDEL, Richard Anthony, 1949  
*Assistant Professor of Orthodontics*  
D.D.S., 1945, Marquette; M.S.D., 1948,  
Northwestern
- TAKANO, William S., 1950  
*Clinical Associate in Orthodontics*  
D.D.S., 1949, Marquette; M.S., 1950,  
Washington

## PEDODONTICS

- BOWLER, Frank T., 1947  
*Clinical Associate in Pedodontics*  
D.M.D., 1945, Oregon
- CRUIKSHANK, Ramon A., 1959  
*Clinical Assistant in Pedodontics*  
D.D.S., 1959, Washington
- FRICKE, Harold H., 1956  
*Clinical Assistant in Pedodontics*  
B.S. in Pharmacy, 1943, Idaho; D.D.S.,  
1956, Washington
- HOFFMAN, Olin E., 1950  
*Clinical Associate in Pedodontics*  
M.P.H., 1943, Michigan; D.D.S., 1921, Iowa
- JINKS, Gordon MacMillan, 1950  
*Clinical Assistant in Pedodontics*  
D.D.S., 1946, Toronto
- LAW, David Barclay, 1947  
*Associate Professor of Pedodontics;  
Executive Officer of the Department of  
Pedodontics*  
B.S.D., D.D.S., 1938, M.S., 1941,  
Northwestern
- LEWIS, Thompson M., 1955  
*Assistant Professor of Pedodontics*  
D.D.S., 1950, Northwestern; M.S.D.,  
1955, Washington
- MICHEL, Peter Joseph, Jr., 1957  
*Clinical Assistant in Pedodontics*  
D.D.S., 1957, Washington; B.S., 1954,  
College of Great Falls (Montana)
- SCHUMACHER, Erwin R., 1957  
*Clinical Assistant and Research Associate  
in Pedodontics*  
B.A., 1948, Iowa State Teacher's College;  
D.D.S., 1956, Iowa; M.S., 1959,  
Washington
- SUPERNOW, Eugene W., 1957  
*Clinical Assistant in Pedodontics*  
D.D.S., 1953, Marquette; M.S., 1955,  
Washington
- ZELDENRUST, Richard W., 1959  
*Clinical Assistant in Pedodontics*  
D.D.S., 1957, Washington
- BOHANNAN, Harry Maurice, 1959  
*Instructor in Periodontics and Endodontics*  
A.B., 1948, D.M.D., 1953, Louisville
- BURRELL, F. Chester, 1952  
*Clinical Associate in Periodontics and  
Endodontics*  
D.D.S., 1952, Washington
- DENNISON, Norman L., 1956  
*Clinical Assistant in Periodontics and  
Endodontics*  
D.D.S., 1956, Washington
- DOW, Pierre Roger, 1952  
*Clinical Associate in Periodontics and  
Endodontics*  
B.S., 1948; D.D.S., 1952, Washington
- GALLAGHER, J. Wilfred, 1949  
*Clinical Associate in Periodontics and  
Endodontics*  
D.M.D., 1934, Oregon
- INGLE, John Ide, 1948  
*Professor of Periodontics and Endodontics;  
Executive Officer of the Department of  
Periodontics and Endodontics*  
D.D.S., 1942, Northwestern; M.S.D.,  
1948, Michigan
- LOSH, John Harvey, 1950  
*Clinical Associate in Periodontics and  
Endodontics*  
D.M.D., 1942, Oregon
- OGILVIE, Alfred L., 1948  
*Associate Professor of Periodontics and  
Endodontics*  
D.D.S., 1944, Toronto (Canada); M.S.,  
1948, California
- OVERBY, Grant E., 1955  
*Clinical Associate in Periodontics and  
Endodontics*  
B.S., 1948, D.D.S., 1953, Washington
- SCHLUGER, Saul, 1958  
*Professor of Periodontics*  
D.D.S., 1931, Louisville
- SPINOLA, Joseph S., 1956  
*Clinical Assistant in Periodontics and  
Endodontics*  
B.S., 1952; D.D.S., 1956, Washington
- STARKS, Milan V., 1948  
*Clinical Associate in Periodontics and  
Endodontics*  
B.S., D.D.S., 1940, Nebraska
- STERN, Irving B., 1959  
*Assistant Professor in Periodontics and  
Endodontics*  
B.S., 1941, City College of New York;  
D.D.S., 1946, New York; Certif. 1956,  
Columbia
- TEEL, W. Stephen, 1954  
*Clinical Associate in Periodontics and  
Endodontics*  
B.S., 1948, Seattle Pacific College; D.D.S.,  
1954, Washington
- WILSON, Donald W., 1956  
*Clinical Assistant in Periodontics and  
Endodontics*  
B.S., 1949, Seattle Pacific College;  
D.D.S., 1956, Washington
- ZELDOW, Bernard J., 1957  
*Assistant Professor in Periodontics and  
Endodontics*  
B.A., 1949, Buffalo; M.S., 1951,  
Washington; D.D.S., 1956, Pennsylvania

## PERIODONTICS & ENDODONTICS

- BECHLEM, Donald Nielsen, 1959  
*Clinical Assistant in Periodontics and  
Endodontics*  
D.D.S., 1943, Northwestern; M.S.D., 1959,  
Washington
- BELL, John Allen, 1952  
*Clinical Associate in Periodontics and  
Endodontics*  
D.D.S., 1952, Washington

## PROSTHODONTICS

- ANDERSON, Carl O., 1947  
*Clinical Associate in Prosthodontics*  
D.D.S., 1924, Northwestern
- ANDERSON, Howard S., 1954  
*Clinical Associate in Prosthodontics*  
D.D.S., 1951, Washington

- BALLARD, Charles S., 1950  
*Clinical Associate in Prosthodontics*  
D.M.D., 1921, Oregon
- BEDER, Oscar Edward, 1952  
*Associate Professor of Prosthodontics*  
B.S., 1936, Rutgers; D.D.S., 1941, Columbia
- BERMAN, Nicholas, 1956  
*Clinical Associate in Prosthodontics*  
M.D., 1934, D.D.S., 1938, Prague  
(Czechoslovakia); D.D.S., 1948,  
Kansas City
- BOLENDER, Charles L., 1959  
*Instructor in Prosthodontics*  
D.D.S., 1956, Iowa
- FLOOD, Clyde Richard, 1955  
*Clinical Assistant in Prosthodontics*  
D.M.D., 1925, North Pacific College
- GUTHRIE, Frank B., 1958  
*Clinical Assistant in Prosthodontics*  
D.D.S., 1958, Washington
- GUTHRIE, John D., 1960  
*Clinical Associate in Prosthodontics*  
D.M.D., 1928, Oregon
- HAINING, Roger W., 1959  
*Clinical Assistant in Prosthodontics*  
B.S., 1954, B.A., 1955, D.D.S., 1955,  
Minnesota
- HILL, Roy C., 1957  
*Clinical Assistant in Prosthodontics*  
D.M.D., 1936, North Pacific College
- HOELSCHER, Frank J., 1953  
*Clinical Associate in Prosthodontics*  
D.M.D., 1924, Oregon
- HUNGAR, Gordon E., 1959  
*Clinical Assistant in Prosthodontics*  
B.S., 1948, D.D.S., 1957, Washington
- JANKELSON, Bernard, 1951  
*Clinical Associate in Prosthodontics*  
D.M.D., 1924, Oregon
- JOHNSON, Richard J., 1953  
*Clinical Associate in Prosthodontics*  
D.D.S., 1939, Northwestern
- KYDD, William L., 1950  
*Clinical Assistant in Prosthodontics*  
D.M.D., 1947, Oregon
- McCLAIN, Patrick P., 1951  
*Clinical Associate in Prosthodontics*  
D.D.S., 1950, Washington
- McCLUNG, Earle J., 1954  
*Clinical Associate in Prosthodontics*  
D.M.D., 1915, Oregon
- MIRANTE, John T., 1959  
*Clinical Assistant in Prosthodontics*  
D.D.S., 1957, Washington
- MITCHELL, Robert D., 1955  
*Clinical Assistant in Prosthodontics*  
B.S., 1947, Brigham Young; D.D.S.,  
1951, Washington
- NASH, Brent I., 1958  
*Clinical Assistant in Prosthodontics*  
B.S., 1954, Utah State; D.D.S., 1958,  
Washington
- SHAW, Donald Robert, 1955  
*Clinical Assistant in Prosthodontics*  
D.D.S., 1938, Iowa
- SMITH, Dale E., 1960  
*Clinical Assistant in Prosthodontics*  
D.D.S., 1952, University of Pittsburg
- SWERDLOW, Herbert, 1959  
*Clinical Assistant in Prosthodontics*  
B.A., 1947, Brooklyn College; D.D.S., 1951,  
New York
- ULIP, Edward J., 1956  
*Clinical Associate in Prosthodontics*  
D.D.S., 1937, Chicago College of Dental  
Surgery
- WYKHUIS, Walter A., 1956  
*Associate Professor of Prosthodontics*  
B.A., 1932, Calvin College; D.D.S., 1936,  
Chicago College of Dental Surgery
- YOUNG, Harry A., 1948  
*Professor of Prosthodontics; Executive  
Officer of the Department of Prosthodontics*  
D.D.S., 1919, Indiana

## DENTAL HYGIENE

- FALES, Martha H., 1959  
*Instructor in Dental Hygiene*  
R.D.H., 1935, A.B. Ed., 1943, Michigan
- SUTHERLAND, Joan, 1960  
*Instructor in Dental Hygiene*  
B.S., R.D.H., 1959, Washington
- WILKINS, Esther, 1950  
*Associate Professor of Dental Hygiene;  
Director of the Department of Dental  
Hygiene*  
B.S., 1938, Simmons; R.D.H., 1939, Forsyth;  
D.M.D., 1949, Tufts

## COMMITTEES

### DIVISION OF HEALTH SCIENCES

**INSTRUMENT SHOP:** A. C. Young, *Chairman*; M. Gordon, A. Horita.

**LIBRARY:** T. C. Ruch, *Chairman*; J. Ashford, *Secretary*; B. E. Anderson, N. B. Everett, J. R. Householder, E. G. Krebs, T. A. Loomis, E. J. Ordal, K. Svelander, W. Volwiler.

**MEDICAL ILLUSTRATION:** R. F. Rushmer, *Chairman*; J. Phillips, *Secretary*; D. L. Bassett, D. J. Hanahan, A. W. Moore, J. G. Skahen, L. Steward, T. C. West. *Ex officio*: D. R. de Mers.

**TELEVISION EVALUATION AND PLANNING:** A. W. Moore, *Chairman*; B. F. Baldwin, *Secretary*; E. A. Duchow, L. Enos, B. C. Etzel, T. W. Jones, E. C. Roosen-Runge. *Ex officio*: D. F. Hiscox, J. Phillips, C. L. Freehe, D. R. de Mers.

### SCHOOL OF DENTISTRY

**ADMISSIONS COMMITTEE:** B. E. Anderson, *Chairman*; O. E. Beder, N. B. Everett, M. J. Hickey, F. L. Jacobson, E. C. Roosen-Runge, G. D. Stibbs, J. W. Woodbury.

**APTITUDE TEST COMMITTEE:** B. E. Anderson, *Chairman*; R. Buseman, C. Schroeter.

**CLINICAL COORDINATING COMMITTEE:** M. J. Hickey, *Chairman*; J. D. Gehrig, J. I. Ingle, F. L. Jacobson, D. B. Law, A. W. Moore, K. N. Morrison, G. D. Stibbs, E. M. Wilkins, H. A. Young.

**CURRICULUM COMMITTEE:** D. B. Law, *Chairman*; B. E. Anderson, J. D. Gehrig, M. J. Hickey, J. I. Ingle, F. L. Jacobson, B. S. Kraus, K. L. Morrison, Leo Sreebny, G. D. Stibbs, H. A. Young.

**DEANS ADVISORY COMMITTEE ON APPOINTMENTS, PROMOTION, AND TENURE:** A. W. Moore, *Chairman*; B. E. Anderson, D. B. Law, G. D. Stibbs, H. A. Young.

**DENTAL HYGIENE ADMISSIONS COMMITTEE:** E. M. Wilkins, *Chairman*; B. E. Anderson, M. J. Hickey, Jean Hodson, Julia Skahen.

**EXECUTIVE COMMITTEE:** M. J. Hickey, *Chairman*; J. I. Ingle, *Secretary*; B. E. Anderson, J. M. Dille, N. B. Everett, J. D. Gehrig, F. L. Jacobson, D. B. Law, A. W. Moore, K. N. Morrison, Saul Schluger, Leo Sreebny, G. D. Stibbs, E. M. Wilkins, H. A. Young. *Ex officio*: D. R. de Mers.

**GRADUATE DENTAL ADMISSIONS COMMITTEE:** Saul Schluger, *Chairman*; B. E. Anderson, M. J. Hickey, B. S. Kraus, D. B. Law, A. W. Moore, Leo Sreenby.

**SPACE PLANNING AND ALLOCATION COMMITTEE:** A. W. Moore, *Chairman*; B. E. Anderson, M. J. Hickey, J. I. Ingle, D. B. Law, K. N. Morrison, G. D. Stibbs.

**STUDENT EVALUATING COMMITTEES:** *Chairman*: G. D. Stibbs, first-year class; K. N. Morrison, second-year class; F. L. Jacobson, third-year class; B. E. Anderson, fourth-year class.

STUDENTS' HONORS AND AWARDS COMMITTEE: F. L. Jacobson, *Chairman*; C. I. Degering, K. N. Morrison, A. M. Ogilvie, W. A. Wykhuis.

STUDENT LOAN COMMITTEE: A. L. Ogilvie, *Chairman*; C. I. Degering, J. I. Ingle.

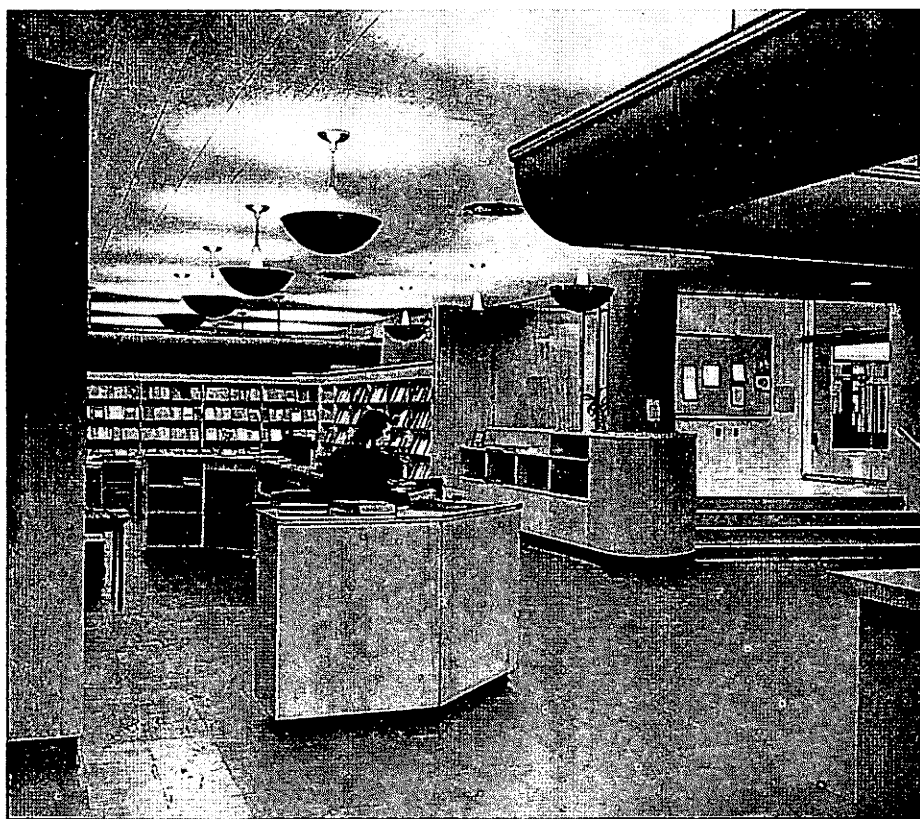
THESIS COMMITTEE: A. L. Ogilvie, *Chairman*; B. E. Anderson, B. S. Kraus, D. B. Law, G. D. Stibbs.

#### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*





## THE DIVISION OF HEALTH SCIENCES

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# THE DIVISION OF HEALTH SCIENCES

**T**HE DIVISION OF HEALTH SCIENCES of the University of Washington was established in the autumn of 1945 to include the Schools of Dentistry, Medicine, and Nursing, the College of Pharmacy, the Student Health Service, and the University Hospital. In February, 1945, the legislature of the state of Washington authorized the Board of Regents of the University to establish the Schools of Dentistry and Medicine, which were brought into the Division along with the already existing School of Nursing and College of Pharmacy. The University has offered training in nursing for more than a quarter of a century, and since 1931 the School of Nursing has had an integrated academic and hospital course leading to bachelor's and advanced degrees. The College of Pharmacy was founded in 1894. The present five-year program was adopted in 1957, and the College offers courses leading to the degrees of Bachelor of Science in Pharmacy, Master of Science, and Doctor of Philosophy.

Each part of the Division of Health Sciences functions as an autonomous unit. The Division coordinates development, research, and teaching activities to strengthen and reinforce the work of each unit. For example, the basic sciences departments meet the needs of the whole Division and of other sections of the University that are concerned with work in anatomy, biochemistry, microbiology, pathology, pharmacology, physiology and biophysics, and public health and preventive medicine.

## HEALTH SCIENCES PLANT

The Health Sciences Building overlooks the Portage Bay Yacht Basin between Lake Washington and Lake Union. It is near enough to the upper campus to offer great potentialities for cooperative research with other sections of the University, such as the Departments of Anthropology, Biology, Botany, Chemistry, Genetics, Physics, Psychology, and Zoology; the College of Engineering; the College of Fisheries; the School of Social Work; and the Student Health Service (Hall Health Center).

From 1945 to 1949, the Schools of Dentistry, Medicine, and Nursing were in temporary quarters while the Health Sciences Building was planned and built. In March, 1947, ground was broken and construction begun on the building which now houses administrative units of the three schools, library and auditorium facilities of the entire Division, laboratory, clinical and research units of the School of Dentistry, the basic health sciences departments, and laboratories and offices of the

Departments of Pediatrics and Psychiatry. The first units were occupied in January, 1949, and the rest of the building was occupied in the autumn of that year.

The Health Sciences Building was designed to provide adequate space for present teaching and research activities and maximum flexibility for future needs. Because interior walls are not supporting structures, redesign of areas within the building can be readily accomplished when changing demands make it necessary. The present facilities represent an investment of more than \$20,000,000 in construction and equipment.

The second unit of the new University Hospital was completed in the spring of 1959 and the first patients were admitted May 4, 1959. This 320-bed unit includes the inpatient and outpatient facilities of the Hospital, the laboratories, x-ray facilities, the emergency department, a large new physical medicine and rehabilitation unit, the premature nursery, etc. This second unit is contiguous with the first unit of the Hospital which was completed in 1954 and which houses the teaching and research areas of the five clinical departments of the School of Medicine.

In addition, the Samuels Research Wing was completed in April, 1960. This wing houses additional laboratories of both the clinical and the basic health sciences departments. Completion of these closely-integrated units provides the University with one of the finest plants in the United States.

The Health Sciences Library, which serves the Schools of Medicine, Dentistry, and Nursing, and is used in much research work done in other sections of the University, has about 75,000 carefully selected volumes (with stack space for 40,000 more) and subscribes to more than 900 periodicals. All books and periodicals are on open shelves and are easily accessible. Library facilities include ten glass-paneled and soundproofed reading, study, and conference rooms, as well as adequate space for microfilm and microcard readers and special study groups. The University Library also is used by health sciences students; the interlibrary loan service is particularly valuable since it makes all the medical resources of the country available for research.

## KOREAN VETERANS

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. If the veteran has any questions regarding application for a certificate, he should consult the Veterans Division, Safety Division Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

## KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented, along with his Program of Studies, to the Veterans Division, Safety Division Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until a full month's attendance has been established.

## INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

There are restrictions for veterans returning to training following an interruption in excess of twelve months. Korean veterans should consult with the Veterans Division, Safety Division Building, or the nearest Veterans Administration office to see if they are eligible for further benefits.

**TRAINING ALLOWANCE**

The rate of training allowance is on a full-time basis for dental students pursuing the regular prescribed dental curriculum. If further information is required, consult with the Veterans Division, Safety Division Building, University of Washington.

**TERMINATION OF TRAINING**

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service or by January 31, 1965, whichever is earlier.

**DISABLED VETERANS**

A veteran with a disability under Public Law 894 should consult a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

**CHILDREN OF DECEASED VETERANS**

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented along with the Program of Studies to the Veterans Division, Safety Division Building, on the date of registration.

**WORLD WAR I OR II VETERANS**

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 24).

**PART-TIME EMPLOYMENT**

The demands upon the time of students in the dental courses make it inadvisable for them to undertake any kind of part-time work during the school year.

**MEDICAL EXAMINATION**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the Student Health Service a form containing his health history and a report of a physical examination by a physician. The form will be sent to new students by the Office of Admissions and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the Student Health Service without charge.

With the exception of Canadian students, who will follow the above instructions, foreign students must take the required physical examination at the Student Health Service when they arrive on the campus.

**ASSOCIATED STUDENTS**

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various

committees and boards, students assume major responsibility in the government of student life. The ASUW helps finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

## HOUSING

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

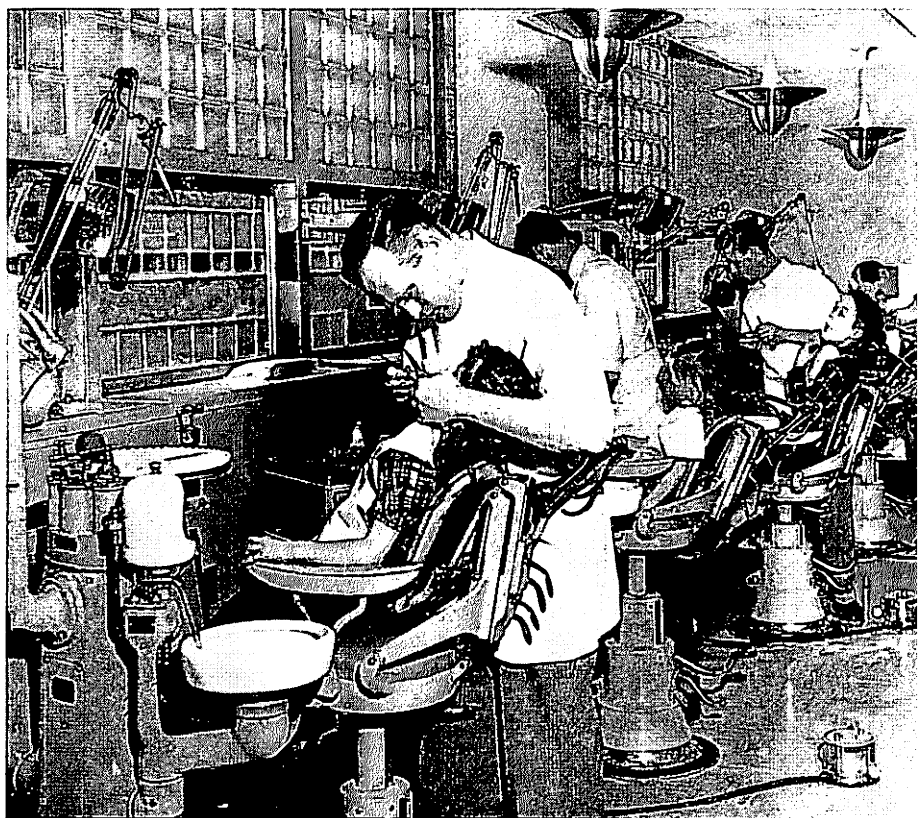
University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time subfaculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.



## THE SCHOOL OF DENTISTRY

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# THE SCHOOL OF DENTISTRY

**T**HE SCHOOL OF DENTISTRY offers a four-year program of courses leading to the degree of Doctor of Dental Surgery (D.D.S.); programs leading to the Master of Science in Dentistry for students in the Graduate School; and courses for practicing dentists. The four-year curriculum for the D.D.S. degree includes study in two main areas: Basic Sciences and Clinical Dental Sciences. Instruction in the basic sciences is provided by the Departments of Anatomy, Biochemistry, Microbiology, Pathology, Physiology and Biophysics, Pharmacology, and Public Health and Preventive Medicine of the Health Sciences Division. In the clinical dental sciences the Departments of Dental Science and Literature, Dental Materials, Fixed Partial Dentures, Operative Dentistry, Oral Diagnosis and Treatment Planning, Oral Pathology, Oral Surgery, Orthodontics, Pedodontics, Periodontics, Endodontics, and Prosthodontics provide instruction in the fields of general dental practice and dental specialization.

The objective of the School of Dentistry is to provide a foundation for the student's future development. The program of instruction is designed to provide the student with the opportunity to learn fundamental principles which are significant to the entire body of dental knowledge. It is expected that the student will acquire habits of reasoning and critical judgment in order that he may use the fundamental principles wisely in solving problems of dental health and disease. The Dental School expects its students to learn the fundamentals of the basic health sciences, to master certain clinical skills and to acquire a thorough understanding of professional and ethical principles. The four-year educational program is planned to achieve these objectives.

The School of Dentistry is approved by the Council on Dental Education of the American Dental Association and is a member of the American Association of Dental Schools. It is a participating member of the Western Interstate Commission for Higher Education.

The Department of Dental Hygiene is an integral part of the School of Dentistry with the same basic objectives and offers courses of instruction leading to a Bachelor of Science degree with a major in Dental Hygiene or Public Health Dental Hygiene. For additional details regarding this area of instruction see page 48.

## ADMISSION

The Council on Dental Education of the American Dental Association has specified these minimum requirements for admission to an approved school of dentistry:

"... the successful completion of two full academic years of work in an accredited college of liberal arts and science. . . . The college course must include at least a year's credit in English, in biology, in physics, and in inorganic chemistry, and a half-year's credit in organic chemistry. All courses in science should include both class and laboratory instruction. . . ."

The Committee on Admissions of the School of Dentistry requires the following courses given at the University of Washington. Students taking preidental work at other institutions may compare these courses with those given in their schools by checking the descriptions given in the *College of Arts and Sciences Bulletin*.

#### QUARTER CREDITS

English 101, 102, 103 (Composition).....	9
Chemistry 100 or 110 and 150, 160, and 170 (General and Qualitative Analysis).....	13 or 14
Chemistry 231, 232, 241, 242 (Organic).....	10
Physics 101, 102, 103 and 107, 108, 109 (General and Lab.)	15
Zoology 111, 112 (General).....	10
Zoology 456 (Vertebrate Embryology).....	5
or 453-454 (Comparative Anatomy of Chordates).....	10

The Committee on Admissions recommends that preidental students choose electives with the aim of broadening their background in human relationships and understanding. Laboratory drawing, sculpture, American literature, modern literature, music appreciation, speech, anthropology, economics, philosophy, psychology, and sociology are suggested, but students should survey the courses offered in their respective schools for other possible electives. Applicants from the University of Washington must have satisfied lower-division military training and physical and health education requirements.

Students presenting evidence of scholastic attainment over the required minimum generally have the advantage at the time of selection.

## APPLICATION PROCEDURE

Applications and all credentials should be sent to the Committee on Admissions. The final date on which applications for entrance in Autumn Quarter may be submitted is *March 1*. Prior to that date, each applicant must submit the following:

1. Formal application for admission on the form furnished by the University of Washington School of Dentistry.
2. Official transcript of previous college record (sent directly from the registrars of the institutions where preprofessional training was taken to the Committee on Admissions). Transcripts should show (a) a complete college record, with grades and credits; (b) subjects the applicant is taking or will take to complete his preprofessional training before entering the School of Dentistry (if this information is not shown on the transcript the applicant must forward a separate schedule); and (c) credit granted for high school study.
3. At least four letters of recommendation, two of which must be from science instructors (one letter if forwarded by the preprofessional committee of the school), and one each from a business or professional person.
4. Physician's statement of physical examination.

## PROCESSING OF APPLICATIONS

**EVALUATION OF CREDENTIALS.** The Committee on Admissions examines the credentials and bases its decision on the objective evaluation of these factors: preprofessional training, evidences of scholarship, residence of the applicant, dental



aptitude test rating, and personal evaluation of the student by predental instructors and members of the Committee on Admissions.

**DENTAL APTITUDE TEST.** All predental students who apply for admission to the School of Dentistry are required to take the dental aptitude test given under the auspices of the Council on Dental Education of the American Dental Association. This test is given in October, January, and April, at the University of Washington and other schools throughout the country. Full information about the test is sent to all applicants for admission. It is advantageous for the applicant to participate in an early aptitude testing session.

**PERSONAL INTERVIEW.** After all material pertinent to the application has been received and reviewed, the candidate may be requested to appear for a personal interview. When an interview is required the applicant will generally participate in a special aptitude test conducted by the Committee on Admissions of the School of Dentistry.

**NOTIFICATION OF ACCEPTANCE OR REJECTION.** All candidates are given written notice of the acceptance or rejection of their applications as soon as possible after the Committee on Admissions has reached a decision. Applicants generally are informed of the Committee's decision sometime prior to June 30.

**HONOR CODE.** All students accepted by the School of Dentistry will be expected to indicate their willingness to participate in the School's Honor Code.

**ACCEPTANCE OF APPOINTMENT.** When a candidate has been notified that he is accepted in the School of Dentistry, he must deposit \$50.00 with the Comptroller of the University. This deposit is applied to the first quarter's tuition. It is refundable only in cases of withdrawal for bona fide illness, failure to complete basic predental requirements, induction into military service, or failure to pass the physical examination required of all students at the time of registration.

## STUDENT ACHIEVEMENT AND PROMOTION

The School of Dentistry uses the University grade-point system: A=4, B=3, C=2, D=1, E=0. Calculation of the grade-point average is made by multiplying the grade point received in a course by the number of credits earned in the course, totaling these values, and dividing by the total number of credits earned.

Students are notified of their grades at the end of each quarter.

A student who has less than a 2.00 grade-point average in the courses for which he is registered during any given quarter is referred to the Executive Committee of the School. If the work in a course is incomplete or inadequate, a grade of I may be given. This Incomplete must be removed before September 15 if the student is to advance into the next year's class.

E signifies that the work is of failing grade. Students who receive an E in one major subject may be permitted to take additional work and a re-examination, if permission is granted by the instructor in the course, the Dean, and the Executive Committee. If the additional work and re-examination are satisfactory, the student's grade may be raised from E to D and promotion may be granted if the remainder of the work justifies it. If students receive E in more than one major subject in one year, they may not make up these deficiencies. The Dean's Office notifies students of E grades.

At the end of each academic year the Executive Committee of the School of Dentistry evaluates the accomplishments of the student during the year and determines his fitness for promotion. When promotion is not recommended, the student is subject to dismissal from the School. The Dental School reserves the right to dismiss any student from the School for any reason it deems sufficient. Scholastic standing is not the only requirement for promotion. Students are advanced only when their general attitude, scholastic progress, and personal attributes are considered satisfactory.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. A *table of charges for dentistry and dental hygiene students is on page 26*. The University reserves the right to change any of its fees without notice.

### Resident students

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

### Nonresident students

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

### Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed forces during World War I and received honorable discharges or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one-half the nonresident tuition. This exemption is not granted to Summer Quarter students.

## SPECIAL FEES

A fee of \$5.00 is charged for a late medical examination; and \$1.00 for a late X ray. The fee for removal of an Incomplete is \$2.00.

**REGISTRATION SERVICE FEE.** A fee of \$15.00 is assessed those students who are eligible to participate in *Advance Registration* and fail to do so, or who, after the established application deadline, are granted Appointments or Permits to register by *In-Person Registration* by action of the Registration Appeal Board.

**LATE REGISTRATION FEE.** A fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters by action of the Registration Appeal Board.

**CHANGE OF REGISTRATION FEE.** A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University.

**GRADE SHEET FEE.** One grade sheet is furnished each quarter without charge; 50 cents is charged for each additional copy.

**TRANSCRIPT FEE.** One transcript is furnished without charge; \$1.00, payable in advance, for each additional copy.

**TRANSFER EXAMINATION FEE.** Students transferring to the School of Dentistry from other dental schools pay a fee of \$10.00.

**DIPLOMA FEES.** The fee for the Doctor of Dental Surgery diploma is \$10.00. The fee for the Master of Science in Dentistry diploma is \$5.00.

**ATHLETIC ADMISSION TICKET.** This fee (optional for ASUW members) is: Autumn, Winter, and Spring Quarters, \$6.50; Winter and Spring Quarters, \$3.50; Spring Quarter, \$3.50.

**CERTIFICATE FEE.** The fee for a certificate for post-graduate work in dentistry is \$5.00.

## REFUND OF FEES

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one-half the amount will be refunded

if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

## TEXTBOOKS AND INSTRUMENTS

Textbooks pertinent to courses of instruction are assigned at the first meeting of classes. In order to insure that all students will have the necessary type and quality of instruments and supplies, kits are prepared by Dental Stores and sold directly to the student at the beginning of each academic year.

	<i>1st Year</i>	<i>2nd Year</i>	<i>3rd Year</i>	<i>4th Year</i>
Supplies .....	\$500.00	\$1,100.00	\$420.00	\$50.00
Books .....	125.00	162.00	126.00	58.00
Total .....	\$625.00	\$1,262.00	\$546.00	\$108.00

## ESTIMATE OF YEARLY EXPENSES

*Tuition, Incidental, and ASUW Fees; Microscope, Dental Engine and Laboratory Case Rental*

	<i>1st Yr.</i>	<i>2nd Yr.</i>	<i>3rd Yr.</i>	<i>4th Yr.</i>
Full-time residents	\$467.00	\$470.00	\$463.00	\$456.00
Full-time nonresidents	797.00	800.00	793.00	786.00

### *Board and Room*

Double room and meals in Men's Residence Halls.....	\$675.00
Room and meals in Women's Residence Halls.....	615.00- 720.00
Room and meals in fraternity or sorority house..... (Including dues and social fees.)	670.00- 760.00

Initial cost of joining is not included; this information may be obtained from the Interfraternity and Panhellenic Councils.

<i>Personal Expenses</i>	300.00
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## CLASS SCHEDULES

The School of Dentistry operates on the quarter system of the University. There are three eleven-week quarters in the school year. See pages 27-30.

**TUITION AND FEES FOR STUDENTS OF DENTISTRY AND DENTAL HYGIENE****AUTUMN QUARTER**

<i>Class</i>	<i>Tuition</i>	<i>Incidental Fee</i>	<i>ASUW Fee</i>	<i>Microscope Rental*</i>	<i>Dental Engine Rental*</i>	<i>Laboratory Case Rental</i>	<i>Total</i>
FRESHMAN—Resident . . .	\$100.00	\$37.50	\$8.50	\$7.00	....	\$2.50	\$155.50
Nonresident..	165.00	82.50	8.50	7.00	....	2.50	265.50
SOPHOMORE—Resident . . .	100.00	37.50	8.50	....	3.50	2.50	152.00
Nonresident	165.00	82.50	8.50	....	3.50	2.50	262.00
JUNIOR—Resident . . . . .	100.00	37.50	8.50	7.00	3.50	2.50	159.00
Nonresident . . . . .	165.00	82.50	8.50	7.00	3.50	2.50	269.00
SENIOR—Resident . . . . .	100.00	37.50	8.50	....	3.50	2.50	152.00
Nonresident . . . . .	165.00	82.50	8.50	....	3.50	2.50	262.00
GRADUATE—Resident . . .	100.00	37.50	8.50	....	3.50	....	149.50
Nonresident..	165.00	82.50	8.50	....	3.50	....	259.50
DENTAL HYGIENIST— (Junior)—Resident . . . .	100.00	37.50	8.50	3.50	....	....	149.50
Nonresident..	165.00	82.50	8.50	3.50	....	....	259.50
DENTAL HYGIENIST— (Senior)—Resident . . . .	100.00	37.50	8.50	....	....	2.50	148.50
Nonresident..	165.00	82.50	8.50	....	....	2.50	258.50

**WINTER QUARTER**

FRESHMAN—Resident . . .	\$100.00	\$37.50	\$8.50	\$7.00	....	\$2.50	\$155.50
Nonresident..	165.00	82.50	8.50	7.00	....	2.50	265.50
SOPHOMORE—Resident . . .	100.00	37.50	8.50	7.00	3.50	2.50	159.00
Nonresident	165.00	82.50	8.50	7.00	3.50	2.50	269.00
JUNIOR—Resident . . . . .	100.00	37.50	8.50	....	3.50	2.50	152.00
Nonresident . . . . .	165.00	82.50	8.50	....	3.50	2.50	262.00
SENIOR—Resident . . . . .	100.00	37.50	8.50	....	3.50	2.50	152.00
Nonresident . . . . .	165.00	82.50	8.50	....	3.50	2.50	262.00
GRADUATE—Resident . . .	100.00	37.50	8.50	....	3.50	....	149.50
Nonresident..	165.00	82.50	8.50	....	3.50	....	259.50
DENTAL HYGIENISTS— (Junior and Senior) Resident . . . . .	100.00	37.50	8.50	....	....	2.50	148.50
Nonresident . . . . .	165.00	82.50	8.50	....	....	2.50	258.50

**SPRING QUARTER**

FRESHMAN—Resident . . .	\$100.00	\$37.50	\$8.50	....	\$3.50	\$2.50	\$152.00
Nonresident..	165.00	82.50	8.50	....	3.50	2.50	262.00
SOPHOMORE—Resident . . .	100.00	37.50	8.50	....	3.50	2.50	152.00
Nonresident	165.00	82.50	8.50	....	3.50	2.50	262.00
JUNIOR—Resident . . . . .	100.00	37.50	8.50	....	3.50	2.50	152.00
Nonresident . . . . .	165.00	82.50	8.50	....	3.50	2.50	262.00
SENIOR—Resident . . . . .	100.00	37.50	8.50	....	3.50	2.50	152.00
Nonresident . . . . .	165.00	82.50	8.50	....	3.50	2.50	262.00
GRADUATE—Resident . . .	100.00	37.50	8.50	....	3.50	....	149.50
Nonresident..	165.00	82.50	8.50	....	3.50	....	259.50
DENTAL HYGIENISTS— (Junior and Senior) Resident . . . . .	100.00	37.50	8.50	....	....	2.50	148.50
Nonresident . . . . .	165.00	82.50	8.50	....	....	2.50	258.50

**SUMMER QUARTER**

GRADUATE—Resident and Nonresident..	\$100.00	\$37.50	\$2.50	....	\$3.50	....	\$143.50
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\*Subject to change.

# **FIRST YEAR SCHEDULE**

## **Autumn Quarter**

Hours	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8-8:50	Anat. 328 (Gross Anat.)	Dental Mat. 131	Anat. 330 (Micro. Anat.)	Dental Mat. 131	Oper. Dent. 132 (Oral Anat.)
9-9:50	Gross Anat. Lab.	Dental Mat. Lab.	Micro. Anat. Lab.	Dental Mat. Lab.	Oral Anat. Lab.
10-10:50					
11-11:50					
1:30-2:20	Oper. Dent. 132 (Oral Anat.)	Anat. 330 (Micro. Anat.) 1:10-2:00	Free	Anat. 328 (Gross Anat.) 1:10-2:00	Anat. 328 (Gross Anat.) 1:10-2:00
2:30-3:20	Oral Anat. Lab.	Micro. Anat. Lab.		Gross Anat. Lab.	Gross Anat. Lab.
3:30-4:20					
4:30-5:00					

## **Winter Quarter**

8-8:50	Dent. Sci. & Lit. 100 (Orientation)	Free	Free	Free	Oper. Dent. 133 (Oral Anat.)
9-9:50	Physiol. & Biophys. 126 (Human Physiol.)	Perio. & Endo. 131 (Oral Histology & Embryology)		Perio. & Endo. 131	Oral Anat. Lab.
10-10:50	Physiology Lab.	Oral Histology & Embryology Lab.		Oral Histology & Embryology Lab.	
11-11:50					
1:30-2:20	Anat. 331 (Neuroanat.)	Anat. 329 (Gross Anat.)	Physiol. & Biophys. 126	Physiol. & Biophys. 126	Anat. 329
2:30-3:20	Neuroanat. Lab.	Gross Anat. Lab.	Physiol. Lab.	Physiol. Lab.	Gross Anat. Lab.
3:30-4:20					
4:30-5:00					

## **Spring Quarter**

8-8:50	Biochem. 361 (Biochemistry)	Biochem. 362 (Biochemistry) (Conf.)	Biochem. 361 (Biochemistry)	Biochem. 362 (Biochemistry) (Conf.)	Biochem. 361 (Biochemistry)				
9-9:50	Prosth. 131 (Complete Denture Technic)	Biochemistry Lab.	Biochem. 361 (Biochemistry) (Conf.)	Biochemistry Lab.	Oper. Dent. 134				
10-10:50	Prosth. Lab.		Oper. Dent. 134 Oral Anat.Lab.		Oral Anat. Lab.				
11-11:50			Oper. Dent. 131			Prosth. 131			
1:30-2:20	Oper. Dent. 131	Prosth. 131 Lab.	Operative Dent. Lab.	Prosth. Lab.	Prosth. Lab.				
2:30-3:20	Operative Dent. Lab.								
3:30-4:20									
4:30-5:00									

# SECOND YEAR SCHEDULE

## Autumn Quarter

Hours	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8-8:50	Micro. 235	Oper. Dent. 231	Micro. 235	Oper. Dent. 231	Pedo. 200
9-9:50		Oper. Dent. Lab.		Oper. Dent. Lab.	Micro. 235 Lect.
10-10:50	Microbiology Lab.		Microbiology Lab.		Microbiology Lab.
11-11:50	Fixed Partial Dentures 231	Prosthodontics Lab.	Free	Prosthodontics Lab.	Fixed Partial Dentures 231
1:30-2:20		Prosthodontics Lab.		Prosthodontics Lab.	Fixed Partial Dentures Lab.
2:30-3:20					
3:30-4:20					
4:30-5:00					

## Winter Quarter

8-8:50	Prosthodontics Lab.	Operative Dent. Lab.	Prosthodontics Lab.	Oper. Dent. Lab.	Dent. Sci. & Lit. 200 (Dent. Hist.)
9-9:50	Prosthodontics Lab.	Operative Dent. Lab.	Prosthodontics Lab.	Oper. Dent. Lab.	Oral Diag. & Treat. Plan. 216
10-10:50					Perio. 200
11-11:50	Fixed Partial Dentures 232	Path. 231 (General Path.)	Free	Path. 231	Pedo. 201
1:30-2:20					Fixed Partial Dentures 232
2:30-3:20	Fixed Partial Dentures Lab.	Pathology Lab.		Pathology Lab.	Fixed Partial Dentures Lab.
3:30-4:20					
4:30-5:00					

## Spring Quarter

8-8:50	Pharmacol. 234 (Gen. Pharm.)	Oper. Dent. 233	Pedo. 216	Oper. Dent. 233	Endo. 232
9-9:50	Oral Surgery 200	Oper. Dent. Lab.	Pedodontics Lab.	Oper. Dent. Lab.	Endodontics Lab.
10-10:50	Endo. 201				
11-11:50	O.D.T.P.* 217, O.S. 200, Perio. 231 11:00-12:30	O.D.T.P. 217, O.S. 200, Perio. 231	Pharmacol. 234 1:00	Pharmacol. 234 1:00	Fixed Partial Dentures 233
1:30-2:20	Fixed Partial Dentures 233				
2:30-4:30	Fixed Partial Dentures Lab.		Pharmacology Lab.	O.D.T.P. 217, O.S. 200, Perio. 231	Fixed Partial Dentures Lab.

\* Oral Diagnosis and Treatment Planning

# THIRD YEAR SCHEDULE

## Autumn Quarter

Hours	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8-8:50	Prosth. 300	Oper. Dent. 300	O.D.T.P. 300	Oral Surgery 300	Free
9-9:50	Perio. 300	Pedo. 300	Endo. 304	Fixed Partial Dentures 300	Perio. 300
10-12:30	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
1:30-2:30	Oral Pathology 331	CLINIC	Oral Pathology 331	CLINIC	CLINIC
2:30-4:30	Oral Pathology Lab. 2:30-5:00		Oral Pathology Lab. 2:30-5:00		

## Winter Quarter

8-8:50	Prosth. 301	Oper. Dent. 301	Free	Fixed Partial Dentures 301	Free
9-9:50	O.D.T.P. 301	Prosth. 303	Oral Surgery 301	Pedo. 301	Perio. 302
10-12:30	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
2:00-4:30	CLINIC	CLINIC (Oper. Block 1:00)	CLINIC	CLINIC 2:00	CLINIC (Oper. Block 1:00)

## Spring Quarter

8-8:50	Prosth. 302	Dent. Sci. & Lit. 302 (Tech. Composition)	Oper. Dent. 302	Dent. Sci. & Lit. N300 (Dent. Medicine)	Dent. Sci. & Lit. 302
9-9:50	Orthodontics 300	Prosth. 304	Oral Surgery 302	Fixed Partial Dentures 302	Dent. Sci. & Lit. N301
10-12:30	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
2-4:30	CLINIC	CLINIC (Oper. Block 1:00)	Oral Surgery 303 1:00-2:00 (General Anesthesia)	CLINIC	CLINIC
			Oral Surgery 331 Lab. 2:00-3:00—3:00-5:00		

† Fixed Partial Dentures

# FOURTH YEAR SCHEDULE

## Autumn Quarter

Hours	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8-8:50	Dent. Sci. & Lit. 403 (Jurisprudence)	Orthodontics 400	Oper. Dent. 400	Dent. Sci. & Lit. 431 (Dent. Ethics & Office Mgmt.)	O.D.T.P. 400
9-9:50	Conjoint (Dent.) 400 (Occlusion)	Fixed Partial Dentures 400	Oral Surgery 400		Prosthodontics 400
10-12:30	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
2-4:30					
Winter Quarter					
8-8:50	Oral Surgery 401	Oral Surgery 403 (Maxillofacial Surgery)	Oper. Dent. 401	Orthodontics 401	Dent. Sci. & Lit. 432 (Dent. Ethics & Office Mgmt.)
9-9:50	Dent. Sci. & Lit. 401 (Applied Dental Science)	Prosthodontics 402	O.D.T.P. 401	Dent. Sci. & Lit. 401 (Applied Dental Science)	F.P.D. 401
10-12:30	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
2-4:30					
Spring Quarter					
8-8:50	Periodontics 400	Prosthodontics 401	Operative 402	Conjoint (Dent.) 402 (Applied Ther. & Prescrib.)	O.D.T.P. 402
9-9:50	Dent. Sci. & Lit. 433 (Dent. Ethics & Office Mgmt.)	Prosthodontics 401 Oral Surgery 402	Oral Surgery 404		Pedodontics 400
10-12:30	CLINIC	CLINIC	CLINIC	CLINIC	CLINIC
2-4:30					



## AWARDS

**MOSBY BOOK AWARDS.** The Mosby Company provides awards for five senior theses representing the most significant contribution to dental literature. These awards are \$30.00 certificates entitling the students to a choice of dental books.

**THE AMERICAN SOCIETY OF DENTISTRY FOR CHILDREN.** This award is presented by the Department of Pedodontics to the two senior dental students who have shown the most outstanding interest and achievement in clinical pedodontics. The award consists of a certificate of merit, one year's membership in the American Society of Dentistry for Children, and a one-year subscription to the *Journal of Dentistry for Children*.

**THE AMERICAN ACADEMY OF PERIODONTOLOGY AWARD.** For exceptional interest and ability in the field of periodontics, the American Academy of Periodontology awards two senior students a one-year subscription to the *Journal of Periodontology*.

**THE AMERICAN ACADEMY OF DENTAL MEDICINE AWARD.** A five-year subscription to the *Journal of Dental Medicine* is presented to the senior student demonstrating unusual excellence in this phase of dentistry.

**DEPARTMENT OF PROSTHODONTICS AWARD.** A one-year subscription to the *Journal of Prosthetic Dentistry* is presented to the senior student who has demonstrated unusual ability in this phase of clinical dentistry.

**WASHINGTON STATE DENTAL ASSOCIATION AWARD.** This certificate is presented to the senior student who has demonstrated character and leadership, together with the highest scholastic achievement during the four-year dental course.

**AMERICAN ACADEMY OF GOLD FOIL OPERATORS.** A plaque is awarded each year to the most deserving graduating students for gold foil excellence.

**THE ALPHA OMEGA SCHOLARSHIP AWARD.** This plaque is presented to the senior student with the highest scholastic average for his four years of dental studies.

**WASHINGTON STATE DENTAL HYGIENISTS' ASSOCIATION AWARD.** A one-year complimentary membership to the Washington State Dental Hygienists' Association is presented to the senior dental hygiene student whose activities have been outstanding, and who shows promise of those qualities of leadership necessary for the advancement of the profession.

## OMICRON KAPPA UPSILON

Omicron Kappa Upsilon is the national dental honorary society which was founded in 1914. Sigma Sigma Chapter at the University of Washington was chartered in the spring of 1950 when the first class in Dentistry was graduated.

Each year the Chapter elects to membership 12 per cent of the graduating class in dentistry who have distinguished themselves in scholarship and character and who possess potential qualities for future professional growth and attainments.

## SIGMA PHI ALPHA

Sigma Phi Alpha is the national dental hygiene honor society which was founded in 1958. Sigma Chapter at the University of Washington elects to membership each year 10 per cent of the graduating class in dental hygiene who have distinguished themselves in scholarship and character and who possess outstanding qualities for future professional growth.

## SCHOLARSHIP AND FELLOWSHIPS

**BEN AND BETTY ZUKOR SCHOLARSHIP FUND.** The annual income of a fund established in 1957 by Ben and Betty Zukor is available to a worthy dental student. The award is made upon recommendation of the University Scholarship Committee.

**ORAL B. TOOTHBRUSH COMPANY SCHOLARSHIP.** This scholarship, in the amount of \$500, will be awarded to the student who, upon completion of the junior year, was most worthy of the award in the opinion of the Dean and the Department heads concerned.

**OMICRON KAPPA UPSILON SCHOLARSHIP.** An annual award to the junior who has shown outstanding scholarship and character during his first three years in the study of dentistry. The award is of variable amount and selection is determined by members of Omicron Kappa Upsilon.

**TACOMA DENTAL AUXILIARY SCHOLARSHIP.** A gift of \$200 is awarded by the Tacoma District Dental Auxiliary to the junior student whose past scholastic and activities records show promise of future success in academic pursuits and who has need of financial assistance to complete her dental hygiene education.

## LOAN FUNDS

Students enrolled in the School of Dentistry may obtain financial loans from the Hayden-Mackey Dental Student Loan Fund. The loan fund is administered by the Hayden-Mackey Memorial Dental Student Loan Fund Committee consisting of three faculty members and the Dean of Dentistry ex-officio.

Loans to students shall be made under the following conditions:

Sec. I. Loans must be approved by a majority vote of the fund committee.

Sec. II. Loans shall be made only to the following recipients: Undergraduate or graduate students in the School of Dentistry, University of Washington, who may show just need of the loan and who have maintained a 2.00 grade-point average in the School of Dentistry and who will continue with the aid of the loan in their course of study in the School of Dentistry, University of Washington.

Sec. III. The loan agreement shall be as follows:

a) Short term loans shall be repaid within one year after the loan is made. There shall be no interest rate.

b) Long-term loans shall be repaid in quarterly payments which begin one year following graduation.

c) Long-term loans shall carry an interest rate of 2 per cent and shall be repaid within four years following graduation.

d) No co-signer is required for a loan unless the fund committee so designates.

e) Extension of all loans will be granted at the discretion of the University Comptroller.

Students are urged to make application for loans by filling out a University Loan Fund application in triplicate. These application forms may be obtained from the Office of the Dean of Dentistry.

The W. K. Kellogg Foundation has provided a perpetuating revolving loan fund for undergraduate dental students.

Another source of student loans is the Leona Hickman Fund administered by the Main Office of the People's National Bank. Male residents of King County, Washington, under thirty years of age are eligible for a Hickman Loan. Application should be made directly to the People's National Bank.

Any gifts or memorial contributions to the Hayden-Mackey Memorial Dental Student Loan Fund will be gratefully received and acknowledged by the fund committee. Such gifts or contributions are tax exempt.

**STUDENT PART-TIME RESEARCH FELLOWSHIPS.** Awards in the amount of \$600 are available to a limited number of undergraduate dental students who are interested in undertaking research. The research may be on a part-time basis during the academic year or full time during the summer quarter. The grants are made upon the recommendation of the department heads concerned and the Dean. Funds for this purpose are provided on an annual basis by the Division of Re-

search Grants, National Institutes of Health, and the United States Department of Public Health.

Other scholarships and fellowships for University students are listed in the *Handbook of Scholarships*, published by the Office of the Dean of Students, 333 Student Union Building.

## RESEARCH GRANTS

Grants-in-aid for research and special projects in the School of Dentistry totaling approximately \$156,000 have been received during the past year. About \$151,000 was received from government agencies and private sources, and some \$5,000 from the state of Washington under Initiative 171.

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# THE DEPARTMENTAL PROGRAMS

**T**HE SCHOOL OF DENTISTRY offers courses leading to the degrees of Doctor of Dental Surgery (D.D.S.), Bachelor of Science, Bachelor of Science in Basic Medical Science, Master of Science in Dentistry, as well as Certificates in orthodontics, pedodontics, or restorative dentistry.

## DEGREES

**DOCTOR OF DENTAL SURGERY.** Upon completion of the four-year curriculum of the School of Dentistry, the D.D.S. degree is awarded to candidates who have (1) given evidence of good moral character; (2) completed the last two years of dental training as regularly matriculated students in the School of Dentistry; (3) satisfactorily completed all the required work with a grade-point average of at least 2.00; (4) fulfilled all special requirements; and (5) discharged all indebtedness to the University.

Work leading to the following degrees is also offered in the School of Dentistry.

**BACHELOR OF SCIENCE.** The curriculum leading to this degree is given by the Department of Dental Hygiene (see page 48).

**BACHELOR OF SCIENCE IN BASIC MEDICAL SCIENCE.** This degree may be taken at the end of the first year in the School of Dentistry by students who have completed at least the third year of predental training and the first year of the dental course at the University of Washington and have a grade-point average of at least 2.50 in college and Dental School combined. Students who wish to qualify for this degree must have completed University requirements for graduation as well as the requirements of the college and department in which the three years of predental work were taken.

Requirements for this degree are described in the *College of Arts and Sciences Bulletin*. Applications should be sent to Predental Adviser, 121 Miller Hall.

**MASTER OF SCIENCE IN DENTISTRY.** Work leading to this degree is available through the Graduate School. See page 53.

**CERTIFICATE IN ORTHODONTICS, PEDODONTICS, OR RESTORATIVE DENTISTRY.** Programs are not administered by the Graduate School; no thesis is required. See page 54.

## LICENSURE

Admission to the practice of dentistry in any state is conditional upon the candidate's meeting the requirements of the State Board of Dental Examiners. In the state of Washington admission to practice is dependent upon the candidate's having a D.D.S. or a D.M.D. degree and passing the examination conducted semi-annually by the State Board of Dental Examiners. The basic science examination may be waived if the candidate presents credentials showing he has successfully passed Part I of the National Board Dental Examination.

Further information about licensure requirements and time of examinations may be obtained from the State Department of Licenses, Professional Division, Olympia, Washington.

## COURSES OF INSTRUCTION

### BASIC SCIENCES

#### ANATOMY

**Executive Officer: H. STANLEY BENNETT, G511 Health Sciences Building**

In the Department of Anatomy, instruction is given in gross human anatomy, microscopic anatomy, submicroscopic anatomy, embryology, and neurology so as to present an orderly picture of the structural organization of the body. Opportunities are afforded for advanced work and investigation in these subjects.

Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

### COURSES

**Conjoint 317-318 Elementary Anatomy and Physiology (6-6) (See Conjoint Courses, School of Medicine Bulletin.)**

**328, 329 Gross Anatomy (6, 4)** **Bodemer, Everett**  
Lectures and dissection. The first quarter is devoted to a study of the entire human body except the head and neck areas, with emphasis on the thoracic and abdominal regions, and the second quarter to an intensive study of the head and neck areas. For dental students; others by permission.

**330 Microscopic Anatomy (4)** **Roosen-Runge**  
Lecture and laboratory work in microscopic anatomy. For dental students; others by permission.

**331 Neuroanatomy (2)** **Everett, Rieck**  
Lecture and laboratory work in neuroanatomy. For dental students; others by permission.

**404 Human Embryology (3)** **Blandau**  
Lectures and laboratory demonstrations covering the development of the human embryo and fetus, with emphasis on abnormal development; special attention to problems of maturation, fertilization, and physiology of the gametes. Required for first-year medical students. Prerequisite for nonmedical students, permission.

**405-406 Microscopic and Submicroscopic Anatomy (5-3)** **Bennett, Staff**  
Essentials of microscopic, submicroscopic, and chemical anatomy. Required for first-year medical students. Prerequisite for nonmedical students, permission.

**Conjoint 409 Basis of Neurology (3,5, or 8) (See Conjoint Courses, School of Medicine Bulletin.)**

**505 Advanced General Histology (3)** **Roosen-Runge, Wood**  
Comparative study of tissues in selected phyla of vertebrates and invertebrates.

**510 Cytochemistry (4)** **Bennett**  
The finer distribution of chemical substances in cells and tissues; methods of cytochemistry and their theoretical basis and validity. Prerequisite, permission.

**515 Biological X-ray Structure Analysis (3)** **Jensen**  
Theory of X-ray diffraction, with emphasis on applications to biological systems. Prerequisite, permission.

- 518 Developmental Neurology (2)** **Bodemer**  
Detailed consideration of the problems of development, growth, and regeneration of the nervous system and its functions.
- 521 Seminar in Molecular and Submicroscopic Anatomy (2)** **Bennett, Luft, Wood**  
The molecular and micellar basis of bodily structure. Prerequisite, permission.
- 525 Brain Dissection (2)** **Everett**  
A detailed consideration of the macroscopic anatomy of the human brain. Prerequisite, permission.
- 530 Biological Tracer Techniques (2-4)** **Everett**  
Techniques of using radioactive isotopes as tracers in biological research. Prerequisite, permission.
- 531, 532, 533, Electron Microscopy (2-5, 2-5, 2-5)** **Bennett, Luft**  
Theoretical and practical aspects of electron microscopy of biological material, including electron diffraction. Prerequisites, 405-406 or permission.
- 540 Embryology of the Heart (2)** **Blandau**  
A detailed study of the embryology of the heart and great vessels during the first eight weeks of life.
- 550 Biological Polarization Microscopy (4)** **Bennett**  
Theory, technique, and application of polarization microscopy in biological studies. Prerequisite, permission.
- 555 Mammalian Reproduction (3)** **Greenwald, Blandau, Roosen-Runge**  
Fundamental processes of reproductive anatomy and physiology of laboratory animals. Prerequisite, permission.
- 557 Seminar (1-3, maximum 9)** **Staff**  
Prerequisite, permission.
- Conjoint 585 Surgical Anatomy (2-4, maximum 12)** **Staff**  
(See Conjoint Courses, School of Medicine Bulletin.)

## COURSES FOR GRADUATES ONLY

- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## BIOCHEMISTRY

**Executive Officer: HANS NEURATH, C408 Health Sciences Building**

Biochemistry is the study of the chemical structure and properties of substances important to animal and plant life and of the chemical processes of living systems. Training in biochemistry begins at the advanced undergraduate or graduate level, and studies toward the degree of Doctor of Philosophy are recommended for students planning a career in this field. Biochemists occupy positions in academic teaching and research institutions, in hospitals, and in industry and government laboratories.

The Department offers courses in basic biochemistry for students in various areas of study in the University, including the natural sciences, medicine, dentistry, and others. Students who intend to work towards a degree of Master of Science, or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. They must present a bachelor's degree with a major in chemistry or its equivalent, and should have some background in biology. Applicants should communicate with the Executive Officer of the Department before registration.

## COURSES

- 361 Biochemistry (3)** **Staff**  
An introductory one-quarter course in general biochemistry covering basic principles, including the structure and metabolism of biologically important compounds. For students in dentistry. Prerequisite, Chemistry 120 or 232.
- 362 Biochemistry Laboratory (3)** **Staff**  
Laboratory exercises and conferences. Certain experimental aspects of biochemistry of special interest to dental students are considered. For dental students. Prerequisite, 361, which may be taken concurrently.

## MICROBIOLOGY

**Executive Officer: CHARLES A. EVANS, G305 Health Sciences Building**

Microbiology is the science of microscopic organisms, their biological characteristics, chemical activities, industrial uses, and disease-producing mechanisms. The related fields concerned with parasites, viruses, and immunity are included in the work of this Department.

In addition to courses for medical and dental students, the Department of Microbiology offers programs in microbiology leading to bachelor's degrees in the College of Arts and Sciences. Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. The fields of specialization for advanced degrees are general and medical bacteriology, immunology, parasitology, medical mycology, virology, and physiology of bacteria. Course requirements vary according to the field chosen.

### COURSES

**235 Microbiology for Students in Dentistry (7)**

**Holland**

Lecture and laboratory introducing the student to the principles of microbiology. Infectious microorganisms and the flora of the mouth are emphasized. Required for second-year dental students. Students who have had previous training in microbiology may be permitted to substitute a research problem for the laboratory work. Prerequisite, for nondental students, permission.

**301 General Microbiology (5)**

**Douglas, Ordal**

Microorganisms and their activities. For students of dental hygiene, pharmacy, nursing, home economics, education, and others interested in a one-quarter survey course, with minimal training in chemistry. Prerequisite, two quarters of general chemistry.

## PATHOLOGY

**Executive Officer: EARL P. BENDITT, D505 Health Sciences Building**

In addition to courses for medical and dental students and for other students of the health sciences, the Department of Pathology offers courses for a curriculum leading to the degree of Bachelor of Science in Medical Technology. This curriculum is given through the College of Arts and Sciences.

### COURSES

**231 General Pathology (5)**

**Staff**

This course is open to dental students and to selected graduate students in the basic sciences. The objective is to cover in a more brief form the basic work covered in detail in 441-, 442-, and 443. The method of presentation is therefore the same as in those courses. A reasonable knowledge of gross and microscopic anatomy, physiology, and biochemistry is essential to understand the principles underlying the fundamental alterations in tissues and organs in disease processes and the results of these changes. While the general tissue and systemic manifestations are considered by processes, the applications of these diseases to the mouth, teeth, and neck are particularly stressed. For dental students, graduate students, by permission.

## PHARMACOLOGY

**Executive Officer: JAMES M. DILLE, F421 Health Sciences Building**

Pharmacology deals with the mechanisms whereby modification of physiological function is produced by drugs and the application of these drugs to the relief and treatment of disease.

The Department of Pharmacology provides courses for medical, dental, and pharmacy students and for those doing graduate work in these fields. Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. They must present a bachelor's degree with a major in any of the

sciences, such as zoology, chemistry, physics, pharmacy, psychology, or physiology. Applicants should communicate with the Executive Officer before registration.

## COURSES

### 234 General Pharmacology (4)

Staff

The action of drugs on physiological functions, with special emphasis on agents which are important in the practice of dentistry. Laboratory experiments and demonstrations of the action of drugs. For dental students.

## PHYSIOLOGY AND BIOPHYSICS

**Executive Officer: THEODORE C. RUCH, G405 Health Sciences Building**

Physiology deals with the processes, activities, and phenomena incidental to and characteristic of life and living organisms. Courses in this field are given for medical, dental, and nursing students and for graduate students.

In biophysics the emphasis is on the physical aspects of organs and systems, studied by the instruments and methods of thinking used by physicists. A bachelor's degree in physical science or equivalent is required for students specializing in biophysics.

Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Students with a bachelor's degree in zoology, psychology, chemistry, engineering, physics or with an M.D. degree are accepted to work for Master of Science and Doctor of Philosophy degrees.

## COURSES

### 126 Human Physiology (6)

Woodbury and Staff

Lectures, laboratories, demonstrations, and small group conferences in human physiology stressing applications to dentistry. For dental students.

## CLINICAL DENTAL SCIENCES

### DENTAL SCIENCE AND LITERATURE

**Executive Officer: BERTON E. ANDERSON, B324 Health Sciences Building**

The Department of Dental Science and Literature teaches the fundamentals of the dental profession, such as legal problems, ethics, office management, and scientific writing.

## COURSES

### 100 Orientation (1)

Anderson

Dentistry as a health profession: its scope, responsibilities, and contacts with other vocations; qualities and traits which lead to high attainment and social usefulness in the profession; purposes, correlation, and development of the various phases of dental education, meaning and value of the scientific method, the critical point of view in the field, and the Code of Ethics of the American Dental Association.

### 131 Dental Materials (4)

Gilbert, Staff

Physical and chemical properties of dental materials.

### 200 Dental History (1)

Mehus

Origin and progress in dentistry: beginnings of the scientific study of the teeth and related parts; integration of the developments of the profession in all its phases—professional, technical, and scientific.

### N300, N301 Dental Medicine (0,0)

Staff of the Schools of Dentistry and Medicine

Systemic conditions and diseases, with special reference to their oral manifestations or implications. Consideration of some aspects of dermatology and syphilology, diabetes, the blood dyscrasias, endocrine gland and nutritional disturbances, and other conditions.

### 302 Technical Composition (2)

Anderson

Technique of using the library, with discussions of availability and source of scientific literature. Procedure and technique of writing scientific papers and preparing them for publication in scientific journals. Techniques of communication.



- 401 Applied Dental Science (2)** **Staff of the Schools of Dentistry and Medicine**  
Correlation of preclinical basic medical science and other preclinical study with clinical procedures and requirements. New findings and practices are submitted so that senior students may utilize such information.
- 403 Jurisprudence (1)** **Wilson**  
Legal problems and obligations incident to the practice of dentistry: state dental laws, contracts, malpractice, and dentists as expert witnesses.
- 431, 432, 433 Dental Ethics and Office Management (2,1,1)** **Anderson**  
Office location, arrangement, furnishings, equipment, and personnel; patient and financial records, taxes, patient-dentist relationships; credit, collections, and fees; banking and accounting; Code of Ethics of The American Dental Association and its application.

## FIXED PARTIAL DENTURES

**Executive Officer: K. N. MORRISON, A407 Health Sciences Building**

In this Department the student learns the construction of fixed partial dentures, gold crowns and inlays and crowns of baked porcelain.

### COURSES

- 231, 232, 233 Fixed Partial Denture Technic (4,4,4)** **Morrison, Staff**  
Fixed partial denture fundamentals; construction of selected cases on technic models.
- 300, 301, 302 Fixed Partial Denture (1,1,1)** **Guthrie**  
Lectures on various phases of typical crown and fixed partial denture construction.
- 346 Clinical Crowns and Fixed Partial Dentures (5)** **Morrison, Staff**  
Construction of crowns and fixed partial dentures for clinical cases; instruction under close supervision, with cases assigned according to the student's knowledge and abilities.
- 400, 401 Advanced Fixed Partial Dentures (1,1)** **Hagen, Morrison**  
Lectures on refinements in technical procedures. Relatively difficult, atypical clinical cases are discussed and analyzed, with emphasis on diagnosis and treatment planning and on the relationship of this field to other forms of treatment.
- 446 Advanced Clinical Crowns and Fixed Partial Dentures (8)** **Morrison, Staff**  
Continuation and advancement of clinical experience, including clinical ceramics, with treatment of more difficult clinical cases under close supervision.

### COURSES FOR GRADUATES ONLY

- 561 Abutments and Distribution of Masticatory Stresses (4)** **Morrison, Staff**  
Tissue responses of bone and periodontal membrane to increased masticatory loads; physical principles involved in replacements in different locations in the mouth; considerations involved in length of span; retention form and resistance form; study of broken-stress design and fixed removable attachments; esthetic considerations of abutment preparation.
- 562 Advanced Dental Ceramics (3)** **Morrison, Staff**  
Baked porcelain as a substitute for lost tooth structure. Physical properties of the material; pyrochemical reactions in firing. Indications and contraindications in restorative dentistry. Color in dental ceramics; esthetics a major consideration; use of strains. Veneer crowns and inlays—variant preparations of the teeth. Methods of impression taking, die formations, and construction of matrices. Manipulation of the various porcelains; the factors involved. Variations in technics of fabrication of restoration. Clinical considerations in respect to insertion and maintenance.
- 700 Thesis (\*)** **Morrison, Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

## OPERATIVE DENTISTRY

**Executive Officer: GERALD D. STIBBS, B404 Health Sciences Building**

Operative Dentistry is primarily concerned with maintaining the natural dentition in good health. It has to do with preventing the ravages of dental caries and with restoring to health and function carious and mutilated teeth with various restorative materials and means.

In addition to the courses for undergraduate dental students, the Department of Operative Dentistry offers a major for students working toward the degree of Master of Science in Dentistry through the restorative dentistry graduate program.

**COURSES**

- 131 Elementary Operative Dentistry Technic (4)** **Stibbs, Staff**  
Fundamental principles of cavity preparation; training in digital skill.
- 132, 133, 134 Oral Anatomy (4,2,2)** **Schroeter, Staff**  
Detailed study of the human dentition from the standpoint of function, and of morphology of the component parts in detail, with attention to systematized nomenclature. Drawings and carvings of teeth are made and the relationship of their form to environment and functional association is studied.
- 231, 232, 233 Operative Dentistry Technic (4,4,5)** **Ostlund, Staff**  
Advanced application of the principles and requirements of operative procedures; exercises on manikins to further manual dexterity; consideration of instrumentation and of manipulation of restorative materials.
- 300, 301, 302 Operative Dentistry (1,1,1)** **Hamilton**  
Lectures on the clinical application of knowledge acquired in lower-division technic courses; introduction to professional conduct and clinical demeanor.
- 346 Clinical Operative Dentistry (8)** **Stibbs, Staff**  
Clinical procedures in all phases of operative dentistry; varied clinical experience under close supervision.
- 400, 401, 402 Advanced Operative Dentistry (1,1,1)** **Ellsperman, Smith, Stibbs**  
Lectures on refinements in technical procedures, treatment of atypical cases, and problems in diagnosis and treatment planning.
- 446 Advanced Clinical Operative Dentistry (7)** **Stibbs, Staff**  
Supervised opportunity to attain optimum experience and self-reliance so that each student may develop as an operator to the best of his ability.

**COURSES FOR GRADUATES ONLY**

- 561 Plastics As Restorative Materials (4)** **Stibbs, Staff**  
Metallography of silver-tin amalgams; physical properties of zinc oxyphosphate cements, siliceous cements, and acrylic resins. Postoperative history of teeth restored with plastic materials; relative service life materials. Basic and variant designs of cavity preparation, considering morphology of tooth, masticatory stress, physical properties of material, and location and size of restoration. Variant technics of manipulation of plastics; analysis of failures in plastics.
- 562 Gold Foil Restorations (4)** **Stibbs, Hamilton**  
Tissue reactions to operative procedures; response of dental pulp to thermal change; age changes in dentinal wall and histology of dental pulp. Indications and contraindications for gold foil in restorative procedures. Physical properties of dentin, cohesive and noncohesive pure gold foil, and platinum-centered foil. Rationale of manipulation of these materials. Modifications of basic cavity preparations for foil: Black, Ferrier, Woodbury, True, etc. Procedures for condensation and finishing.
- 700 Thesis (\*)** **Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

**ORAL DIAGNOSIS AND TREATMENT PLANNING**

**Executive Officer: FREDERIC L. JACOBSON, B309 Health Sciences Building**

The Department of Oral Diagnosis and Treatment Planning provides training in diagnostic techniques, such as interrogation, examination, and X ray. The student learns to correlate information gained in the various departments and to plan both ideal and practical treatment for the patient.

**COURSES**

- 216, 217 Oral Roentgenology (1,1)** **Jacobson**  
Physical, clinical, and interpretative aspects of dental X-ray procedures, with practical application in the completion of acceptable full-mouth surveys on patients.
- 300, 301 Oral Diagnosis and Treatment Planning (1,1)** **Degering, Jacobson**  
Fundamental procedures in oral diagnosis; preparation for advanced instruction.
- 346 Clinical Oral Diagnosis and Treatment Planning (1)** **Staff**  
Opportunity for examining patients and observing diagnostic procedures; rendering emergency treatment to patients.
- 400, 401, 402 Advanced Oral Diagnosis and Treatment Planning (1,1,1)** **Jacobson**  
Treatment planning of cases and familiarization with the clinical detection of oral pathological conditions. Advanced X-ray interpretation.

- 446 Advanced Clinical Oral Diagnosis and Treatment Planning (1)** **Staff**  
Advanced instruction in diagnosis and in the handling of patients. Students are in block assignment. Morning sessions are devoted to seminar discussion. During afternoon sessions, students perform roentgenographic surveys and complete oral diagnosis and treatment plans for prospective patients.

## COURSES FOR GRADUATES ONLY

- 500 Extraoral Radiology (1)** **Jacobson**  
The purpose of this course is to familiarize the student with the various techniques necessary to produce diagnostic radiographic films of the jaws and their contiguous parts. This is done by means of seminar and clinical performance on patients.
- 502 Advanced Roentgenology (1)** **Jacobson**  
Techniques and radiographic interpretation of advanced oral roentgenology.

## ORAL PATHOLOGY

**Executive Officer: LEO M. SREEBNY, B122 Health Sciences Building**

Oral Pathology is that division of general pathology which is concerned with the understanding of the cause and mechanism of diseases of the oral cavity and associated structures.

In addition to the courses for undergraduate dental students, the Department of Oral Pathology offers a graduate program for students working toward the degree of Master of Science in Dentistry with a major in oral pathology.

- 331 Oral Pathology (5)** **Staff**  
The principles of pathologic processes as related to diseases of the mouth and adjacent structures. Required for third-year dental students.

## COURSES FOR GRADUATES ONLY

- 520 Seminar in Oral Pathology (1-3, maximum 9)** **Staff**  
Conferences, seminars and round table discussions of advanced topics and recent literature in oral pathology. Prerequisite, permission.
- 531 Oral Pathology (5)** **Staff**  
The purposes of this course are to train the student so that he may intelligently interpret manifestations of pathology as they occur in the oral cavity and to stimulate an intellectual curiosity regarding the basic pathological mechanisms responsible for these changes.
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## ORAL SURGERY

**Executive Officer: JOHN D. GEHRIG, B348 Health Sciences Building**

The Department of Oral Surgery provides training and clinical experience in the procedures used for all types of operations in the oral cavity.

In addition to the courses for undergraduate dental students, the Department of Oral Surgery offers a graduate program for students working toward the degree of Master of Science in Dentistry with a major in oral surgery.

## COURSES

- 200 Local Anesthesia (1)** **Gehrig**  
Introduction to methods of local anesthesia for dental and oral surgery. Review of the anatomy of the head and neck in relation to local anesthesia; review of the physical, chemical, and biological effects of local anesthesia; armamentarium; indications and contraindications for local anesthesia; injection technique; and the handling of postanesthetic complications. Lectures and clinical demonstrations on oral surgery patients.
- 300, 301, 302 Exodontia (1,1,1)** **Swenson**  
General principles of oral surgery practice; history taking and the performance of the oral examination; principles of asepsis; armamentarium; surgical techniques for the extractions of complicated teeth, impactions, soft and hard tissue surgery; pre- and postoperative care of the patient; types, prevention, and control of hemorrhage; dental emergencies with the fundamentals of diagnosis, treatment, and prevention of shock; inflammation and surgical bacteriology; anatomy of the fascial spaces and planes of the head and neck with the progress of oral infection through the same, and the appropriate anti-infective therapy.

- 303 General Anesthesia (1)** **Householder**  
Introduction to the use of general anesthesia for oral surgery; agents employed and the physiological action, including the stages of anesthesia; methods of administration; premedication of the patient; armamentarium; complications and accidents; agents designed primarily for administration to children. Lectures and clinical demonstrations.
- 331 Oral Surgery Laboratory (1)** **Gehrig, Staff**  
An introduction to the theoretical and technical aspects of exodontia and associated minor oral surgery is offered. A collation of the lecture material with clinical experience is presented with special emphasis on the medical conditions influencing dental surgery. Various operations, such as: biopsy; incision and drainage; hyperplastic tissue trim; buried root recovery; simple and surgical extractions; alveolectomy; perforated antrum care; and finally, maxillary and mandibular immediate denture surgery are performed on mounted models. Additional soft tissue surgery is performed during the dog surgery session. Practical clinical procedures, such as blood pressure determination; cuff test; venipuncture; intramuscular injection of penicillin; oxygen administration; artificial respiration; and tracheotomy palpation are practiced during the course. TV demonstrations of each procedure are performed prior to the laboratory session.
- 346 Clinical Exodontia (2)** **Gehrig, Staff**  
Dental extractions and minor oral surgery under local anesthesia. The student is responsible for the history, oral examination, X-ray diagnosis, clinical diagnosis, treatment planning, treatment, and postoperative treatment, under supervision of the staff. He assists a senior student on the more difficult cases and manages the simpler cases under the close supervision of the oral surgery staff. Opportunity is given for practical application of the principles of sterilization of supplies and instruments as well as the administration of local anesthetics and antibiotic, sedative, and analgesic drugs.
- 400, 401, 402 Oral Surgery (1,1,1)** **Gehrig, Staff**  
Major oral surgery: including the diagnosis and treatment of fractures of the jaw; bone grafting; disturbances of the temporomandibular articulation; affections of the fifth and seventh nerve; differential diagnosis and treatment of benign and malignant oral tumors; diagnosis and treatment of cysts and major salivary gland pathology, developmental deformities of the maxilla and mandible such as, prognathia, retrognathia, apertognathia, and the rudiments of oral plastic procedures; and the legal aspects of oral surgery.
- 403, 404 Maxillofacial Surgery (1,1)** **Gehrig, Swenson**  
Neoplasms and oncologic surgery of the head and neck and the fundamentals of maxillofacial and plastic surgery as well as emergencies in dental practice.
- 446 Clinical Oral Surgery (2)** **Gehrig, Staff**  
Advanced application of the principles of exodontia and minor oral surgery; directly supervised treatment of multiple extractions and preparation of the mouth for dentures; removal of unerupted or impacted teeth; removal of benign cysts and tumors of the maxilla and mandible; biopsies; management of oral infections.

## COURSES FOR GRADUATES ONLY

- 500, 501, 502 Oral Surgery Seminar (2,2,2)** **Gehrig, Swenson, Staff**  
A continuous weekly seminar devoted to oral surgery theory and literature and practical case reviews.
- 530 Clinical Pathology Conference (1)** **Gehrig, Swenson, Staff**  
A clinical pathology conference of clinic patients presented by graduate students.
- 540, 541, 542 Advanced Oral Surgery Clinic (3,3,3)** **Gehrig, Swenson, Staff**  
The clinical diagnosis and treatment of oral surgical conditions.
- 550 Anatomical Approaches to Head and Neck Surgery (2)** **Gehrig, Swenson, Staff**  
A study and laboratory dissection of the anatomical structures as they are found in major oral surgery procedures. Prerequisite, permission.
- 600 Research (\*)** **Gehrig, Swenson, Staff**  
An investigative program in one of the basic or clinical sciences under the direction of the departmental faculty. Prerequisite, permission.
- 700 Thesis (\*)** **Gehrig, Swenson, Staff**

## ORTHODONTICS

**Executive Officer: ALTON W. MOORE, B337 Health Sciences Building**

The objective of orthodontics is the prevention and correction of malocclusion of the teeth.

In addition to the courses for undergraduate dental students, the Department of Orthodontics offers a graduate program for students working toward the degree of Master of Science in Dentistry with a major in orthodontics.

## COURSES

- 300 Orthodontics (1)** **Kraus**  
Discussions and illustrations of the periodontal membrane, bone, and adjacent tissues as related to the forces of occlusion, of a balanced occlusion, and of the growth and development of the individual, with special emphasis on the head. Review of the major growth studies in the literature and their applications to dentistry and to orthodontics.

**400, 401 Advanced Orthodontics (1,1)****Erickson, Moore**

Brief historical review of the etiology of malocclusion; classification and analysis of cases; growth anomalies as well as deformities and their evaluation; the temporomandibular joint; the mandibular position as related to orthodontic case analysis; treatment planning; types of appliances and their uses; retention; the ultimate outcome of orthodontic treatment. Prerequisite, 300.

**COURSES FOR GRADUATES ONLY****500, 501, 502, 503, 504 Orthodontics Seminar (2,4,4,2,2)****Staff**

Methods of diagnosis, analysis, and treatment planning of malocclusion; analysis of methods and theoretical principles used in the treatment of malocclusion. The student presents a detailed case analysis and plan of treatment for each clinical patient he is supervising. Each course is a prerequisite to the following course.

**546, 547, 548, 549, 550, 551 Clinical Orthodontics (4,5,5,5,5,6)****Staff**

Technics of construction and manipulation of the edgewise arch mechanism; application of the technics in the treatment of malocclusion. Treatment of patients begins in the second quarter. Each course is a prerequisite to the following course.

**600 Research (\*)****Staff**

Prerequisite, permission.

**700 Thesis (\*)****Staff**

An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

**PEDODONTICS**

**Executive Officer: DAVID B. LAW, B343 Health Sciences Building**

The objective of the Department of Pedodontics is to provide the student with a broad understanding of the growth and the development of the child and the principles of preventive dentistry plus a working knowledge of the skills necessary for the maintenance of optimal dental health.

In addition to the courses for undergraduate dental students, the Department of Pedodontics offers a graduate program for students interested in working toward the degree of Master of Science in Dentistry with a major in pedodontics.

**COURSES****200, 201 Preventive Dentistry (1,1)****Law, Moore**

Etiology and control of dental caries. Physiology and composition of saliva, ecology of the mouth, chemical composition of teeth, degradation of carbohydrates, systemic factors in the caries process, enzyme inhibitors, fluorides, and caries susceptibility tests. Study of the growth and development of the oral mechanism and of the human head is begun in the second quarter; the forces of occlusion are analyzed and a comparison made between the various animal dentitions. The Broadbent-Bolton cephalometer is discussed, with particular emphasis on its research implications.

**216 Pedodontics (2)****Staff**

Operative technics applicable to primary and mixed dentitions; cavity preparations in primary teeth, construction of a functional space maintainer, and restoration of a fractured incisor.

**300, 301 Pedodontics (1,1)****Law**

Emotional development of the child and its implications in pedodontic procedures. Space maintenance, the interception of incipient malocclusion, and clinical management of oral habits.

**346 Clinical Pedodontics (3)****Staff**

Diagnosis and examination of the child patient. Restorative procedures in primary and mixed dentitions, with special emphasis on application of the rubber dam.

**400 Pedodontics and Public Health Dentistry (1)****Hoffman**

The child in the dental health program. Organization of dental health programs on local, state, and national levels. The role of the dentist in community public health planning. Public health legislation and its implications to the dental profession.

**446 Advanced Clinical Pedodontics (3)****Staff**

Diagnosis and treatment planning, with emphasis upon preventive dentistry. Complete operative procedures, including vital pulp therapy, construction of space maintainers, bite planes, and restoration of fractured anterior teeth.

**COURSES FOR GRADUATES ONLY**

- 500, 501, 502, 503, 504 Pedodontics Seminar (2,2,2,2,2)** **Law**  
Seminar on problems of tooth formation, development, calcification, and eruption in the child. Management of clinical problems of tooth development; operative procedures, pulp therapy, treatment planning, and the consideration of emotional factors in pedodontic practice.
- 546, 547, 548, 549, 550 Clinical Pedodontics (\*,\*,\*,\*,\*)** **Staff**  
Advanced clinical practice. Assignment of selected cases, with student responsibility for complete examination, diagnosis, and treatment planning including completion of the case. The use of appliances to effect limited tooth movement in cases of space closure and the application of the Broadbent-Bolton cephalometer in diagnosis and treatment.
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

**PERIODONTICS AND ENDODONTICS**

**Executive Officer: JOHN I. INGLE, B410 Health Sciences Building**

In this Department, students are taught the basic knowledge and technics necessary in diagnosing and treating diseases of the supporting structures and pulp of the teeth.

In addition to the courses for undergraduate dental students, the Department of Periodontics and Endodontics offers a graduate program for students working toward the degree of Master of Science in Dentistry with a major in periodontics and endodontics.

**COURSES****PERIODONTICS AND ENDODONTICS**

- 131 Oral Histology and Embryology (4)** **Ogilvie, Staff**  
A lecture-laboratory course dealing with the development of the facial region with emphasis on the oral and nasopharyngeal structures. Histology of enamel, dentin, dental pulp, cementum, periodontal membrane, alveolar bone, oral mucous membrane, maxillary sinus and temporomandibular articulation.

**PERIODONTICS**

- 200 Introduction to Periodontics (1)** **Bohannon, Staff**  
Illustrated lectures on elementary material necessary for clinical work.
- 231 Periodontic Technic (1)** **Ogilvie, Staff**  
A short lecture-laboratory course to indoctrinate the student into clinical periodontics.
- 300 Periodontics (2)** **Ogilvie, Staff**  
Illustrated lectures and discussions on fundamentals of periodontal disease and clinical problems in its treatment. Objectives of periodontal therapy; classification; diagnosis, prognosis and treatment planning; treatment methods; interrelationships of periodontics and other phases of clinical dentistry.
- 301 Periodontics (1)** **Stern, Staff**  
A continuation of Periodontics 300 (see above).
- 346 Clinical Periodontics (3)** **Staff**  
Treatment of routine cases of periodontal disease.
- 400 Advanced Periodontics (1)** **Stern, Staff**  
A lecture and seminar course discussing systemic factors in periodontal disease, clinical laboratory tests, nutritional deficiencies, occlusal dysfunction, preventive periodontics, and recent advances in periodontology.
- 446 Advanced Clinical Periodontics (3)** **Staff**  
Advanced and unusual cases of periodontal disease, including occlusal equilibration and periodontal surgery.

**COURSES FOR GRADUATES ONLY**

- 546, 547, 548 Clinical Periodontics (3,4,4)** **Schluger, Staff**  
The clinical diagnosis and treatment of periodontal disease.

- 549, 550, 551 Clinical Periodontics (3,4,4)** Schluger, Staff  
The clinical diagnosis and treatment of periodontal disease. Prerequisites, 546, 547, 548.
- 576, 577, 578 Periodontics Seminar (2,2,2)** Schluger, Staff  
A continuous weekly seminar devoted to review of periodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment.
- 579, 580, 581 Periodontics Seminar (2,2,2)** Schluger, Staff  
A continuation of the weekly seminars devoted to review of periodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment. Prerequisites, 576, 577, 578.
- 582, 583, 584 Treatment Planning Seminar (2,2,2)** Schluger, Staff  
A weekly seminar to discuss controversial treatment problems and difficult diagnostic cases.
- 585, 586, 587 Treatment Planning Seminar (2,2,2)** Schluger, Staff  
A continuation of the weekly seminar to discuss controversial treatment problems and difficult diagnostic cases. Prerequisites, 582, 583, 584.
- 591, 592, 593 Clinical Practice Teaching (1,1,1)** Inglo, Staff  
A closely supervised experience in teaching clinical periodontics to the undergraduate dental student. Prerequisites, 546, 547, 548, 576, 577, 578.
- 600 Research (\*)** Schluger, Staff  
An investigative program in one of the basic sciences under the direction of the departmental faculty. Prerequisite, permission.
- 700 Thesis (\*)** Schluger, Staff  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have clinical application.

## ENDODONTICS

- 201 Introduction to Endodontics (1)** Inglo, Zeldow  
A lecture course dealing with the anatomic, microanatomic, microbiologic, and pathologic problems encountered with the pulpless tooth and its sequelae.
- 232 Endodontic Technic (2)** Inglo, Staff  
A lecture-laboratory course in root canal therapy in terms of present-day concepts, with emphasis on a definite, simplified technic. Treatment of extracted teeth as practice for clinical cases.
- 304 Endodontics (1)** Inglo, Zeldow  
A lecture course in which is presented the differential diagnosis of facial pain, problems in pulp anesthesia, periapical surgery, and systemic antibiotic therapy.
- 349 Clinical Endodontics (2)** Staff  
The student is required to complete the endodontic treatment on an anterior, bicuspid, and molar tooth.
- 449 Advanced Clinical Endodontics (2)** Staff  
In addition to filling several root canals, the student performs periapical surgery and at least three minor operations (pulp capping, pulpotomy, or bleaching).

## COURSES FOR GRADUATES ONLY

- 546, 547, 548 Clinical Endodontics (3,4,4)** Inglo, Staff  
The clinical diagnosis and treatment of the pulpless tooth.
- 549, 550, 551 Clinical Endodontics (3,4,4)** Inglo, Staff  
The clinical diagnosis and treatment of the pulpless tooth. Prerequisites, 546, 547, 548.
- 560, 561, 562 Restoration of the Pulpless Tooth (2,1,1)** Morrison, Staff  
A lecture-clinical course emphasizing the restorative problem peculiar to the pulpless tooth.
- 576, 577, 578 Endodontic Seminar (2,2,2)** Inglo, Staff  
A continuous weekly seminar devoted to review of endodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment.
- 579, 580, 581 Endodontic Seminar (2,2,2)** Inglo, Staff  
A continuous weekly seminar devoted to review of endodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment. Prerequisites, 576, 577, 578.
- 582, 583, 584 Treatment Planning Seminar (2,2,2)** Inglo, Staff  
A weekly seminar to discuss controversial treatment problems and difficult diagnostic cases.
- 585, 586, 587 Treatment Planning Seminar (2,2,2)** Inglo, Staff  
A continuation of the weekly seminar to discuss controversial treatment problems and difficult diagnostic cases. Prerequisites, 582, 583, 584.
- 591, 592, 593 Clinical Practice Teaching (1,1,1)** Inglo, Staff  
A closely supervised experience in teaching clinical endodontics to the undergraduate dental student. Prerequisites, 546, 547, 548, 576, 577, 578.
- 600 Research (\*)** Inglo, Staff  
An investigative program in one of the basic sciences under the direction of the departmental faculty. Prerequisite, permission.
- 700 Thesis (\*)** Zeldow, Staff  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have clinical application.

## PROSTHODONTICS

**Executive Officer: HARRY A. YOUNG, C404 Health Sciences Building**

The Department of Prosthodontics offers instruction in the construction and fitting of artificial dentures.

In addition to the courses for undergraduate dental students, the Department of Prosthodontics offers a major for students working toward the degree of Master of Science in Dentistry through the restorative dentistry graduate program.

### COURSES

- 131 Complete Denture Technic (8)** **Bolender, Staff**  
Theories, principles, and technics of constructing complete dentures.
- 231, 232 Removable Partial Denture Technic (4,4)** **Wykhuis, Staff**  
Theories, principles, and technics of constructing removable partial dentures.
- 300, 301, 302 Complete Denture Prosthodontics (1,1,1)** **Young**  
Evolution of concepts and operative procedures employed in clinical complete denture treatments.
- 303, 304 Removable Partial Denture Prosthodontics (1,1)** **Wykhuis**  
Evolution of clinical procedures and concepts; discussion of operative procedures employed in clinical removable partial denture treatments.
- 346 Junior Clinical Prosthodontics (8)** **Staff**  
Clinical treatment of edentulous and partial edentulous patients.
- 400, 401 Advanced Complete Denture Prosthodontics (1,1)** **Young, Special Lecturers**  
Evolution, development, and requirements of dental articulators; theories and concepts of mandibular movements and denture occlusions; maxillofacial prosthesis and special appliances; variations in concepts and office practice procedures.
- 402 Advanced Removable Partial Denture Prosthodontics (1)** **Wykhuis, Special Lecturers**  
Concepts related to stress control, methods of construction, and materials used. Biological and physical considerations in designing. Indications and uses of specialized appliances.
- 446 Senior Clinical Prosthodontics (5)** **Staff**  
Clinical treatment of edentulous and partial edentulous patients. Construction of complete dentures and removable partial dentures; repairs of both types of dentures.

### COURSES FOR GRADUATES ONLY

- 560 Complete Dentures (4)** **Young**  
A seminar-clinic course in complete denture treatments. Discussions of diagnosis and treatment planning; variations in basic denture procedures; the surgical operations of preparing the ridges for dentures; tissue reaction and wound healing; postoperative care; patient information. Clinical operations using procedures and equipment for denture construction.
- 561 Immediate Dentures (4)** **Young**  
A seminar-clinic course in immediate denture treatments. Discussions of diagnosis and treatment planning; variations in basic denture procedures; the surgical operations of preparing the ridges for dentures; tissue reaction and wound healing; postoperative care; patient information. Clinical operations using procedures and equipment for denture construction.
- 562 Removable Partial Dentures (4)** **Young**  
A seminar-clinic course in removable partial denture treatments. Discussions of diagnosis and treatment planning, stressing mucosa, bone, and abutment teeth, and the influence of natural and modified tooth crown on abutment values. Clinical operations using procedures and equipment for removable partial denture construction.
- 563 Obturators and Speech Appliances (2)** **Beder**  
A lecture-seminar and laboratory course dealing with the theories, principles, and technics of clinical treatments, the construction and application of remedial appliances related to congenital and acquired defects of the palate and contiguous tissue. Clinical experience will be incorporated when suitable cases are available.
- 564 Definitive and Adjunctive Maxillofacial Appliances (2)** **Beder**  
A lecture-seminar and laboratory course dealing with the theories, principles, technics of clinical treatment; the construction and application of vehicular, protective, and remedial appliances related to somato defects, osteotomized and ostectomized mandibles, irradiation therapy, stents, splints, and cranial defects. Clinical experience will be incorporated when suitable cases are available.
- 700 Thesis (\*)** **Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.



## MAXILLOFACIAL PROSTHESIS CLINIC

Director: OSCAR E. BEDER, B134 Health Sciences Building

This clinic is a service clinic available to the public and all departments of the University for treatment falling in the maxillofacial field of prosthodontics. Treatment usually consists of constructing and fitting planned remedial and restorative appliances for losses or defects in the oral or facial regions. Expedient prosthodontic appliances are fabricated for losses and defects of other body areas and for adjunctive therapy of patients. Assistance is also rendered in developing special devices used for research and teaching by various departments.

## PROSTHODONTIC LABORATORY

BERNARD LANGDON, Chief Technician

GEORGE YAMAMOTO, Technician

This laboratory furnishes prosthodontic technician services to undergraduate students of the department and for the department's maxillofacial section. The laboratory furnishes its services to other Departments of the school and graduate students when requested.

## CONJOINT COURSES

Conjoint courses are offered cooperatively by departments in the School of Dentistry. They are designed to integrate clinical training in two or more fields.

### 361 Clinical Orientation (0)

Hamilton, Korn, Staff

A course for third year students prior to the beginning of Autumn Quarter. It is designed to familiarize the student with clinical equipment and procedures and initiates the transition of thought from technical and laboratory methods to clinical application of them. It includes student exercises on each other in prophylaxis, rubber dam applications, and local anesthetic injections in preparation for treatment of patients.

### 400 Occlusion (0)

Bohannon, Staff

A course designed for seniors to acquaint them with the broad involvements of occlusion problems in dentistry. Representatives of the various departments lecture or conduct laboratory courses each week of the Autumn Quarter. Such sessions develop the interpretation of occlusion types, the frequency of their occurrence, the causes, trauma of, and the procedures of correcting malocclusions of natural and artificial dentures, whether complete or partial.

### 402 Applied Therapeutics and Prescribing (0)

Zeldow, Staff

A lecture course designed to reacquaint the senior student with the pharmacologic action and therapeutic use of the antibiotics, analgesics, sedatives and tranquilizing agents. Lecturers from the Departments of Microbiology, Pharmacology, Medicine, Oral Surgery, and Periodontics and Endodontics present the background and clinical application of drugs in this fast-moving field.

### 532, 533, 534 Basic Science (3,4,4)

Ogilvie, Sreebny, Zeldow

Seminars on clinical pathologic phenomena with their basic causal factors discussed from inter-disciplinary viewpoints.

## DENTAL HYGIENE

Director: ESTHER M. WILKINS, B214-B Health Sciences Building

Two years of pre-dental hygiene courses in the College of Arts and Sciences, followed by a two-year program in dental hygiene, lead to a Bachelor of Science degree with a major in Dental Hygiene or Public Health Dental Hygiene. The educational program is approved by the Council on Dental Education of the American Dental Association.

Two curricula are offered. Undergraduate students take the basic curriculum, which provides a background in the educational and clinical skills required for the professional practice of dental hygiene. Students who have received certificates in dental hygiene from other schools take a curriculum to prepare them for spe-

cialized positions in Public Health Dental Hygiene or Dental Hygiene Education.

The dental hygiene student learns and practices her future role as a member of the dental health team. She learns to provide clinical and educational services that include the oral prophylaxis (cleaning and polishing of teeth), the making and processing of dental X-ray surveys, the application of fluoride solutions for prevention of dental caries, and the teaching of dental health facts to children and adults. The program is planned to give the student the wide range of professional experience available in a health sciences center. The dental hygiene student is encouraged to develop habits, interests, and attitudes favorable to her continued professional growth.

## ADMISSION REQUIREMENTS

**ENTRANCE TO THE UNIVERSITY.** An applicant must meet the requirements of the College of Arts and Sciences as outlined in the *College of Arts and Sciences Bulletin*.

**PREDENTAL HYGIENE, BASIC CURRICULUM.** The basic curriculum is open to women of good health between the ages of 18 and 35. The student must complete 90 quarter credits in an accredited college or university and satisfy the required quarters of physical education activity. The Committee on Dental Hygiene Admissions requires the following courses given at the University of Washington:

English 101, 102, 103.....	Composition .....	9
Biology 101J-102J .....	General Biology .....	10
Chemistry 100 or 110 .....	General Chemistry.....	4 or 3
Chemistry 120 .....	General and Organic Chemistry.....	5
Health Education 110.....	Health Education .....	2
Physics 170 .....	Intro. to Health Sciences Physics.....	5
Psychology 100 .....	General Psychology .....	5
Sociology 110 .....	Survey of Sociology .....	5
Speech 120 .....	Intro. to Public Speaking.....	5
Electives in Humanities .....		10
Electives in Social Sciences (Soc. 110 may be counted in this).....		20
Other electives of student's choice.....		10 or 11
Physical Education Activity courses .....		3

Students who are taking their preprofessional training at the University of Washington follow the two-year predental hygiene program offered in the College of Arts and Sciences (see the *College of Arts and Sciences Bulletin*). Students in other institutions should check the course descriptions given in the *Bulletin*, compare the above listed courses with those given in their schools, and seek the advice of the Registrar for course equivalents. It is recommended that students who anticipate transferring to the University of Washington request an evaluation of the credits obtained during their first year of study. This may be accomplished by writing directly to the Department of Dental Hygiene.

**DENTAL HYGIENE APTITUDE TEST.** All dental hygiene applicants are required to take the aptitude test given under the auspices of the American Dental Hygienists' Association. The test is given only twice each year and an applicant must plan to take the test prior to the March 1 application. Information about the test and the dates and places it is given may be obtained from the Department of Dental Hygiene in the School of Dentistry.

**GRADUATE CURRICULUM.** Admission requirements to the University and the predental hygiene requirements listed above are the same as those listed for the basic curriculum. In addition, the candidate must be a graduate of a school of dental hygiene approved by the American Dental Association, Council on Dental Education.

## APPLICATION PROCEDURE

One class of dental hygiene students is admitted each spring to begin study in the Summer Quarter. On or before March 1, each applicant must submit the following:

1. Formal application on the form provided by the Committee on Dental Hygiene Admissions, School of Dentistry.
2. Official transcripts of high school and college records. Transcripts must be sent directly to the Committee on Dental Hygiene Admissions, School of Dentistry, from the Registrar's office of each institution in which predental hygiene education was obtained.
3. A written list of subjects which the applicant is taking or will take to complete the requirements.
4. At least two letters of recommendation, one from a science instructor and one from a business or professional person.

Additional transcripts must be provided by the applicant to show courses completed during each subsequent quarter following application.

## PROCESSING OF APPLICATIONS

**EVALUATION OF CREDENTIALS.** The Committee on Dental Hygiene Admissions reviews the credentials and bases its decision on the objective evaluation of preprofessional education, scholastic records, residence of the applicant, dental hygiene aptitude test rating, and personal characteristics of the applicant.

**PERSONAL INTERVIEW.** Eligible applicants are interviewed by the Committee on Dental Hygiene Admissions. The interview is held at the School of Dentistry and the applicant is notified of the date and time. The purposes of the interview are to acquaint the Committee with the applicant and to answer any questions the applicant may have regarding the program.

**NOTIFICATION OF ACCEPTANCE OR REJECTION.** Candidates are given written notice of acceptance or rejection of their application as soon as possible after the Committee on Admissions has reached a decision. Applicants are requested to reply in writing to indicate their acceptance of the appointment.

## TUITION AND FEES

Students in the dental hygiene curriculum pay the regular tuition of the School of Dentistry (see page 26). Additional expenses for uniforms, instruments, and other equipment approximate \$250 for the two years.

## BASIC CURRICULUM

**MAJOR IN DENTAL HYGIENE.** This program includes specific courses in the Schools of Dentistry and of Medicine and the Colleges of Pharmacy and of Arts and Sciences. The student takes in sequence all the courses offered for undergraduates in the Department of Dental Hygiene and the following additional courses: Conjoint (Medical) 317-318 (Elementary Anatomy and Physiology); Education 209 (Educational Psychology); Education 188 (Principles of Education); Home Economics 300 (Nutrition); Microbiology 301 (General Microbiology); Pathology 310 (General Pathology); Health Education 292W (First Aid and Safety); Pedodontics 200 (Preventive Dentistry); Pharmacy 352 (Pharmacy and Therapeutics for Dental Hygienists); Psychiatry 450, 451 (Principles of Personality Development); and Public Health 423 (Public Health Organizations and Services), 464 (Community Health Education Techniques), and 485J (School Health Problems).

A total of 180 academic credits is required for graduation.

## GRADUATE DENTAL HYGIENISTS' CURRICULUM

This program provides dental hygienists with the opportunity to supplement their previous education with the background necessary for positions in administration, teaching, and public health. Students choose a major in either dental hygiene or public health dental hygiene. The requirement for graduation in this curriculum is a total of 180 academic credits, which must include predental hygiene requirements, courses listed for the basic curriculum, and the course requirements for one of the majors. Credit toward graduation is granted for academic and professional courses previously taken at an approved college or school of dental hygiene.

**MAJOR IN DENTAL HYGIENE.** Students must fulfill the requirements of the pre-professional program and the basic curriculum. They must have a total of 36 to 46 credits in dental hygiene, including a minimum of 10 taken with this Department. When teaching in dental hygiene is the chosen goal, additional courses in the College of Education are selected.

**MAJOR IN PUBLIC HEALTH DENTAL HYGIENE.** Students must fulfill the requirements of the preprofessional program and the basic curriculum. Required credits include 36 to 46 in dental hygiene (a minimum of 10 taken with this Department); 36 in public health (to meet health education option requirements in the Department of Public Health and Preventive Medicine in the School of Medicine); and 36 in biological and physical sciences (including those taken in the preprofessional program).

The Public Health Traineeship Program of the United States Public Health Service offers awards to dental hygienists for undergraduate public health training.

## COURSES FOR UNDERGRADUATES

- |  |   |
|--|---|
| <b>300 Dental Procedures (3)</b>   | <b>Staff</b>                                  |
| Lectures and demonstrations in dental procedures, dental specialties; emphasis on the role of auxiliary personnel.   |   |
| <b>331 Dental Anatomy (4)</b>  | <b>Hodson</b>                                 |
| Morphology of permanent and primary teeth; sketching and carving of essential units.   |   |
| <b>332 Dental Materials (2)</b>  | <b>Gilbert</b>                                |
| Survey of the physical and chemical properties of dental materials, with laboratory experience in their manipulation.  |   |
| <b>333 Oral Radiographic Technique (2)</b>   | <b>Staff</b>                                  |
| Principles and procedures in radiographic technique with clinical experience.  |   |
| <b>334 Oral Histology (3)</b>  | <b>Stern</b>                                  |
| Development and microscopic anatomy of structures of the oral cavity.  |   |
| <b>335 Oral Prophylaxis (2)</b>  | <b>Sutherland, Wilkins</b>                    |
| Objectives and principles of oral hygiene; instrumentation and procedure of oral prophylaxis, topical fluoride application, oral inspection, and dental health instruction.  |   |
| <b>346 Clinical Dental Procedures (1)</b>  | <b>Wilkins, and School of Dentistry Staff</b> |
| Observation and clinical assisting in School of Dentistry clinics.   |   |
| <b>347 Clinical Oral Prophylaxis (1)</b>   | <b>Staff</b>                                  |
| Clinical experience in the performance of oral prophylaxis, topical application of fluoride, and dental health instruction for patients.   |   |
| <b>401 Office Procedure and Ethics (2)</b>   | <b>Staff</b>                                  |
| Dental office and clinic procedure; dental and dental hygiene ethics, professional interrelationships.   |   |
| <b>402 Community Dental Health (3)</b>   | <b>Fales</b>                                  |
| Application of educational principles to dental health teaching; instruction in planning for community dental health programs including actual dental survey experience; evaluation of dental health teaching materials. |   |
| <b>403, 404 Principles of Dental Hygiene Practice (1,1)</b>  | <b>Fales, Wilkins</b>                         |
| Presentation and analysis of dental health problems, with emphasis on advanced dental health instruction; experience in presentation of dental health material to groups.  |   |
| <b>405, 406 Oral Pathology (1,1)</b>   | <b>Sreebny, Yamane</b>                        |
| Study of diseases and abnormalities of the hard and soft tissues of the oral cavity. Prerequisite, 405 for 406.  |   |
| <b>407, 408 Principles of Periodontology (1,1)</b>   | <b>Losh</b>                                   |
| Classification, etiology, and principles of treatment of periodontal diseases and the relationship of these to dental hygiene practice. Prerequisite, 407 for 408.   |   |

- 446 Field Practice (2)** **Fales, Wilkins**  
Advanced dental hygiene practice, including work in the University Child Health Center, in a public health department, hospitals, clinics, and schools.
- 447, 448, 449 Dental Hygiene Practice (2,2,2)** **Staff**  
Advanced application of the principles of clinical dental hygiene.

## COURSES FOR GRADUATE DENTAL HYGIENISTS

- 491 Seminar in Dental Hygiene (2)** **Wilkins, Staff**  
Study of professional education, accreditation, legislation, organization, and literature. Responsibilities of the dental hygienist to the community.
- 492 Readings in Current Literature in Dental Hygiene and Preventive Dentistry (2)** **Wilkins, Staff**  
Discussion of reported readings and survey of background material, with emphasis on dental research and its application to dental health education.
- 493 Problems in Dental Hygiene (2-4)** **Wilkins**  
Problems for study directed toward increased understanding in the selected field of practice. Presentation of background, objectives, program, and evaluation.
- 494 Principles of Teaching in Dental Hygiene (2)** **Staff**  
Application of principles of learning to teaching methods and techniques effective in dental hygiene, with opportunity for course planning, demonstration, and practice teaching.

## OTHER COURSES REQUIRED FOR DENTAL HYGIENE STUDENTS

- Conjoint (Medical) 317-318 Elementary Anatomy and Physiology (6-6)** **Skahen, Staff**  
Human physiology with anatomical demonstration. An elementary course integrating anatomy, histology, physiology, and biochemistry of the human body. Offered by the Departments of Anatomy, and of Physiology and Biophysics. For nursing and dental hygiene students.
- Education 188 Principles of Education (3)** **Boroughs**  
Contemporary education is subjected to historical and philosophical analysis. Visitation arrangements are arranged for on the elementary, junior, and senior high school levels.
- Education 209 Educational Psychology (3)** **Foa**  
The psychological basis of education. Recent experimentation. Prerequisites, Psychology 100 and a course in child development.
- Home Economics 300 Nutrition (2)** **Crum**  
Importance of food to the maintenance of health; nutritive values and human needs emphasized; ways of meeting human requirements at different cost levels. For nonmajors in home economics.
- Microbiology 301 General Microbiology (5)** **Rickenberg**  
Microorganisms and their activities. For students of pharmacy, nursing, home economics, education, and others interested in a one-quarter survey course, with minimal training in chemistry. Prerequisite, two quarters of general chemistry.
- Pathology 310 General Pathology (2)** **Wiegenstein**  
Study of causes, processes, and effects of important diseases. Lectures, demonstrations, and discussions. A reasonable knowledge of anatomy, histology, and physiology is required. For students of dental hygiene and medical technology; others by permission.
- Pedodontics 200 Preventive Dentistry (1)** **Lewis**  
Etiology and control of dental caries. Physiology and composition of saliva, ecology of the mouth, chemical composition of teeth, degradation of carbohydrates, systemic factors in the caries process, enzyme inhibitors, fluorides, and caries susceptibility tests.
- Pharmacy 352 Pharmacy and Therapeutics for Dental Hygienists (3)** **Staff**  
Principles of pharmacy; mathematics of pharmacy; pharmacological and therapeutic action of drugs pertaining to dentistry.
- Health Education 292W First Aid and Safety (3)** **Staff**  
The student may meet requirements for both standard and advanced American Red Cross first aid certification. Includes safety education in schools.
- Psychiatry 450 Principles of Personality Development (2)** **Kaufman**  
Discussion of the principles of personality development and the problems most commonly met. Consideration will be given to the physiologic, psychologic, and cultural factors from infancy through adolescence. For nonmedical students. Not open to students who have taken 267.
- Psychiatry 451 Principles of Personality Development (2)** **Heilbrunn**  
Continuation of 450. Consideration will be given to the physiological, psychological, and cultural factors from maturity through old age. For nonmedical students. Prerequisite, 450 or permission.
- Public Health 423 Public Health Organizations and Services (3)** **Staff**  
Public health organization and activities; introduction to health education. For public health majors and students of nursing and dental hygiene; others by permission.

**Public Health 464 Community Health Education Techniques (3)****Vavra**

Practice in the techniques of working with groups; preparation and use of visual education materials. Prerequisite, 423 or 461, or permission.

**Public Health 485J School Health Problems (2)****Leahy, Vavra**

Analysis of and planning for school health programs based on developmental needs of the school-age child. Offered jointly with the School of Nursing. Prerequisite, permission.

## CONTINUATION DENTAL EDUCATION

**Director, Berton E. Anderson****B322 Health Sciences Building**

To provide for the ever-expanding developments in method and related subject matter in dentistry, a number of short, intensive one-week and two-week, as well as more extensive courses, are offered at various times in each special area of dentistry. This is considered to be the primary means for the practicing dentist to extend his professional horizons and to make possible a better professional service. Instructors are chosen from national and international sources to provide this service. Since these courses are highly specialized no specific course content may be conveniently listed. A list of forthcoming courses may be procured from the Office of the Director.

## GRADUATE STUDY IN THE SCHOOL OF DENTISTRY

**Director, Saul Schluger****B322 Health Sciences Building**

### MASTER OF SCIENCE IN DENTISTRY

The School of Dentistry offers, through the Graduate School, course work leading to a Master of Science in Dentistry degree with a major in endodontics, oral pathology, oral surgery, orthodontics, pedodontics, periodontics, and restorative dentistry (fixed partial dentures, operative dentistry, prosthodontics).

### ADMISSION

An applicant is eligible for admission to the Graduate School for work leading to a Master of Science in Dentistry degree provided he is a graduate of a School of Dentistry approved by the Council on Dental Education of the American Dental Association, or of a university dental school, located outside of the North American continent, whose curriculum and admission requirements are similar to those of the School of Dentistry, University of Washington. The candidate must also meet the admission requirements of the Graduate School of the University of Washington.

After a candidate has been declared eligible for admission to the Graduate School, his acceptance as a student must be approved by the Graduate Admissions Committee of the School of Dentistry. This approval will be based upon the availability of places in the various classes. A maximum of ten students can be accommodated each year in orthodontics, two in pedodontics, and varying numbers, not to exceed two, in each of the three phases of restorative dentistry, depending upon the availability of teaching and research staff members. There are five openings for majors in periodontics, two in endodontics, and one in oral surgery, commencing every Autumn Quarter.

**RESIDENCE**

A minimum of six consecutive quarters (18 months) of residence is required for the Master of Science in Dentistry degree with a major in orthodontics, eight quarters (24 months) in periodontics or endodontics; five quarters (15 months) in pedodontics; three quarters (9 months) in restorative dentistry; three quarters (9 months) of residence for oral surgery, plus two-year hospital residency, combined academic and hospital work. Under the program for restorative dentistry, the student determines his major (operative dentistry, fixed partial dentures, or prosthodontics) by the electives he selects. No foreign language is required.

**PROGRAMS**

The programs are planned to prepare students to think independently, to evaluate their own services and the literature, and to develop their clinical operative skills to a level to permit the successful practice of their chosen specialty. Emphasis is placed on the basic principles of diagnosis and treatment, which comprise the clinician's most valuable armamentarium. The seminar method of teaching is generally used. The purpose of the programs is not only to train students in the art of their respective specialties, but to also encourage basic science research in the specialties on a graduate level in possible preparation for academic careers or for research. The research may be undertaken in the major department or in co-operation with other departments. The opportunity for collaborative research is excellent because of the close proximity of the other colleges and departments in the University.

**CLASS SCHEDULES**

The graduate programs of the School of Dentistry operate on the quarter system of the University. There are three 11-week quarters in the academic school year. In order for the graduate dental programs to be continuous, the Summer Quarter has also been made an 11-week quarter, or equivalent in length to the other quarters in the school year.

**APPLICATION PROCEDURE**

Applications are received and processed throughout the school year from candidates desiring to work for a Master of Science in Dentistry degree with a major in any one of the major fields previously listed. Applications for admission to the orthodontics curriculum, along with all necessary credentials, must be submitted on or before December 1 for consideration for entrance in the following Autumn Quarter. Applicants for admission to all other curricula must have complete credentials on file by July 1. This applies to all new students seeking admission as graduates. It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.

**POSTGRADUATE INSTRUCTION: CERTIFICATES IN DENTISTRY**

Requirements for admission to the postgraduate programs of study for dental certificates are similar to those for admission to graduate study for the master's degree. The postgraduate student is required to maintain the same academic standards as the graduate student. These programs are not administered by the Graduate School and no thesis is required. The course content may vary somewhat from the graduate program. This will depend upon the department in which the course is taken.

Following the successful completion of the prescribed courses during the required residency, a Certificate in orthodontics, pedodontics, periodontics or restorative dentistry will be granted to the postgraduate student by the School of Dentistry. The fees per quarter are the same as for graduate training and the residency requirements remain the same. For further information and particulars regarding graduate study in the School of Dentistry address: Director of Graduate Dental Education, School of Dentistry, University of Washington, Seattle 5, Washington.

## DENTISTRY

The courses listed here are for graduate and certificate dental students only. These courses include subject material applicable to all phases of dentistry and may be applied toward the major requirement for the degree of Master of Science in Dentistry.

### COURSES FOR GRADUATES ONLY

- 416 Scientific Methodology in Dental Research (3)** **Kraus**  
Principles of scientific methodology and basic statistics. Problem definition. Principles of classification. Collection of data. Techniques of analysis. Formation of hypothesis. Search of the literature. Experimentation. Sampling techniques. Graphic presentation of material. Ordering of quantitative data. Phenomena of distributions of biological data. Tests of significance, and their interpretation.
- 417 Scientific Methodology in Dental Research (3)** **Kraus**  
Advanced biometric techniques. Analysis of variance and co-variance. Linear and curvilinear regression. Multiple regression and analysis of variance. Orthogonal polynomials. Experimental designs: general principles, precision, replications. Randomized blocks and Latin squares. Incomplete block designs.
- 500-501 Advanced Oral Histology, Pathology, and Embryology (2-2)** **Staff**  
Lectures and seminar discussions on the details of development, histology, and pathology of cranial, facial, and oral structures, with emphasis on clinical application of basic knowledge. (Department of Periodontology)
- 510 Applied Osteology and Myology of the Head and Neck (2)** **Kraus, Moore, Riedel**  
Detailed study as a background for the study of the growth and development of the head and for cephalometric roentgenogram interpretation. (Department of Orthodontics)
- 511 Roentgenographic Cephalometry (2)** **Bolton, Moore**  
Basic principles, history, and techniques of roentgenographic cephalometry. (Department of Orthodontics)
- 512, 513 Growth and Development (2,2)** **Moore**  
Review of the various methods of studying human growth, with special emphasis upon growth of the head, and study of the development of the dentition from birth through maturity; analysis of the factors that produce normal occlusion and malocclusion. Prerequisite, 512 for 513. (Department of Orthodontics)
- 514 Genetics and Its Applications to Dental Problems (2)** **Kraus**  
Genes and the nature of genic action. Significance of mitosis and meiosis. Hereditary syndromes involving cranial structures. Introduction to population genetics. Genetics of the blood groups and their medico-legal implications. Hereditary aspects of the human dentition.
- 515 Evolution of the Human Cranio-facial Complex (2)** **Kraus**  
Darwinism and the genetic basis for biological evolution. Principles of evolution. Palaeontological evidence of human evolution. Evolution of the cranio-facial complex. Evolution of the dentition. Malocclusion from the genetic and phylogenetic perspectives. Variability in the craniofacial complex and its interpretation in terms of evolution.
- 518 Scientific Methodology in Dental Research (2)** **Kraus**  
Critical review of dental literature. Application of principles learned in Dentistry 416 and 417 to selected monographs and papers in dentistry and related fields of the basic sciences.
- Conjoint 532, 533, 534 Basic Science (3,4,4)** **Ogilvie, Sreebny, Zeldow**  
Seminars on clinical pathologic phenomena with their basic causal factors discussed from inter-disciplinary viewpoints.
- 535 Oral Microbiology (3)** **Zeldow**  
An advanced lecture-laboratory survey of the oral flora and diseases related to their activity.
- 560, 561, 562 Periodontic Rehabilitation (2,1,1)** **Morrison, Staff**  
A lecture-clinic course emphasizing the restorative rehabilitation of the periodontally involved dentition.
- 563 Minor Tooth Movement (2)** **Moore, Staff**  
A lecture-clinic course dealing with minor tooth movement necessary to successful periodontal therapy. Prerequisite, permission.
- 580 Gnathodynamics (2)** **Moore, Young**  
A seminar devoted to a comprehensive review of the temporomandibular joint and its associated structures. Thorough review of the anatomy and growth processes of the head and oral mechanism, with special emphasis upon the functional aspect of the human denture. Study of the instruments designed to imitate jaw movement and their effectiveness, together with the pathologies of the temporomandibular joint. (Departments of Orthodontics and Prosthodontics)
- 581 Restorative Treatment Planning (4)** **Stibbs, Staff**  
Coordinated application of knowledge gained from both graduate and undergraduate courses to the diagnosis and treatment of the more complicated cases. (Department of Operative Dentistry)



- 582 Cast Metal Restorations (4)** **Morrison, Staff**  
 Metallography of cast metals; physical properties of waxes and investments. Control of shrinkage. Interrelationships of physical properties of metals and physiology of oral tissues; thermal conductivity and pulpal response; galvanism; tissue tolerance in respect to various metals. Direct and indirect technics. Principles of cavity preparation that apply specifically to cast restorations. (Department of Fixed Partial Dentures)
- 588, 589, 590 Seminar in Occlusion (2,2,2)** **Bohannon, Staff**  
 Seminars in the physiology of occlusion. For other graduate course offerings see individual departmental listings.

## COURSES INCLUDED IN SCHOOL OF DENTISTRY PROGRAMS

- Anatomy 405-406 Microscopic and Submicroscopic Anatomy (3-5)** **Bennett**  
 Essentials of microscopic, submicroscopic, and chemical anatomy. Required for first-year medical students. Prerequisite for nonmedical students, permission.
- Biochemistry 401, 402 Biochemistry (5,3)** **Staff**  
 Lectures and conferences in the first quarter cover the fundamentals of biochemistry. The second quarter emphasizes metabolism in man. Laboratory exercises are introduced in the second quarter. Required for first-year medical students; open to a limited number of students with allied interests. Prerequisites, Chemistry 242 for 401; 401 for 402; and permission.
- Psychiatry 400 Human Personality Development and Behavior (\*, maximum 3)** **Staff**  
 Emotional and personality development from infancy through old age; the adaptation of the individual to his environment, with attention to the roles of heredity, constitution, physical changes, and family and social relationships as determinants in psychodynamics. Comparative personality development is illustrated by animal and human behavior.
- Psychiatry 430 Psychopathology (\*)** **Ripley, Staff**  
 Abnormalities of behavior, thinking, and feeling, and the structural and psychological factors that produce them. Anxiety, depression, elation, withdrawal, repression, compensation, projection, and other personality reactions are discussed. Required for second-year medical students.
- Psychiatry 450 Principles of Personality Development (2)** **Kaufman**  
 Discussion of the principles of personality development and the problems most commonly met. Consideration will be given to the physiologic, psychologic, and cultural factors from infancy through adolescence. For nonmedical students. Not open to students who have taken Psychiatry 267.

For other graduate course offerings see individual departmental listings.

## ROSTER OF STUDENTS IN DENTISTRY

## CLASS OF 1963

- ALLEN, Ronald Lloyd, Hyrum, Utah  
Utah State University
- BAKKEN, Gary Dan, Spokane  
B.S., Whitworth College
- BARTA, Robert Lee, Pocatello, Idaho  
Idaho State  
Brigham Young University
- BECHTOLD, Ronald Roy, Seattle  
University of Washington
- BRODERSON, William Edward, Spokane  
B.S., University of Idaho
- BROWN, Wallace, Salt Lake City  
Brigham Young University
- BULLOCK, Gerald Alvin, Welling,  
Alberta, Canada  
B.A., Brigham Young University
- CALDWELL, Clifton Ormond, Jr., Spokane  
University of Washington
- DAMON, Floyd Allen, Spokane  
Washington State College
- DAVIDSON, Thomas George, Mercer Island  
University of Washington
- DORIUS, Stanley Floyd, Harley, Idaho  
Utah State
- DUOOS, Richard Duane, Seattle  
B.A., University of Washington
- EASTHAM, Richard Milton, Ephrata  
B.S., University of Washington
- EVERETT, Gaither Bruce, Ashland, Oregon  
Southern Oregon College
- GAGE, Ronald Lee, Boise, Idaho  
Boise Junior College
- HANSEN, Leland, Everett  
University of Washington
- HARMON, Ronald Earl, Seattle  
B.A., Pacific Lutheran College
- HORNBECK, Donald, Ellensburg  
Central Washington College of Education
- JANKELSON, Robert Reed, Seattle  
University of Washington
- JONES, Thomas Richard, Seattle  
University of Washington
- JONES, William Junis, Cut Bank, Montana  
Montana State College
- JOSS, Peter Alexander, Spokane  
University of Washington
- JUDYSKI, Nicholas, North Burnaby,  
B.C., Canada  
B.A., University of British Columbia
- KENNEDY, Arthur Edward, Wenatchee  
Gonzaga
- KNAPP, Robert LeRoy, Jr., Tacoma  
College of Puget Sound  
Olympic College
- KUTZ, Paul Leonard, Seattle  
B.A., University of Washington
- LESHGOLD, Richard Dean, Seattle  
B.S., University of Washington
- LLOYD, Aaron Doyle, Tacoma  
B.A., University of Washington
- MATICH, Joseph, Everett  
B.A., Whittier
- McDADE, Edward J., Centralia  
A.A., Centralia Junior College
- McKAY, Glenn Boyd, Prosser  
University of Washington  
Central Washington College of Education
- MILHOLLAND, Robert Louis, Everett  
B.S., Annapolis
- MOCK, James Irwin, Kirkland  
B.S., Washington State College
- MOCK, Wilbur Dean, Seattle  
B.A., Whitman
- MOORE, Jack Lowell, Cut Bank, Montana  
Montana State University
- MYATT, Richard Glenn, Olympia  
University of Washington
- PATELLI, Lorenzo Peter, Seattle  
Seattle University
- PEARSON, Kenneth, Seattle  
B.A., Central Washington College of  
Education
- PEBBLES, Harold Alba, Tr., Olympia  
B.A., University of Washington
- PERINE, David Zane, Seattle  
University of Washington
- RICHARDS, William Gordon, Jr., Spokane  
B.A., University of Washington
- ROHN, Delbert, Eugene, Garfield  
University of Idaho
- ROSENDAHL, William Wellington, Seattle  
Florida State  
University of Washington
- SASAI, Taro, Seattle  
A.A., East Los Angeles Junior College
- SAVAGE, David Earl, Hamer, Idaho  
B.S., Idaho State
- SHEA, Stephen Frederick, Seattle  
University of Washington
- SMART, John Douglas, Seattle  
University of Washington
- SMITH, Richard H., Vernon, B.C., Canada  
University of Washington
- SODERBERG, Robert Carl, Salt Lake City  
B.S., University of Washington
- SOGN, Harold Howard, Anchorage, Alaska  
University of Washington
- SORENSEN, William Lloyd, Driggs, Idaho  
Brigham Young University
- STROH, Stephen LaRaut, Mercer Island  
University of Washington
- TADLOCK, Robert Jerry, Seattle  
A.A., Columbia Basin College
- TANIGUCHI, Alvin Minoru, Hilo, Hawaii  
University of Washington
- TAYLOR, Ross Leroy, Oak Harbor  
Washington State College
- VAWTER, Frank Wesley, Spokane  
University of Washington
- VENTO, James Theodore, Seattle  
University of Washington
- VOLZ, Wallace Carl, Jr., Seattle  
University of Washington
- WEST, Jay Reed, Spanish Fork, Utah  
Utah State University
- WIDMANN, Robert B., Longview  
University of Washington
- WILLIAMS, Richard Alan, Cedar City, Utah  
A.S., College of Southern Utah

## CLASS OF 1962

- ADAMS, James L., Tacoma  
University of Washington
- ARMSTRONG, Jack S., Colfax  
Whitman  
Washington State College
- BAKER, Duane, Enumclaw  
University of Washington
- BAKER, Eugene D., Buckley  
Washington State College

- BARDEN, Karl A., Newman Lake  
University of Washington
- BARKSDALE, John T., Morris, Illinois  
B.A., Washington State College
- BORGMAN, Charles A., Seattle  
B.S., University of Washington
- BURDETT, Jerry R., Seattle  
University of Washington
- CHRISTEN, Fred, Seattle  
A.A., Centralia Junior College
- CULVER, Ralph, Bremerton  
Olympic College  
University of Washington
- DAHLQUIST, Maurice P., Kent  
B.S., University of Washington
- DWORAK, David Arthur, Seattle  
University of Washington
- ESHELMAN, James D., Tacoma  
University of Washington
- FRERE, Jules T., Bellingham  
University of Washington
- HANSEN, Burdette R., St. Anthony, Utah  
Ricks College  
University of Utah
- HEINS, Paul J., Seattle  
University of Washington
- HOOPER, Herbert H., Seattle  
University of Washington
- HOOPES, Grover R., Provo, Utah  
Brigham Young University
- JACOBS, Robert A., Bremerton  
B.S., University of Washington
- JOHNSON, Ronald C., Seattle  
Central Washington College of Education
- KUMPF, Kenneth William, Casper, Wyoming  
University of Wyoming
- LANDEEN, Donald V., Rock Spring,  
Wyoming  
B.S., University of Washington
- LEE, James L., Seattle  
University of Washington
- LEONARD, Albert, III, Farmington  
B.S., Washington State College
- LOUGHLIN, Danny M., Spokane  
Gonzaga University
- LOVERCHECK, Wesley E., Centralia  
Centralia Junior College
- LOWRY, Franklin H., Seattle  
Pacific University  
University of Washington
- MALKIN, Yale G., Vancouver, B.C., Canada  
University of British Columbia
- MARTTALA, Warren Harvey, Seattle  
University of Washington
- McGWIRE, John T., Spokane  
University of Washington
- MORASCH, Daniel H., Camas  
Clark College
- MORRIS, Ted L., Ogden, Utah  
Weber Junior College  
Brigham Young University
- MOWRY, Richard H., Saratoga, Wyoming  
University of Wyoming
- NOLAN, Don E., Seattle  
University of Washington
- NORDOUIST, Gary G., Seattle  
University of Washington
- OVERBY, Leif C., Seattle  
B.A., University of Washington
- RICE, David R., Seattle  
B.A., University of Washington
- RILEY, Peter P., Spokane  
Gonzaga University
- SABALA, Clyde L., Reno, Nevada  
University of Nevada
- SAHR, John R., Sunnyside  
University of Washington
- SCHAFER, Darrell D., Odessa  
Washington State College  
University of Washington
- STERMER, Rudolph H., Spokane  
Gonzaga University
- SWANSON, Gerald G., Centralia  
Centralia Junior College  
University of Washington
- TIFFANY, John R., Othello  
University of Washington
- VAN LOAN, Denis R., Brewster, Wyoming  
Gonzaga University
- VITUMS, Vitolds C., Pullman  
Washington State College
- WARREN, Emmett J., Phoenix, Arizona  
B.S., Arizona State College
- WELK, Donald A., Anacortes  
Seattle Pacific College
- YOST, Grant F., Richland  
Utah State Agricultural College

#### CLASS OF 1961

- ALEXANDER, Richard Morgan, Seattle  
University of Washington
- BECKER, George Albert, Twin Falls, Idaho  
University of Washington
- BOWZER, Ralph J., Kirkland  
University of Washington
- BRUNA, Robert L., Mica  
College of William and Mary
- BUBNICK, Kenneth Martin, Aberdeen  
University of Washington
- CAMPBELL, Falconer Everette, Jr.,  
Los Angeles, B.S., University of  
Southern California
- CAMPBELL, Robert Paul, Idaho Falls,  
Idaho  
B.S., Idaho State College
- DAVIS, John M., Wenatchee  
University of Washington
- DODSON, Lance Clarey, Reno  
University of Nevada
- ELLINGSEN, James Carl, Spokane  
B.S., Washington State College
- ENG, Kai Hong, Seattle  
B.A., University of Washington
- FARRELL, Donald Eugene, Ellensburg  
B.A., University of Washington  
Central Washington College of Education
- FILION, Willard James, Kennewick  
University of Washington
- GALLAHER, Philip George, Seattle  
University of Washington
- GALUTIA, Chester M., Seattle  
B.S., University of Washington
- GORDER, Robert L., Longmont, Colo.  
University of Colorado  
University of Washington
- GREAVES, John William, Seattle  
University of Washington
- GROW, Ronald Edward, Grandview  
B.S., Seattle Pacific College
- HALLOCK, B.B., Gene, Seattle  
University of Washington
- HATCH, Alma Lloyd, Panguitch, Utah  
B.A., Utah State University
- HILLE, Bruce Douglas, Ritzville  
Washington State College
- HUDSON, Leland Edward, Everett  
Washington State College
- HUNTON, Robert T., Spokane  
Gonzaga University

- INGMAN, Robert E., Bremerton  
University of Washington
- JOHNSON, Vern H., Jr., Longview  
University of Washington
- JOHNSTON, Neal Wesley, Langley  
University of Washington
- JORDAL, David G., Tacoma  
B.S., College of Puget Sound
- KLAPPER, Martin S., Seattle  
B.S., University of Pittsburgh
- LEDERMAN, Donald N., Seattle  
University of Washington
- LUST, Wayne Barry, Seattle  
B.S., Linfield College
- McALPINE, Robert Bruce, Vancouver, B.C.  
University of British Columbia
- McCOLLUM, John Bishop, Dillon, Montana  
Montana State
- McCOY, Richard Brian, Palouse  
State College of Washington
- MERRILL, Osmond Monte, Smithfield, Utah  
B.S., Utah State University
- MEYER, Roger Albert, Hoquiam  
University of Washington
- MILLER, Dale Edward, Sunnyside  
University of Washington
- NIENABER, Duane Edward, Puyallup  
Pacific Lutheran College
- NODTVEDT, Richard O., Tacoma  
B.A., Pacific Lutheran College
- PATTERSON, Walter Royal, Seattle  
B.S., University of Washington
- PEDDYCORD, Ted  
University of Washington
- RABER, Bert Franklin, Port Angeles  
University of Alaska
- ROBERTSON, Wallace Duncan, St. John  
Central Washington College of Education
- ROBINSON, Henry James, Gooding, Idaho  
University of Washington
- ROLLA, Richard R., Renton  
B.S., University of Washington
- RUEF, Darrell L., Bremerton  
University of Washington
- SANDIN, Frank Allan, Seattle  
University of Washington
- SCHRADER, Larry L., Seattle  
B.S., Idaho State College
- SCHWARTZ, Larry Jacob, Spokane  
University of Washington
- SIMKINS, Benjamin Rush, Seattle  
University of Washington
- SNYDER, Arthur James, Seattle  
University of Washington
- SPRINGER, Kirk W., Tacoma  
College of Puget Sound
- STODDARD, James W., Seattle  
University of Washington
- TATE, Carl Robert, Boise  
B.S., College of Idaho
- THOMPSON, Jerry Lee, Cowiche  
B.S., Washington State University
- WAMBA, Jon Montgomery, Mercer Island  
University of Washington
- WEBBER, Charles Eric, Seattle  
University of Washington
- WILLIAMS, Lewis Harrigfeld, Boise  
University of Idaho
- WOLGAMOTT, Fred A., Aberdeen  
Whitman College

## CLASS OF 1960

## Degree of Doctor of Dental Surgery Conferred June 11, 1960

- ADAMS, Harmon F., Seattle  
University of Washington
- BARRELL, George Edward, Seattle  
University of Washington
- BINGHAM, Vance F., Seattle  
B.S., Linfield College  
University of Washington
- BLANCHARD, Richard Eldon, Tacoma  
College of Puget Sound
- BOYDEN, Ralph William, Jr., Mountlake  
Terrace  
B.S., University of Idaho
- BREUM, Lawrence John, East Stanwood  
B.S., Washington State College
- CARLSON, Arthur Lee, Seattle  
University of Washington
- CLEAVER, William Henry, Hoquiam  
University of Washington
- DECKER, Jay Donovan, Mercer Island  
University of Washington
- DELANEY, Douglas L., Missoula, Montana  
University of Montana
- DODGE, John Boynton, Kittitas  
B.A., Central Washington College of  
Education
- EICKERMAN, Kenneth Warren, Spokane  
B.A., Washington State College
- GHERMAN, Ellis Joseph, Seattle  
University of Washington
- GEORGE, James Peter, Tacoma  
University of Washington
- GILE, Richard Austin, Calgary, B.C.  
University of Washington
- GILL, James Louis, Seattle  
University of Washington
- GUAY, Charles Paul, Renton  
Central Washington College of Education
- HABERMAN, James Dole, Ellensburg  
B.A., Central Washington College of  
Education
- HALLUM, Don Marsh, Seattle  
University of Washington
- HAZLEGROVE, George Carver, Seattle  
University of Washington
- HORCHOVER, Robert Leon, Seattle  
B.A., University of Washington
- HOSTETLER, Clifford Ray, Boise, Idaho  
B.A., Whitman College
- HUBE, Albert Ronald, Bellingham  
University of Washington
- HUNSAKER, Steve David, Sandy, Utah  
University of Utah
- HUNTER, Samuel John, Olympia  
B.A., University of Washington
- JOHNSTON, John Ivan, West Vancouver,  
B.C.  
University of British Columbia
- JONES, Howard Vernon, Seattle  
University of Washington
- JONES, James M., Las Vegas  
Brigham Young University
- KELLER, Jack Herbert, Kellogg, Idaho  
University of Washington
- KYLLINGSTAD, Vernon Jack, Butte,  
Montana  
University of Washington

- LARSON, Duane Burke, Longview  
B.A., University of Washington
- LEE, Darrel Dean, Provo, Utah  
B.S., Brigham Young University
- LEITHE, Charles Chris, Spokane  
University of Washington
- LIPPERT, George Warren, Jr., Bremerton  
University of Washington
- LOTZKAR, Martin, Seattle  
University of Washington
- MONSEN, Robert Melvin, Tacoma  
University of Washington
- MORRIS, John A., Butte, Montana  
Montana State College
- MORRIS, Robert George, Spokane  
B.A., University of Washington
- McLEAN, Kenneth Jerome, Ashton, Idaho  
University of Washington
- McNALLY, Joseph Daniel, Tacoma  
B.S., University of Santa Clara
- NADEN, Edwin Thomas, Jr., Bellevue  
B.A., University of Washington
- NEER, Robert Carroll, Port Angeles  
Washington State College
- PARKER, Irwin Jon, Elma  
B.S., Washington State College
- PIPER, Robert Bruce, Seattle  
University of Washington
- PROTEAU, Thomas Joseph, Bremerton  
B.S., Washington State College
- ROBERTS, Keith B., Richland  
University of Washington
- ROLLA, Richard R., Renton  
B.S., University of Washington
- ROSELLI, Louis Anthony, Seattle  
A.B., University of Washington
- ROTTER, Jay Doran, Rice  
University of Washington
- RUUD, John Oliver, Waterville  
University of Washington
- RYAN, James Edward, New Westminster,  
B.C., Canada  
Clark College
- SAYLER, Hugh Donald, Longview  
University of Washington
- SEELEY, Lawlor Joseph, Jr., Anchorage  
Washington State College
- SIMKINS, Benjamin Rush, Seattle  
University of Washington
- SMITH, Curtis French, Bellingham  
University of Washington
- SOLHAUG, Elvin Kristian, Seattle  
University of Washington
- STRAWN, Alfred Dewey, Vancouver  
B.S., University of Washington
- STEWART, Donald William, Spokane  
Central Washington College of Education
- STRANDWOLD, Sylvan Otto, Jr., Hoquiam  
University of Washington
- TOPHAM, Forrest Kay, Rexburg, Idaho  
B.A., Brigham Young University
- TUFT, Don Leonard, Monroe  
B.S., Utah State University
- WELLS, Robert Wesley, Shelton  
Western Washington College of Education
- WHITE, Joseph W., Wichita Falls, Texas  
University of Washington
- WRIGHT, Norman Ross, Vancouver, B.C.  
University of British Columbia

## CLASS OF 1959

### Degree of Doctor of Dental Surgery Conferred June 13, 1959

- ALLEN, Frank Hanes, Ellensburg  
B.A., Central Washington College of  
Education
- APELAND, Homer Donald, Seattle  
University of Washington
- BARRETT, William Joseph, Seattle  
University of Washington
- BATES, Richard Edward, Ellensburg  
Central Washington College of Education
- BEAULIEU, Robert Charles, Seattle  
Seattle University
- BERG, Douglas Ray, Spokane  
Washington State College
- BORDEAUX, James Gilbert, Olympia  
University of Washington
- BRAIN, Warren Eugene, Thorp  
B.A., Central Washington College of  
Education
- BRANDON, Jack Harold, Seattle  
University of Washington
- BRISCOE, DeWayne LaVerne, Seattle  
University of Washington
- BROOKE, Ralph Charles, Seattle  
University of Washington
- BROWN, Allen Kenneth, Seattle  
University of Washington
- CHANG, Thomas Gilmer Munwai, Lihue, Kauai,  
Hawaii  
University of Washington
- COSTLEY, John Marcellus, Rigby, Idaho  
Utah State Agricultural College
- CRUIKSHANK, Ramon Arlen, Seattle  
University of Washington
- CULVER, Norman Carl, Bremerton  
University of Washington
- DAHL, Robert Lee, Seattle  
University of Washington
- DeFELICE, Armand Vincent, Spokane  
Gonzaga University
- DIER, Frederick Dale, Bellevue  
Washington State College
- DOTY, Robert LeRoy, Seattle  
B.A., University of Washington
- DUGGER, Glen Orin, Tacoma  
College of Puget Sound
- GOURLEY, James Vincent, Tacoma  
University of Washington
- HAMMER, Arild Rudolph, Ketchikan,  
Alaska  
University of Washington
- HANSEN, Raymond Earl, Logan, Utah  
Utah State Agricultural College
- HARKEN, James Henry, Forsyth, Mont.  
University of Washington
- HASEGAWA, Fred Isamu, Seattle  
University of Washington
- JERUE, Larry George, Cheney  
University of Washington
- JOHN, Robert, Seattle  
University of Washington
- KAJIMURA, Saburo, Puvallup  
University of Washington
- KENNA, Patrick David, Seattle  
B.S., University of Washington
- KEYES, Harry Truman, Vancouver, B.C.  
University of Washington
- LAXTON, Harold Dean, Goldendale  
Washington State College

LeVINE, Mervyn, Los Angeles  
B.A., University of California  
(Los Angeles)

LYNCH, William Patrick, Seattle  
University of Washington

MAR, Philip Leighton, Seattle  
B.S., University of Washington

McCORMICK, Lawrence Patrick, Seattle  
University of Washington

MERRILL, Ralph George, Salt Lake City  
University of Denver

MONSON, William Theodore, Renton  
University of Washington

MORSE, Ronald Prescott, Seattle  
B.S., University of Washington

MURDOCK, Gerald Irwin, Raymond  
College of Puget Sound

NEFF, Desmond Guy, Pullman  
Washington State College

NELSON, Edward Allen, Prosser  
B.A., University of Washington

OWEN, Richard Wayne, Spokane  
Gonzaga University

PERRY, Arthur Eugene, Jr., Centralia  
University of Washington

PILOT, Ted Andrew, Seattle  
University of Washington

PULLIAM, James Arthur, Seattle  
University of Washington

RASANEN, Richard Alan, Aberdeen  
University of Washington

RAWSON, Dearl Stanley, Sunnyside  
Central Washington College of Education

REDD, Keith Eugene, Yakima  
University of Washington

SANDER, Allan Lewis, Anchorage, Alaska  
B.S., Midland College  
M.S., Massachusetts Institute of Technology

SCHEYER, Warner Frederick, Seattle  
B.S., University of Washington

SKALABRIN, Nicholas Joseph, Seattle  
Seattle University

SMITH, Clifton Martin, Spokane  
B.A., Louisiana State University  
M.S., University of Southern California  
B.A., (Education), Eastern Washington  
College of Education

SMITH, Donald Earl, Spokane  
B.S., Washington State College

SONNEMAN, Warren Lee, Sioux Falls, S.D.  
B.A., Yankton College

SPERRY, Donald William, Wenatchee  
B.A., University of Washington

STOBIE, James Lee, Newport  
Washington State College

SUTTER, Edward George, Kelso  
B.A., University of Washington

TAYLOR, Dean Le Roy, Mesa  
University of Washington

THOMPSON, John Lincoln, Bellevue  
B.A., University of Washington

THOMPSON, Robert William, Seattle  
Washington State College

ULBRIGHT, Bruce Frederick, Bremerton  
University of Washington

WILCOX, Robert Earl, Seattle  
University of Washington

WILSON, Theron Duane, Olympia  
University of Washington

WOOD, Don Carlos, Jr., Port Angeles  
B.S., University of California

WRIGHT, Wellesley Horton, Seattle  
University of Washington

## GRADUATE SCHOOL, ENTERED 1958

### Orthodontics

BARTLETT, Richard W., San Francisco,  
California  
B.S., University of Southern California  
D.D.S., College of Physicians and Surgeons

COOPER, William S., Atwater, California  
D.D.S., Washington University

COSTIGAN, Warren E., Reseda, California  
D.D.S., Northwestern University  
M.S.D., Northwestern University  
(Oral Surgery)

ESSELMAN, Edward J., Rice Lake, Wisconsin  
D.D.S., Marquette University

HATASAKA, Harry H., Denver, Colorado  
D.D.S., Northwestern University

### Oral Pathology

TAMARIN, Arnold, San Anselmo, California  
B.S., D.D.S., University of Illinois

### Pedodontics

DIETZ, Donald R., Yakima  
D.D.S., University of Washington

### Periodontics

BECHLEM, Donald N., Bremerton  
D.D.S., Northwestern University

CRAIN, Edward L., Minneapolis, Minnesota  
D.D.S., University of Minnesota

### Restorative

COULSON, Richard A., Fort Madison, Iowa  
B.A., D.D.S., University of Iowa

HAUG, Ronald D., Port Angeles  
B.S., D.D.S., University of Washington

HOUG, Andrew M., St. Ansgar, Iowa  
D.D.S., Iowa State University

LAW, John R., Morgantown, West Virginia  
B.A., M.S., West Virginia University  
D.D.S., Georgetown University

WIESLANDER, Lennart A. T., Stockholm,  
Sweden  
D.D.S., Royal Dental School

ZIMMER, Glenn H., Colorado Springs,  
Colorado  
D.D.S., Northwestern University

RODER, Russell E., Colorado Springs,  
Colorado  
D.M.D., University of Oregon

SAXE, Stanley R., Malden, Massachusetts  
B.A., Boston University  
D.M.D., Harvard School of Dental Medicine

**GRADUATE SCHOOL, ENTERED 1959****Oral Surgery**

BRISCOE, DeWayne L., Seattle  
D.D.S., University of Washington

**Orthodontics**

BOKSTROM, Peter, Haney, B.C., Canada  
D.D.S., University of Washington  
BURNS, Arthur S., Jacksonville, Florida  
D.D.S., Temple University  
GUM, Stanley W., San Jose, California  
D.D.S., Marquette University  
HIGH, Edward A., High Spen, England  
B.D.S., University of Durham  
D.D.S., Dalhousie University  
MULICK, James F., Woodland Hills, California  
D.D.S., College of Physicians and Surgeons

OLER, Kenneth D., Shelley, Idaho  
D.M.D., University of Oregon  
PIACENTINI, Franklin D., Portland, Oregon  
D.M.D., University of Oregon  
ROGERS, John R., Seattle  
B.S., Coast Guard Academy (England)  
D.D.S., Northwestern University  
TAKANO, James H., Seattle  
D.D.S., University of Washington  
TODA, James M., Honolulu, Hawaii  
B.A., University of Hawaii  
B.S., D.D.S., University of Minnesota

**Pedodontics**

AUSTIN, Lloyd B., Reno, Nevada  
B.S., University of Nevada  
D.D.S., St. Louis University

PETERSON, John C., Jr., Seattle  
B.S., Washington State College  
D.M.D., University of Oregon

**Periodontics**

BETZ, Peter K., St. Louis, Missouri  
D.D.S., St. Louis University  
ITOKAZU, Harold H., Kapaa, Hawaii  
D.D.S., Columbia University  
JOHN, Robert, Seattle  
D.D.S., University of Washington

McFALL, Walter T., Jr., Chapel Hill,  
North Carolina  
B.S., D.D.S., University of North Carolina  
OLIVER, Gilbert V., Oswego, Oregon  
B.A., Willamette University  
D.M.D., University of Oregon

**Restorative**

SWERDLOW, Herbert, Bethesda, Maryland  
B.A., Brooklyn College  
D.D.S., New York University

**Degree of Master of Science in Dentistry Conferred March 20, 1959****Orthodontics**

CAMPBELL, Gene I., Seattle  
B.S., U.S. Naval Academy  
D.D.S., University of Washington  
ELMAJIAN, Kersam E., Pasadena, California  
D.D.S., University of Southern California  
JONES, Francis G., Trail, B.C., Canada  
D.D.S., University of Toronto  
KELLEY, Robert R., Seattle  
D.D.S., University of Washington

NELSON, Toyn O., Port Angeles  
B.S., Oregon State  
D.D.S., University of Washington  
PIHL, Erik B., Seattle  
D.D.S., University of Washington  
THOMAS, Frank E., Pleasant Hill, California  
D.D.S., University of California

**Degree of Master of Science in Dentistry Conferred June 13, 1959****Restorative**

LAMBRECHT, James R., Seattle  
D.D.S., Marquette

**Degree of Master of Science in Dentistry Conferred August 21, 1959****Periodontics**

BECHLEM, Donald N., Bremerton  
D.D.S., Northwestern University

**Pedodontics**

SCHUMACHER, Erwin R., Mercer Island  
B.A., Iowa State  
D.D.S., University of Iowa

**Degree of Master of Science in Dentistry Conferred December 18, 1959****Pedodontics**

RODER, Russell E., Colorado Springs, Colorado  
D.M.D., University of Oregon

**Degree of Master of Science in Dentistry Conferred June 9, 1960****Orthodontics**

COOPER, William S., Atwater, California D.D.S., Washington University	HOUG, Andrew M., St. Ansgar, Iowa D.D.S., Iowa State
COSTIGAN, Warren E., Reseda, California D.D.S., M.S.D., (Oral Surgery) Northwestern University	WIESLANDER, Lennart A. T., Stockholm, Sweden D.D.S., Royal Dental School
ESSELMAN, Edward J., Rice Lake, Wisconsin D.D.S., Marquette University	

**Restorative**

COULSON, Richard A., Fort Madison, Iowa  
B.A., D.D.S., University of Iowa

**Certificate in Orthodontics Conferred March 17, 1960**

BARTLETT, Richard W., San Francisco, California B.S., University of Southern California D.D.S., College of Physicians and Surgeons	HATASAKA, Harry H., Denver, Colorado D.D.S., Northwestern University
COOPER, William S., Atwater, California D.D.S., Washington University	HAUG, Ronald D., Port Angeles B.S., D.D.S., University of Washington
COSTIGAN, Warren E., Reseda, California D.D.S., Northwestern University M.S.D., Northwestern University (Oral Surgery)	HOUG, Andrew M., St. Ansgar, Iowa D.D.S., Iowa State University
ESSELMAN, Edward J., Rice Lake, Wisconsin D.D.S., Marquette University	WIESLANDER, Lennart A. T., Stockholm, Sweden D.D.S., Royal Dental School
	ZIMMER, Glenn H., Colorado Springs, Colorado D.D.S., Northwestern University

**Certificate in Periodontics Conferred June 9, 1960**

CRAIN, Edward L., Minneapolis, Minnesota  
D.D.S., University of Minnesota

**Certificate in Restorative Dentistry (Prosthodontics) Conferred June 9, 1960**

COULSON, Richard A., Fort Madison, Iowa  
B.A., D.D.S., University of Iowa



## STUDENTS IN DENTAL HYGIENE

### CLASS OF DECEMBER, 1960

DUNHAM, Martha A., Melrose, Massachusetts  
Forsyth School for Dental Hygienists  
Tufts University  
Boston University  
University of Washington

### CLASS OF 1961

BECK, Barbara Elizabeth, Seattle  
University of Washington

BLACK, Sally Ann, Sunnyside  
University of Washington

CARVER, Janet Sue Marx, Seattle  
Montana State University  
University of Washington

COMPTON, Colleen Faith, Kennewick  
University of Washington

CONDY, Karen Jean, Antioch, California  
San Jose State College  
Washington State University  
University of Washington

FREIBERG, Carol Susan, Seattle  
University of Washington

HAMPTON, Barbara Marie, Seattle  
University of Washington

MADDEN, Susan Jane, Edmonds  
University of Washington

MYERS, Sharon Elizabeth, Billings, Montana  
University of Washington

TSUKAMAKI, Mary Ieko, Quincy  
University of Washington

## GRADUATES IN DENTAL HYGIENE

### CLASS OF 1960

#### Degree of Bachelor of Science Conferred June 11, 1960

CARLSON, Cheri Hansen, Seattle  
University of Washington

CHINN, Alicia Dong, Seattle  
University of Washington

FORTENBACHER, Marcia Joan, Seattle  
University of Washington

GOODWIN, Linda Eddy, Seattle  
University of Washington

JOHNSON, Rita Lorraine, Seattle  
University of Washington

LARSEN, Laurine Kay, Seattle  
Whitworth College  
Washington State University  
University of Washington

McMAHAN, Jeanne Louise, Seattle  
Central Washington College of Education  
University of Washington

NISBET, Susan, Seattle  
University of Washington

OSCARSON, Erllys Ellen, Colville  
University of Washington

POSNER, Barbara P., Seattle  
University of California at Los Angeles  
Eastern Washington College of Education  
University of Washington

SIGVARTSON, Joan Olive, Seattle  
University of Washington

SIVERTS, Dorothy Pearl, Seattle  
Central Washington College of Education  
University of Washington

WILLIAMS, Elaine Helen, Seattle  
University of Washington

### CLASS OF 1959

#### Degree of Bachelor of Science Conferred June 13, 1959

ANDERSON, Nancy Joan, Seattle  
University of Washington

DODELLE, Salle Jo, Everett  
University of Washington

FERGUSON, Jean Marie, Seattle  
North Park College (Illinois)

FREEMANSON, Turid, Issaquah  
University of Washington

GUSTAFSON, Loretta Winnifred, Seattle  
University of Washington

HOLMKVIST, Diane Antoinette, Seattle  
University of Washington

JOHNSON, Susan Loy, Seattle  
Central Washington College of Education  
University of Washington

LUTH, Sylvia, Seattle  
University of Washington

MATHESON, Lynn, Chehalis  
University of Washington

MONTGOMERY, Marilyn, Seattle  
University of Washington

MYERS, Sydney, Livingston, Montana  
Montana State College

SAWYER, Janet Camille, Puyallup  
Washington State University  
University of Washington

STEARNS, Beverly Jean, Seattle  
Graceland College, Iowa  
University of Washington

SUTHERLAND, Joan, Victoria, B.C., Canada  
Victoria College  
University of British Columbia

### CLASS OF 1959

#### Degree of Bachelor of Science Conferred December, 1959

ROBINSON, Margaret M. E.  
R.D.H., University of Oregon

**BULLETIN • UNIVERSITY OF WASHINGTON**



**COLLEGE OF ENGINEERING**

**1959-1961**

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Department of Correspondence Study and the Department of Extension Classes, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Registrar.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS  
INTRODUCTION TO THE UNIVERSITY  
UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING  
COLLEGE OF ARTS AND SCIENCES  
COLLEGE OF BUSINESS ADMINISTRATION  
SCHOOL OF DENTISTRY  
COLLEGE OF EDUCATION  
COLLEGE OF ENGINEERING  
COLLEGE OF FISHERIES  
COLLEGE OF FORESTRY  
GRADUATE SCHOOL  
SCHOOL OF LAW  
SCHOOL OF MEDICINE  
SCHOOL OF NURSING  
COLLEGE OF PHARMACY  
SCHOOL OF SOCIAL WORK

### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT  
SUMMER QUARTER ANNOUNCEMENT  
CENTER FOR GRADUATE STUDY AT HANFORD  
CORRESPONDENCE STUDY  
EVENING CLASSES

# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	12
Board of Regents	
Officers of Administration	
Officers of the College of Engineering	
College of Engineering Executive Committee	
College of Engineering Faculty	
Faculty of Reserve Officers Training Programs	
GENERAL INFORMATION . . . . .	25
Building and Facilities	
Revised Admission Requirements	
Current Admission Requirements	
Veterans	
Required Tests and Examinations	
Registration	
Scholarship and Minimum Credits	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE DEPARTMENTAL PROGRAMS . . . . .	51
Bachelor's Degrees	
Advanced Degrees	
Course Numbering System	
Courses	
General Engineering	
Aeronautical Engineering	
Chemical Engineering	
Civil Engineering	
Electrical Engineering	
Humanistic-Social Studies for Engineers	
Industrial Engineering	
Mechanical Engineering	
Mineral Engineering	
Ceramic Engineering	
Metallurgical Engineering	
Mining Engineering	
Nuclear Engineering	
Courses Included in Engineering Programs	
College of Arts and Sciences	
College of Business Administration	
RESERVE OFFICERS TRAINING PROGRAMS . . . . .	101
Air Science	
Military Science and Tactics	
Naval Science	

# CALENDAR

AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS  
(Autumn Quarter, 1959 through Autumn Quarter, 1961)

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

## AUTUMN QUARTER, 1959

### REGISTRATION PERIOD

MAY 4-29	Advance Registration only for students in residence Spring Quarter, 1959. A service of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-29	In-Person Registration for former students not in residence Spring Quarter, 1959, and those attending Spring Quarter, 1959, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 8. Deadline for applying for Registration Appointment or Permit is September 15.
AUG. 15	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 14-25	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 14-29	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 29	Last day to register for Autumn Quarter, 1959.
OCT. 1-6	Change of registration by appointment only.

### ACADEMIC PERIOD

SEPT. 28—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 30—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 6—TUESDAY	Last day to add a course
NOV. 2—MONDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1960, due at Registrar's Office
NOV. 11—WEDNESDAY	State Admission Day holiday
NOV. 25—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 25-30	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 12—SATURDAY	Advanced credit examinations
DEC. 14-18	Final examinations
DEC. 18—FRIDAY	Quarter ends

## WINTER QUARTER, 1960

### REGISTRATION PERIOD

OCT. 26-Nov. 20	Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of \$15.00 will be
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assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

DEC. 28-30

In-Person registration for former students not in residence Autumn Quarter, 1959, and those attending Autumn Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than December 11*. Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between November 23 and December 11. Deadline for applying for Registration Appointment or Permit is *December 11*.

DEC. 4

Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

DEC. 20

Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.

DEC. 28-30

In-Person Registration for ALL new students.

DEC. 30

Last day to register for Winter Quarter, 1960.

JAN. 5-8

Change of registration by appointment only.

#### ACADEMIC PERIOD

JAN. 4—MONDAY

Instruction begins

JAN. 8—FRIDAY

Last day to add a course

FEB. 22—MONDAY

Washington's Birthday and Founder's Day holiday

FEB. 26—FRIDAY

Last day to submit applications for advanced credit examinations

MAR. 12—SATURDAY

Advanced credit examinations

MAR. 14-18

Final examinations

MAR. 18—FRIDAY

Quarter ends

#### SPRING QUARTER, 1960

##### REGISTRATION PERIOD

JAN. 25-FEB. 19

Advance Registration only for students in residence Winter Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

MAR. 15

Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.

MAR. 22-24

In-Person Registration for former students not in residence Winter Quarter, 1960, and those attending Winter Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 11*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at

	the Registrar's Office for a Registration Appointment or Permit to register between February 23 and March 11. Deadline for applying for Registration Appointment or Permit is <i>March 11</i> .
FEB. 26	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 22-24	In-Person Registration for ALL new students.
MAR. 24	Last day to register for Spring Quarter, 1960.
MAR. 29-APR. 1	Change of registration by appointment only.

#### ACADEMIC PERIOD

MAR. 28—MONDAY	Instruction begins
APR. 1—FRIDAY	Last day to add a course
MAY 6—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 20—FRIDAY	Governor's Day
MAY 21—SATURDAY	Advanced credit examinations
MAY 30—MONDAY	Memorial Day holiday
JUNE 5—SUNDAY	Baccalaureate Sunday
JUNE 6-10	Final examinations
JUNE 10-FRIDAY	Quarter ends
JUNE 11—SATURDAY	Commencement

#### SUMMER QUARTER, 1960

##### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 1-3  
June 13-17

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

##### *Students in residence Spring Quarter, 1960:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 18, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 19, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 20, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 21, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1960*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 19 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 20—MONDAY	Instruction begins
JUNE 21—TUESDAY	Last day to add a course for the first term
JUNE 24—FRIDAY	Last day to add a course for the full quarter
JULY 1—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—MONDAY	Independence Day holiday
JULY 16—SATURDAY	Advanced credit examinations
JULY 20—WEDNESDAY	Final examinations and first term end
JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
JULY 29—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 13—SATURDAY	Advanced credit examinations
AUG. 19—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1960****REGISTRATION PERIOD**

MAY 2-27	Advance Registration only for students in residence Spring Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 8-27	In-Person Registration for former students not in residence Spring Quarter, 1960, and those attending Spring Quarter, 1960, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning <i>June 6</i> . Deadline for applying for Registration Appointment or Permit is <i>September 13</i> .
AUG. 15	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
SEPT. 12-23	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 12-27	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 27	Last day to register for Autumn Quarter, 1960.
SEPT. 29-OCT. 4	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 26—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 4—TUESDAY	Last day to add a course



NOV. 1—TUESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office.
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 18—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 10—SATURDAY	Advanced credit examinations
DEC. 12-16	Final examinations
DEC. 16—FRIDAY	Quarter ends

## WINTER QUARTER, 1961

### REGISTRATION PERIOD

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960 and those attending Autumn Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than December 9</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between November 22 and December 9. Deadline for applying for Registration Appointment or Permit is <i>December 9</i> .
DEC. 2	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
DEC. 27-29	In-Person Registration for ALL new students.
DEC. 29	Last day to register for Winter Quarter, 1961.
JAN. 4-9	Change of registration by appointment only.

### ACADEMIC PERIOD

JAN. 3—TUESDAY	Instruction begins
JAN. 9—MONDAY	Last day to add a course
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
FEB. 24—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 11—SATURDAY	Advanced credit examinations
MAR. 13-17	Final examinations
MAR. 17—FRIDAY	Quarter ends

**SPRING QUARTER, 1961****REGISTRATION PERIOD**

Jan. 23.-Feb. 17	Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 21-23	In-Person Registration for former students not in residence Winter Quarter, 1961, and those attending Winter Quarter, 1961, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than March 10</i> . Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between <i>February 20</i> and <i>March 10</i> . Deadline for applying for Registration Appointment or Permit is <i>March 10</i> .
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to University Health Center of the Health History and Physical Examination report form by all new students.
MAR. 21-23	In-Person Registration for ALL new students.
MAR. 23	Last day to register for Spring Quarter, 1961.
MAR. 27-31	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 27—MONDAY	Instruction begins
MAR. 31—FRIDAY	Last day to add a course
MAY 12—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 19—FRIDAY	Governor's Day
MAY 27—SATURDAY	Advanced credit examinations
MAY 30—TUESDAY	Memorial Day holiday
JUNE 4—SUNDAY	Baccalaureate Sunday
JUNE 5—MONDAY	Final examinations begin
JUNE 9—FRIDAY	Final examinations and Quarter end
JUNE 10—SATURDAY	Commencement

**SUMMER QUARTER, 1961****REGISTRATION PERIOD**

General In-Person Registration for ALL students in person (by appointment only):

May 31-June 2

June 12-16

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

*Students in Residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....	Monday, April 17, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 18, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 19, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 20, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1961*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 17 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) students* will be mailed Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 19—MONDAY	Instruction begins
JUNE 20—TUESDAY	Last day to add a course for the first term
JUNE 23—FRIDAY	Last day to add a course for the full quarter
JUNE 30—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—TUESDAY	Independence Day holiday
JULY 15—SATURDAY	Advanced credit examinations
JULY 19—WEDNESDAY	Final examinations and first term end
JULY 20—THURSDAY	Second term begins
JULY 21—FRIDAY	Last day to add a course for the second term
JULY 28—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 12—SATURDAY	Advanced credit examinations
AUG. 18—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1961**

**REGISTRATION PERIOD**

MAY 1-26	Advance Registration only for students in residence Spring Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 6-26	In-Person Registration for former students not in residence Spring Quarter, 1961, and those attending Spring Quarter, 1961, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than September 15</i> . Students in resident attendance Spring Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or

	Permit to register between June 5 and September 15. Deadline for applying for Registration Appointment or Permit is <i>September 15</i> .
AUG. 15	Deadline for All new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 11-22	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 11-26	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 26	Last day to register for Autumn Quarter, 1961.
SEPT. 27-OCT. 3	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 25—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 27—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 3—TUESDAY	Last day to add a course
NOV. 1—WEDNESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1962, due at Registrar's Office
NOV. 11—SATURDAY	State Admission Day holiday
NOV. 17—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 22-Nov. 27	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 2—SATURDAY	Advanced credit examinations
DEC. 11—MONDAY	Final examinations begin
DEC. 15—FRIDAY	Final examinations and Quarter end

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**CHANGES IN UNIVERSITY REGULATIONS**

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*

## ADMINISTRATION

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*Associate Dean*

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V. B. HAMMER, *General Engineering*

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R. T. McMINN, *Mechanical Engineering*

F. B. FARQUHARSON, *Engineering Experiment Station*

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(1959-60).

### COLLEGE OF ENGINEERING FACULTY

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present rank.

#### AERONAUTICAL ENGINEERING

Dill, Ellis Harold, 1956 (1959), *Associate Professor of Aeronautical Engineering*  
B.S. in C.E., 1954, California; M.S. in C.E., California; Ph.D. in C.E., 1956, California

Eastman, Fred Scoville, 1927 (1943), *Professor of Aeronautical Engineering*  
B.S. in E.E., 1925, Washington; M.S., 1929, Massachusetts Institute of Technology

Ganzer, Victor Martin, 1947 (1953), *Professor of Aeronautical Engineering*  
B.A. in Math., 1933, Augustana College (Illinois); B.S. in A.E., 1941, Washington

Joppa, Robert Glenn, 1945 (1957), *Associate Professor of Aeronautical Engineering*  
B.S. in A.E., 1945, M.S. in A.E., 1951, Washington

- Martin, Harold Clifford, 1948 (1952), *Professor of Aeronautical Engineering; Executive Officer of the Department of Aeronautical Engineering*  
B.S. in M.E., 1934, M.S., 1937, New York; Ph.D., 1950, California Institute of Technology
- Nielsen, Helmer L. V. (1959), *Acting Associate Professor Aeronautical Engineering*  
B.S. 1950, M.S. 1951, California
- O'Brien, Timothy Frederick, 1956 (1958), *Associate Professor of Aeronautical Engineering*  
B.S. in A.E., 1947, M.S. in A.E., 1951, Massachusetts Institute of Technology
- Rae, William Howard, Jr., 1956 (1958), *Research Instructor of Aeronautical Engineering*  
B.S. in A.E., 1953, M.S. in A.E., 1959, Washington
- Street, Robert Elliott, 1948 (1955), *Professor of Aeronautical Engineering*  
B.S. in Physics, 1933, Rensselaer Polytechnic Institute; M.A., 1934, Ph.D., 1939, Harvard

**CHEMICAL ENGINEERING**

- Anderson, Donald Keith, 1958, *Instructor in Chemical Engineering*  
B.S., 1956, Illinois; M.S., 1958, Washington
- Babb, Albert Leslie, 1952 (1956), *Associate Professor of Chemical Engineering*  
B.A.Sc., 1948, British Columbia; M.S., 1949, Ph.D., 1951, Illinois
- David, Morton Morris, 1953 (1957), *Associate Professor of Chemical Engineering*  
B.S., 1942, Colorado; D.Eng. in Ch.E., 1950, Yale
- Heideger, William Joseph, 1957, *Assistant Professor of Chemical Engineering*  
B.S., 1954, Carnegie Institute of Technology; M.S.E., 1955, Princeton; Ph.D., 1959, Princeton
- Kabel, Robert Lynn, 1958, *Instructor in Chemical Engineering*  
B.S., 1955, Illinois
- Johanson, Lennart Nobel, 1951 (1956), *Associate Professor of Chemical Engineering*  
B.S., 1942, Utah; M.S., 1943, Ph.D., 1948, Wisconsin
- Mar, Brian Wayne, 1958, *Acting Assistant Professor in Chemical Engineering*  
B.S.Ch.E., 1955, Washington; M.S.Ch.E., 1956, Washington; Ph.D., 1958, Washington
- McCarthy, Joseph Le Page, 1941 (1952), *Professor of Chemical Engineering; Dean of the Graduate School*  
B.S. in Ch.E., 1934, Washington; M.S., 1936, Idaho; Ph.D., 1938, McGill
- Moulton, Ralph Wells, 1941 (1950), *Professor of Chemical Engineering; Executive Officer of the Department of Chemical Engineering*  
B.S. in Ch.E., 1932, M.S. in Ch.E., 1934, Ph.D., 1938, Washington
- Ratkowsky, David Allen, 1958, *Instructor in Chemical Engineering*  
B.Ch.Engr., 1956, City College of New York

**CIVIL ENGINEERING**

- Bogan, Richard Herbert, 1954 (1957), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1949, Washington; S.M., 1952, Sc.D., 1954, Massachusetts Institute of Technology
- Campbell, Thomas Herbert, 1945 (1955), *Professor of Civil Engineering*  
B.S. in C.E., 1934, Washington; M.S. in C.E., 1938, Massachusetts Institute of Technology
- Carlson, Dale Arvid, 1955 (1956), *Assistant Professor of Civil Engineering*  
B.S. in C.E., 1950, M.S. in C.E., 1951, Washington
- Chenoweth, Harry Holt, 1946 (1957), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1937, M.S. in C.E., 1957, Washington
- Chittenden, Hiram Martin, 1923 (1949), *Associate Professor of Topographic Surveying*  
B.S. in C.E., 1920, C.E., 1935, Washington
- Clanton, Jack Reed, 1947 (1958), *Professor of Civil Engineering*  
B.S. in C.E., 1936, Missouri School of Mines; M.S. in C.E., 1939, Pittsburgh
- Colcord, Josiah Edward, Jr., 1949 (1957), *Associate Professor of Civil Engineering*  
B.S., 1947, Maine; M.S. in C.E., 1949, Minnesota
- Ekse, Martin Ingvald, 1948 (1957), *Professor of Civil Engineering*  
B.S., 1932, South Dakota State; M.S., 1948, Wisconsin

- Farquharson, Frederick Burt, 1925 (1940), *Professor of Civil Engineering; Director of the Engineering Experiment Station*  
B.S. in M.E., 1923, M.E., 1927, Washington
- Finn, William Daniel, 1956, *Instructor in Civil Engineering*  
B.E., University College, Cork, Ireland; M.S. in C.E., 1957, Washington
- Harris, Charles William, 1906 (1951), *Professor Emeritus of Hydraulic Engineering; Research Consultant*  
B.S. in C.E., 1903, Washington; C.E., 1905, Cornell
- Hartz, Billy J., 1955 (1957), *Associate Professor of Civil Engineering*  
B.S. (C.E.), 1952, M.S. (C.E.), 1954, Ph.D., 1955, California
- Hennes, Robert Graham, 1934 (1947), *Professor of Civil Engineering*  
B.S. in C.E., 1927, Notre Dame; M.S., 1928, Massachusetts Institute of Technology
- Horwood, Edgar Miller, 1946 (1957), *Associate Professor of Civil Engineering*  
B.S. in M.E., 1942, Georgia Institute of Technology; M.S. in Regional Planning, 1951, Washington; Ph.D., 1959, Pennsylvania
- Kent, Joseph Chan, 1952 (1955), *Assistant Professor of Civil Engineering*  
B.S. in C.E., 1945, British Columbia; M.S. in C.E., 1948, Stanford; Ph.D., 1952, California
- Maske, William, 1947, *Sanitary Chemist*  
B.S., 1915, M.S., 1917, Washington
- Meese, Richard Hunt, 1946 (1955), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1939, Washington; S.M., 1941, Harvard
- Miller, Alfred Lawrence, 1923 (1937), *Professor of Mechanics and Structures*  
B.S. in C.E., 1920, C.E., 1926, Washington
- Miller, William Mackay, 1951 (1959), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1951, M.S. in C.E., 1952, Washington
- Mittet, Holger Peder, 1946 (1955), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1937, Washington; M.S. in C.E., 1938, Massachusetts Institute of Technology
- Moritz, Harold Kennedy, 1928 (1949), *Professor of Hydraulics*  
B.S. in M.E., 1921, Massachusetts Institute of Technology
- Nece, Ronald Elliott, 1959, *Assistant Professor of Civil Engineering*  
B.S. in C.E., 1949, Washington; M.S. in C.E., 1951, Lehigh; Sc.D., 1958, Massachusetts Institute of Technology
- Paris, Paul Croce, 1957, *Assistant Professor of Civil Engineering*  
B.S. in C.E., 1953, Michigan; M.S., 1955, Lehigh
- Rhodes, Fred Harold, Jr., 1927 (1951), *Professor of Civil Engineering*  
B.S. in C.E., 1926, B.S. in M.E., 1926, C.E., 1935, Washington
- Richey, Eugene Porter, 1954 (1956), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1941, Alaska; M.S. (Meteorology), 1947, M.S. in C.E., 1948, California Institute of Technology; Ph.D., 1955, Stanford
- Sawhill, Roy Bond, 1956, *Assistant Professor of Civil Engineering*  
B.S. in C.E., 1950, Washington; M. of E., 1952, California
- Sergev, Sergius Ivan, 1923 (1946), *Professor of Engineering Mechanics*  
B.S. in M.E., 1923, M.E., 1931, Washington
- Servizi, James Albert, 1958, *Instructor in Civil Engineering*  
B.S. in C.E., 1956, Washington; S.M. (S.E.), 1958, Massachusetts Institute of Technology
- Smith, Frederick Charnley, 1926 (1954), *Professor Emeritus of Civil Engineering; Research Consultant*  
B.S. in C.E., 1926, C.E., 1929, Washington
- Strausser, Howard Samuel, Jr., 1955 (1957), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1942, Virginia Military Institute; M.S.E., 1950, Johns Hopkins
- Sylvester, Robert Ohrum, 1947 (1957), *Professor of Sanitary Engineering*  
B.S. in C.E., 1936, Washington; S.M., 1941, Harvard
- Thiers, Gerald Raymond, 1959, *Acting Assistant Professor of Civil Engineering*  
B.S. in C.E., M.S. in C.E., California
- Tyler, Richard Gaines, 1929 (1954), *Professor Emeritus of Sanitary Engineering*  
C.E., 1908, Texas; B.S. in C.E., 1910, Massachusetts Institute of Technology
- Van Horn, Robert Bowman, 1925 (1936), *Professor of Hydraulic Engineering; Executive Officer of the Department of Civil Engineering*  
B.S. in C.E., 1916, C.E., 1926, Washington

Vasarhelyi, Dezsoe, 1949 (1956), *Associate Professor of Civil Engineering*  
B.A., 1928, Ref. Collegium Kolozsvár; Dipl.Ingr., 1932, Dr.Ingr., 1944, Technical University  
(Budapest)

Wessman, Harold Everett, 1948, *Professor of Civil Engineering; Dean of the College of Engineering*  
B.S., 1924, M.S., 1925, C.E., 1929, Ph.D., 1936, Illinois

# **ELECTRICAL ENGINEERING**

Bergseth, Frederick Robert, 1947 (1957), *Professor of Electrical Engineering*  
B.S. in E.E., 1937, Washington; S.M. in E.E., 1938, Massachusetts Institute of Technology

Bernotski, Dennis Ross, 1959, *Acting Instructor in Electrical Engineering*  
B.S. in E.E., 1958, Nevada

Bjorkstam, John Ludwig, 1955 (1957), *Assistant Professor of Electrical Engineering*  
B.S. in E.E., 1949, M.S. in E.E., 1952, Ph.D., 1958, Washington

Chao, Robert Yuan-hui, 1956, *Acting Instructor in Electrical Engineering*  
B.S., 1954, National Taiwan University; M.S., 1956, Ohio State University

Clark, Robert Newhall, 1957, *Associate Professor of Electrical Engineering*  
B.S. in E.E., 1950, M.S. in E.E., 1951, University of Michigan

Cochran, Lyall Baker, 1934 (1952), *Professor of Electrical Engineering*  
B.S. in E.E., 1923, E.E., 1936, Washington

Dobrott, Donald Richard, 1959, *Acting Instructor in Electrical Engineering*  
B.S., 1958, Washington

Eastman, Austin Vitruvius, 1924 (1942), *Professor of Electrical Engineering; Executive Officer of the Department of Electrical Engineering*  
B.S. in E.E., 1922, M.S. in E.E., 1929, Washington

Golde, Hellmut, 1959, *Assistant Professor of Electrical Engineering*  
Dip.-Ing., 1953, Technische Hochschule; M.S., 1955, Ph.D., 1959, Stanford

Guilford, Edward Charles, 1959, *Assistant Professor of Electrical Engineering*  
B.A., 1942, M.A., 1950, Utah; Ph.D., 1959, California.

Harrison, Arthur Elliot, 1948 (1952), *Professor of Electrical Engineering*  
B.S. in E.E., 1936, California; M.S., 1937, Ph.D., 1940, California Institute of Technology

Held, Gedaliahu, 1954 (1956), *Associate Professor of Electrical Engineering*  
M.S., 1950, Hebrew University, Israel; Ph.D., 1954, California

Hill, William Ryland, Jr., 1941 (1953), *Professor of Electrical Engineering; Associate Dean of the College of Engineering*  
B.S. in E.E., 1934, Washington; M.S. in E.E., 1938, E.E., 1941, California

Hoard, George Lisle, 1920 (1941), *Professor of Electrical Engineering*  
B.S. in E.E., 1917, M.S. in E.E., 1926, Washington

Holden, Alistair David Craig, 1958, *Acting Instructor of Electrical Engineering*  
B.S., 1955, Glasgow University; M.S., 1958, Yale University

Hsu, Chih-Chi, 1958, *Assistant Professor of Electrical Engineering*  
B.S. in E.E., 1945, Chiao-Tung University; M.S. in E.E., 1949, University of Michigan; Ph.D., 1951, Ohio State University

Ishimaru, Akira, 1954 (1958), *Assistant Professor of Electrical Engineering*  
B.S. in E.E., 1951, Tokyo; Ph.D., 1958, Washington

Johnson, David Laurence, 1955 (1957), *Associate Professor of Electrical Engineering*  
B.S. in E.E., 1948, Idaho; Ph.D., 1955, Purdue

Kieburz, Richard Bruce, 1956, *Acting Instructor in Electrical Engineering*  
B.S. in E.E., 1955, Washington

Kiskaddon, William Victor, 1956, *Acting Instructor in Electrical Engineering*  
B.S. in E.E., 1955, Washington

Lewis, Laurel Jones, 1946 (1954), *Professor of Electrical Engineering*  
A.B., 1933, E.E., 1935, Ph.D., 1947, Stanford

Lindblom, Roy Eric, 1924 (1945), *Professor of Electrical Engineering*  
B.S. in E.E., 1922, M.S. in E.E., 1929, Washington

Loew, Edgar Allan, 1909 (1948), *Professor Emeritus of Electrical Engineering; Dean Emeritus of the College of Engineering*  
B.S. in E.E., 1906, E.E., 1922, Wisconsin



- Lytle, Dean Winton, 1958, *Assistant Professor of Electrical Engineering*  
B.S. in E.E., 1950, University of California; M.S. in E.E., 1954, Ph.D., 1957, Stanford
- Madhu, Swaminathan, 1957, *Acting Instructor of Electrical Engineering*  
B.S., 1951, University of Madras; M.S., 1957, University of Tennessee
- McNelis, David Donald, 1955, *Instructor in Electrical Engineering*  
B.S. in E.E., 1952, Gonzaga; M.S. in E.E., 1957, Washington
- Menon, Premachandran Rama, 1958, *Acting Instructor of Electrical Engineering*  
B.S. in E.E., 1953, Banaras Hindu University
- Noges, Endrik, 1958, *Assistant Professor of Electrical Engineering*  
B.S. in E.E., 1954, M.S. in E.E., 1956, Ph.D., 1959, Northwestern University
- Reynolds, Donald Kelly, 1959, *Associate Professor of Electrical Engineering*  
B.A., 1941, M.A., 1942, Stanford; Ph.D., 1948, Harvard
- Robbins, Floyd David, 1946 (1957), *Associate Professor of Electrical Engineering*  
B.S. in E.E., 1925, E.E., 1949, Washington
- Rogers, Walter Edwin, 1946 (1956), *Professor of Electrical Engineering*  
B.S. in E.E., 1934, California; M.S. in E.E., 1948, Washington
- Schrader, David Hawley, 1954, *Acting Instructor in Electrical Engineering*  
B.S. in E.E., 1951, Kansas
- Shimada, Katsunori, 1958, *Assistant Professor of Electrical Engineering*  
B.S., 1945, Tokyo University; M.S. in E.E., 1954, Ph.D., 1958, University of Minnesota
- Shiva, Saligram Gopalakrishna Rao Subramanya, 1958, *Acting Instructor of Electrical Engineering*  
B.S., 1942, B.S. in E.E., 1946, Mysore University; M.S. in E.E., 1958, University of Tennessee
- Sigelmann, Rubens Adolpho, 1959, *Acting Instructor in Electrical Engineering*  
M.E. in E.E., 1952, Universidade do Sao Paulo
- Sleeth, John Douglas, 1958, *Acting Instructor in Electrical Engineering*  
B.S., 1956, Oregon State College
- Smith, George Sherman, 1921 (1941), *Professor of Electrical Engineering*  
B.S. in E.E., 1916, E.E., 1924, Washington
- Sokkappa, Balraj Gnana, 1956, *Acting Instructor in Electrical Engineering*  
B.S., 1952, University of Madras; M.S., 1955, California
- Stevens, Frank Eugene, 1957, *Acting Assistant Professor of Electrical Engineering*  
B.S., 1951, M.S., 1953, Massachusetts Institute of Technology
- Swarm, Howard Myron, 1947 (1955), *Professor of Electrical Engineering*  
B.S. in E.E., 1940, M.S. in E.E., 1950, Washington
- Turner, Richard Lewis, Jr., 1955, *Instructor in Electrical Engineering*  
B.S. in E.E., 1946; M.S. in E.E., 1952, Drexel Institute of Technology
- Vanden Bos, Lawrence J., 1958, *Acting Instructor of Electrical Engineering*  
B.S., 1956, M.S., 1958, Michigan State University
- Wall, Robert Edgar, Jr., 1954, *Assistant Professor in Electrical Engineering*  
B.S. in E.E., 1949, M.S. in E.E., 1953, Ph.D., 1959, Washington
- Watt, Lynn Alexander Keeling, 1959, *Assistant Professor of Electrical Engineering*  
B.S., 1947, Manitoba; S.M., 1951, Chicago; Ph.D., 1959, Minnesota
- Wei, Ling Yun, 1958, *Assistant Professor of Electrical Engineering*  
B.S., 1942, National Northwestern College of Engineering; M.S., 1949, Ph.D., 1958, University of Illinois

#### GENERAL ENGINEERING

- Alexander, Daniel Edward, 1954 (1956), *Assistant Professor of General Engineering*  
B.S. in M.E., 1947, M.S. in M.E., 1954, Washington
- Bartlett, Francis Grindall, 1956, *Assistant Professor of General Engineering*  
B.S.E. in Nav. Arch. and Marine Engrg., 1952, M.S.E. in Nav. Arch. and Marine Engrg., 1956, Michigan
- Boehmer, Herbert, 1937 (1955), *Associate Professor of General Engineering*  
Dipl. Engr., M.E., 1928, German Technical University, Brunswick; M.S. in A.E., 1933, Washington

- Bonow, Walter Burnett, 1956 (1958), *Assistant Professor of General Engineering*  
B.S., 1948, Antioch College
- Brown, Robert Quixote, 1919 (1947), *Professor of General Engineering*  
B.S. in E.E., 1916, Washington
- Chariton, Nicholas George, 1955, *Instructor in General Engineering*  
B.S. in Ind.E., 1953, Georgia Institute of Technology
- Collins, James Douglass, 1958, *Assistant Professor of General Engineering*  
B.S. in M.E., 1938, Michigan State; M.S. in I.E., 1958, Purdue
- DeMoss, Samuel, 1957, *Assistant Professor of General Engineering*  
B.S. in C.E., 1915, Washington
- Douglass, Clarence Eader, 1939 (1955), *Associate Professor of General Engineering*  
B.S., 1927, Washington State
- Dunn, Walter Lee, 1954, *Assistant Professor of General Engineering*  
B.S. in C.E., 1949, Montana State; M.P.H., 1953, California
- Falkovich, Oleg C., 1954 (1956), *Assistant Professor of General Engineering*  
B.S. in E.E., 1927, Washington; M.S. in E.E., 1932, California
- Gullikson, Albert Clarence, 1942 (1954), *Associate Professor of General Engineering*  
B.S. in M.E., 1924, M.E., 1938, Washington
- Hammer, Vernon Benjamin, 1947 (1957), *Associate Professor of General Engineering; Executive Officer of the Department of General Engineering*  
B.S. in C.E., 1940, Washington; M.S. in S.E., 1941, Harvard
- Hoag, Albert Lynn, 1946 (1957), *Associate Professor of General Engineering*  
B.S.F., 1941, B.S. in C.E., 1952, Washington
- Jacobsen, Philip Amunds, 1927 (1939), *Assistant Professor of General Engineering;*  
B.S. in Engr., 1926, Washington
- Konichek, Dorland Henry, 1954, *Assistant Professor of General Engineering*  
B.S. in C.E., 1930, North Dakota State College
- Long, Richard Wesley, 1958, *Instructor in General Engineering*  
B.S. in C.E., 1954; M.S. in C.E., 1958, Washington
- Macartney, Thomas Wakefield, 1946 (1957), *Associate Professor of General Engineering*  
B.S. in C.E., 1939, B.S. in Com.E., 1946, M.S. in C.E., 1956, Washington
- McCready, Roy Allison, 1958, *Acting Instructor in General Engineering*  
B.S. in Min., 1939, Montana School of Mines
- McNeese, Donald Charles, 1946 (1956), *Associate Professor of General Engineering*  
B.S. in C.E., 1940, C.E., 1951, Wyoming
- Messer, Rowland Enlow, 1946 (1957), *Associate Professor of General Engineering*  
B.S. in M.E., 1935, Washington
- Nelson, George Alvin, 1957, *Assistant Professor of General Engineering*  
B.S. in C.E., 1925, Minnesota
- Prouty, Richard Allen, 1956 (1958), *Assistant Professor of General Engineering*  
B.S. in M.E., 1952, Washington State; M.S. in M.E., Washington
- Rowlands, Thomas McKie, 1928 (1954), *Professor of General Engineering*  
B.S. in Nav. Arch. and Marine Engr., 1926, Massachusetts Institute of Technology
- Seabloom, Robert Wendell, 1954 (1956), *Assistant Professor of General Engineering*  
B.S. in C.E., 1950, M.S. in C.E., 1956, Washington
- Seed, Richard Warren, 1951, *Lecturer in General Engineering*  
B.S. in M.E., 1944, California Institute of Technology; LL.B., 1949, George Washington
- Stern, Paul Herman, 1956, *Instructor in General Engineering*  
B.C.E., 1954, Cooper Union; M.S. in C.E., 1956, Washington
- Sutherland, Charles Woodward, 1958, *Instructor in General Engineering*  
Ph.B., 1929, Yale
- Thompson, Wells, 1958, *Acting Assistant Professor of General Engineering*  
B.S., 1928, U.S. Naval Academy; M.S., 1938, University of California
- Warner, Frank Melville, 1913 (1954), *Professor Emeritus of General Engineering*  
B.S. in M.E., 1907, Wisconsin
- Wilcox, Elgin Roscoe, 1921 (1936), *Professor of General Engineering*  
B.S., 1915, Met.E., 1919, Washington

**HUMANISTIC-SOCIAL STUDIES**

- Botting, David Charles, Jr., 1955, *Assistant Professor of Humanistic-Social Studies*  
B.A., 1940, M.A., 1947, Washington; Ph.D., 1950, Chicago
- Chapman, Stuart Webster, 1947 (1954), *Professor of Humanistic-Social Studies; Executive Officer of the Department of Humanistic-Social Studies*  
A.B., 1927, Boston; Ph.D., 1939, Yale
- Elliott, Eugene Clinton, 1953 (1959), *Associate Professor of Humanistic-Social Studies*  
B.A., 1936, M.A., 1941, Washington; Doctor of the University of Paris, Sorbonne, 1952
- Higbee, Jay Anders, 1952 (1956), *Assistant Professor of Humanistic-Social Studies*  
B.A., 1941, Iowa; M.A., 1949, Washington; D.S.S., 1955, Syracuse
- Hunner, Wesley Louis, 1957, *Assistant Professor of Humanistic-Social Studies*  
B.A., 1935, M.A., 1938, Ph.D., 1950, Washington
- Leahy, Jack Thomas, 1959, *Instructor of Humanistic-Social Studies*  
B.A., 1954, M.A., 1957, Washington
- Rustad, John Ronald, 1948 (1955), *Assistant Professor of Humanistic-Social Studies*  
B.A., 1948, M.A., 1949, Washington
- Skeels, Dell Roy, 1946 (1957), *Associate Professor of Humanistic-Social Studies*  
B.A., 1941, M.A., 1942, Idaho; Ph.D., 1949, Washington
- Souther, James Walter, 1948 (1957), *Associate Professor of Humanistic-Social Studies; Assistant Dean of the College of Engineering*  
B.A., 1947, M.A., 1948, Washington
- Trimble, Louis Preston, 1956 (1959), *Assistant Professor of Humanistic-Social Studies*  
B.A., 1950, Ed.M., 1953, Eastern Washington
- White, Myron Lester, 1947 (1959), *Assistant Professor of Humanistic-Social Studies*  
B.A., 1943, Ph.D., 1958, Washington

**MECHANICAL ENGINEERING**

- Anderson, Jay W., 1956, *Instructor in Mechanical Engineering*  
B.S. in M.E., 1955, Washington
- Balise, Peter Louis, Jr., 1953 (1957), *Associate Professor of Mechanical Engineering*  
S.B., 1948, S.M., 1950, Massachusetts Institute of Technology
- Childs, Morris Elsmere, 1954 (1957), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1944, Oklahoma; M.S. in M.E., 1947, Ph.D., 1956, Illinois
- Costello, Charles Pierce, Jr., 1958, *Assistant Professor of Mechanical Engineering*  
B.S. in M.E., 1954, Washington; M.S. in M.E., 1955, Ph.D. in M.E., 1958, Stanford
- Crain, Richard Willson, Sr., 1936 (1953), *Associate Professor of Mechanical Engineering*  
B.S. in E.E., 1930, B.S. in M.E., 1932, Colorado State; M.S. in M.E., 1946, Washington
- Day, Emmett Elbert, 1947 (1954), *Professor of Mechanical Engineering*  
B.A., 1936, East Texas State Teachers College; B.S., 1945, M.S., 1946, Massachusetts Institute of Technology
- Eastwood, Everett Owen, 1905 (1947), *Professor Emeritus of Mechanical Engineering; Research Consultant*  
C.E., 1896, B.S., 1897, A.B., 1899, A.M., 1899, Virginia; B.S., 1902, Massachusetts Institute of Technology
- Firey, Joseph Carl, 1954 (1956), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1940, Washington; M.S. in M.E., 1941, Wisconsin
- Ford, Paul William, 1957 (1959), *Assistant Professor of Mechanical Engineering*  
B.Ind.E., 1956, General Motors Institute; M.S. in M.E., 1959, Washington
- Fritz, Dale Charles, 1956, *Instructor in Mechanical Engineering*  
B.S. in M.E., 1955, B.S. in I.E., 1956, Washington
- Guidon, Michael, III, 1946 (1956), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1942, Lehigh; M.S. in M.E., 1952, Washington

- Hendrickson, Harold Martin, 1949 (1955), *Professor of Mechanical Engineering*  
B.S. in M.E., 1927, M.E., 1935, M.S. in M.E., 1954, Washington
- Holt, Richard Edwin, 1954 (1957), *Assistant Professor of Mechanical Engineering*  
B.S. in M.E., 1947, M.S. in Met.E., 1957, Washington
- Kenny, Lyle Duane, 1956, *Instructor in Mechanical Engineering*  
B.S. in M.E., 1956, Washington
- Kieling, William Clayton, 1956 (1959), *Assistant Professor of Mechanical Engineering*  
B.S. in M.E., 1950, M.S. in M.E., 1959, Washington
- Kobayashi, Albert Satoshi, 1958, *Assistant Professor of Mechanical Engineering*  
B.S., 1947, Tokyo; M.S. in M.E., 1952, Washington; Ph.D., 1958, Illinois Institute of Technology
- McFeron, Dean Earl, 1958, *Professor of Mechanical Engineering*  
B.S. in M.E., 1945, M.S. in M.E., 1948, Colorado; Ph.D., 1956, Illinois
- McIntyre, Harry John, 1919 (1948), *Professor Emeritus of Mechanical Engineering*  
B.S. in M.E., 1915, M.B.A., 1923, Washington
- McMinn, Bryan Towne, 1920 (1946), *Professor of Mechanical Engineering; Executive Officer of the Department of Mechanical Engineering*  
B.S. in M.E., 1918, Oregon State; M.S. in M.E., 1926, M.E., 1931, Washington
- Meador, Henry Thomas, 1956, *Assistant Professor of Mechanical Engineering*  
B.A., 1943, B.S., 1954, Washington; M.S., 1956, Oregon State
- Mills, Blake David, Jr., 1946 (1947), *Professor of Mechanical Engineering*  
B.S. in M.E., B.S. in E.E., 1934, M.E., 1947, Washington; M.S. in M.E., 1935, Massachusetts Institute of Technology
- Morrison, James Bryan, 1946 (1955), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1943, Virginia Polytechnic Institute; M.S. in M.E., 1954, Washington
- Nordquist, William Bertil, 1947 (1955), *Associate Professor of Mechanical Engineering*  
B.M.E., 1941, Rensselaer Polytechnic Institute; M.S., 1946, Massachusetts Institute of Technology
- Owens, Berl Winfield, 1948 (1956), *Associate Professor of Mechanical Engineering*  
B.Aero.E., 1944, Minnesota; M.S. in M.E., 1953, Washington
- Schaller, Gilbert Simon, 1922 (1937), *Professor of Mechanical Engineering*  
B.S. in M.E., 1916, Illinois; M.B.A., 1925, Washington
- Setchfield, Daniel Frank, 1956 (1958), *Instructor in Mechanical Engineering*  
B.A., 1957, Washington
- Shouman, Ahmad Raafat, 1956, *Assistant Professor of Mechanical Engineering*  
B.S., 1950, Cairo University; M.S., 1954, Ph.D., 1956, Iowa
- Snyder, William Arthur, 1940 (1955), *Associate Professor of Mechanical Engineering*  
B.M.E., 1939, Minnesota
- Taggart, Raymond, 1959, *Assistant Professor of Mechanical Engineering*  
B.S., 1948, London; Ph.D., 1956, Queens (Belfast)
- Thomas, John Peter, 1956, *Instructor in Mechanical Engineering*  
B.Sc., 1950, British Columbia
- Waibler, Paul John, 1954 (1956), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1943, Kansas State; M.S. in M.E., 1944, Yale; Ph.D., 1958, Illinois
- Winslow, Arthur Melvin, 1918 (1952), *Professor Emeritus of Mechanical Engineering; Research Consultant*  
Ph.B., 1903, Brown; B.S., 1906, Massachusetts Institute of Technology

#### MINERAL ENGINEERING

- Anderson, Donald Lorraine, 1947 (1957), *Associate Professor of Mining Engineering*  
B.S. in Min.E., 1938, St. Francis Xavier; M.S. in Min.E., 1941, Illinois
- Bauer, Wolf, 1954, *Lecturer in Ceramic Engineering*  
B.S. in Cer.E., 1935, Washington
- Brien, Frederick Blyth, 1954 (1957), *Associate Professor of Mineral Engineering*  
B.S. in Min.E., 1950, Alberta; M.S. in Mineral E., 1951, Columbia

- Campbell, Robert John, Jr., 1955, *Assistant Professor of Ceramic Engineering*  
B.S., Ch.E., 1939, Oregon State; M.S. in Cer.E., 1954, Washington
- Daniels, Joseph, 1911 (1954), *Professor Emeritus of Mining and Metallurgical Engineering*  
S.B., 1905, Massachusetts Institute of Technology; M.S., 1908, E.M., 1933, Lehigh
- Flanagan, William Francis, 1959, *Assistant Professor of Metallurgical Engineering*  
B.S. in Physics, 1951, M.S., 1953, Sc.D., 1959, Massachusetts Institute of Technology
- Morgan, David William, 1959, *Assistant Professor of Metallurgical Engineering*  
B.A.S.C., 1948, M.A.S.C., 1949, British Columbia; D.I.C., 1953, Imperial College of Science and Technology (London); Ph.D., 1959, London
- Mueller, James Irving, 1949 (1955), *Professor of Ceramic Engineering*  
B.Cer.E., 1939, Ohio State; Ph.D., 1949, Missouri
- Pifer, Drury Augustus, 1945 (1948), *Professor of Mining Engineering; Director of the School of Mineral Engineering*  
B.S. in Min.E., 1930, M.S. in Min.E., 1931, Washington
- Polonis, Douglas Hugh, 1955 (1958), *Associate Professor of Metallurgical Engineering*  
B.S., 1951, British Columbia; M.S., 1953, Toronto; Ph.D., 1955, British Columbia
- Roberts, Earl Champion, 1954 (1958), *Professor of Metallurgical Engineering*  
B.S. in Met.E., 1943, Montana School of Mines; M.S. in Met.E., 1950, Ph.D., 1952, Massachusetts Institute of Technology
- Roberts, Milnor, 1901 (1947), *Professor Emeritus of Mining Engineering*  
B.A., 1899, Stanford

#### ENGINEERING EXPERIMENT STATION

- Farquharson, Frederick Burt, 1925 (1940), *Director of the Engineering Experiment Station; Professor of Civil Engineering*  
B.S. in M.E., 1923, M.E., 1927, Washington

#### NORTHWEST EXPERIMENT STATION, UNITED STATES BUREAU OF MINES

- Centenero, Anthony D., 1937, *Analytical Chemist*  
B.S., 1934, Washington
- Geer, Max Richard, 1935, *Mining Engineer; Lecturer in the School of Mineral Engineering*  
B.E.M., 1934, Ohio State; M.S., 1935, E.M., 1943, Washington
- Kelly, Hal Joseph, 1944, *Metallurgical Engineer; Lecturer in the School of Mineral Engineering*  
B.S., 1934, Washington
- Yancey, Harry F., 1925, *Supervising Engineer; Lecturer in the School of Mineral Engineering*  
B.A., 1913, M.A., 1915, Missouri; Ph.D., 1923, Illinois

#### FACULTY OF RESERVE OFFICERS TRAINING PROGRAM

##### AIR SCIENCE

- Arnold, Capt. Robert C., 1959, *Assistant Professor of Air Science*  
A.B., 1941, California; M.Ed., 1954, Trinity University, Texas
- Bowman, Capt. Jack L., 1957, *Assistant Professor of Air Science*  
B.S., 1949, Idaho
- De Generes, Capt. Frederick S., 1958, *Assistant Professor of Air Science*  
B.S., 1953, U.S. Naval Academy
- Dempsey, Maj. Leo A., 1958, *Assistant Professor of Air Science*  
B.B.A., 1957, Jackson College, Honolulu
- Holloway, Maj. David T., 1959, *Assistant Professor of Air Science*  
A.B., 1959, Maryland
- Kilgore, Capt. Donald K., 1959, *Assistant Professor of Air Science*  
B.A., 1948, Washington
- Jackson, Col. Willie O., Jr., 1958, *Professor of Air Science*  
B.A., Northwestern State, Louisiana

- Maddux, Capt. Gerald M., 1958, *Assistant Professor of Air Science*  
A.B.(Educ.), Chico State, California; M.Ed., Missouri
- Nelson, Capt. Deryl W., 1958, *Assistant Professor of Air Science*  
B.A., 1951, Fresno State, California
- Ramirez, Maj. Norbert D., 1957, *Assistant Professor of Air Science*  
B.S., 1941, California
- Robertson, Capt. John L., 1957, *Assistant Professor of Air Science*  
B.A., 1952, Washington
- Trowbridge, Capt. Charles E., 1958, *Assistant Professor of Air Science*  
B.S., 1951, Idaho

#### MILITARY SCIENCE AND TACTICS

- Brothers, Master Sergeant Raymond R., 1957, *Instructor of Military Science and Tactics*
- Condon, Lt. Col. Herbert Thomas, Jr., 1958, *Assistant Professor of Military Science and Tactics*  
B.A., 1938, Washington
- Conn, Capt. Jack Lee, 1957, *Assistant Professor of Military Science and Tactics*  
B.A., 1951, New Mexico College of Agricultural and Mechanical Arts
- Denahy, Sergeant First Class Robert V, 1958, *Instructor of Military Science and Tactics*
- Friend, Master Sergeant Joseph C., 1955, *Instructor of Military Science and Tactics*
- Gilchrist, Maj. Charles Allen, 1959, *Assistant Professor of Military Science and Tactics*  
B.A., 1948, Missouri
- Greene, Col. Corston Arthur, 1958, *Professor of Military Science and Tactics*  
B.A., 1932, Washington
- Hunt, Master Sergeant James R., 1959, *Instructor of Military Science and Tactics*
- Kirk, Capt. Richard Laurens, 1958, *Assistant Professor of Military Science and Tactics*  
B.A., 1949, Washington
- MacGregor, Maj. Alan Alexander, 1956, *Assistant Professor of Military Science and Tactics*  
B.S., 1939, Connecticut
- Moholy, Maj. Joseph David, 1957, *Assistant Professor of Military Science and Tactics*  
B.S., 1953, San Francisco; M.B.A., 1959, Washington
- Neal, Capt. William Bert, 1959, *Assistant Professor of Military Science and Tactics*  
B.S., 1950, Agricultural and Technical College of North Carolina
- Olson, Maj. Charles Marshall, 1959, *Assistant Professor of Military Science and Tactics*  
B.M.S., 1958, Maryland
- Richards, Sergeant First Class Loyd H., 1957, *Instructor of Military Science and Tactics*
- Rockwell, Sergeant First Class Robert C., 1956, *Instructor of Military Science and Tactics*
- Rountree, Sergeant First Class Ellery L., 1957, *Instructor of Military Science and Tactics*
- Schmidt, Maj. Robert James, 1958, *Assistant Professor of Military Science and Tactics*  
B.C.E., 1943, Dayton; M.S., 1958, Stanford
- Shepard, Sergeant First Class William C., 1958, *Instructor of Military Science and Tactics*
- Sims, Maj. Deward Waldo, 1956, *Assistant Professor of Military Science and Tactics*

Stockman, Master Sergeant Perry J., 1956, *Instructor of Military Science and Tactics*

Sutton, Sergeant First Class Richard P., 1955, *Instructor of Military Science*

Zumwalt, Captain Charles B., 1958, *Assistant Professor of Military Science and Tactics*

B.S., 1949, Oregon State

#### NAVAL SCIENCE

Bray, Lt. Joseph A., Jr. (SC), *Assistant Professor of Naval Science*

B.S., 1951, U.S. Naval Academy

Britain, Agy sgt. Fred Leonard, Jr. (U.S.M.C.), 1959, *Instructor*

Chase, Ltjg. Warren Thomas, Jr., 1958, *Assistant Professor of Naval Science*

B.S., 1956, Yale

Colley, Col. Thomas J., U.S. Marine Corps, *Professor of Naval Science*

B.S., 1932, U.S. Naval Academy; M.A., 1950, Stanford

Cooper, Cdr. Walter, *Associate Professor of Naval Science*

B.A., 1938, Oberlin

Newbery, BM1 Robert Walter, 1957, *Instructor in Naval Science*

Peterson, Maj. Richard F., 1957, *Assistant Professor of Naval Science*

B.A., 1947, Washington State

Smith, Lt. Douglas A., *Assistant Professor of Naval Science*

B.S., 1955, University of Rochester

Smith, Lt. Richards Macpherson, 1959, *Assistant Professor of Naval Science*

A.B., 1953, Southern California

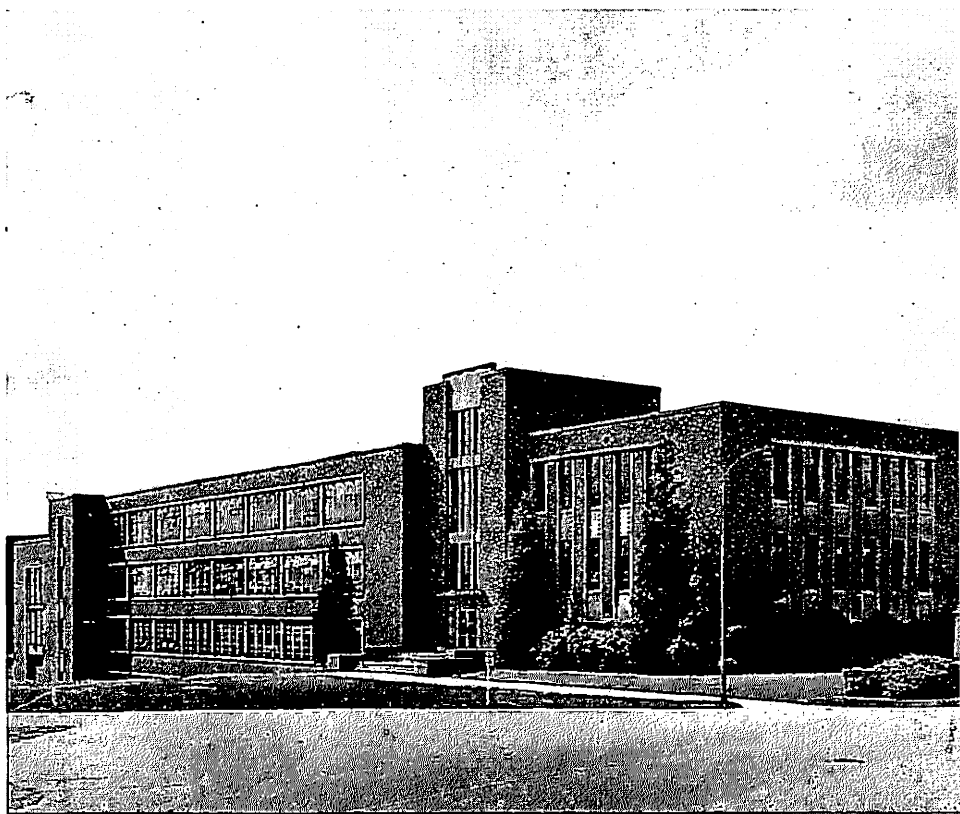
Tisdell, QMC Francis Wood, 1957, *Instructor in Naval Science*

Totten, LCdr. Clifford H., 1957, *Assistant Professor of Naval Science*

B.S., 1950, State Teachers College, Dickens, N. D.; M.S., 1951, Southern California

Wade, SKC Francis Joseph, 1957, *Instructor in Naval Science*

Yeager, Noble D., GMC, *Instructor in Naval Science*



## GENERAL INFORMATION



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## GENERAL INFORMATION

**I**N THE SPRING of 1861 three forward-looking Seattle citizens, Arthur A. Denny, Judge Edward Lander, and Charles C. Terry, deeded ten acres of land for the establishment of a new university in what was then Washington Territory. Several months later, on November 4, 1861, the University of Washington opened the doors of a new frame building where the twenty-two-year-old "principal," Asa Shinn Mercer, began the instruction of thirty-one students, many of them young men recruited from nearby logging camps.

By 1889, when Washington was admitted to the Union, the University had achieved a consistent program and an enrollment of more than one hundred students. But it was clear that the original building would soon be inadequate and that the University would need more room for development. In 1891 the new University site, the present 600-acre campus between Lake Washington and Lake Union, was selected. The first of the new buildings, Denny Hall, was completed in 1894 and occupied for the first time in September, 1895, when the University's enrollment was 425 students. (The original campus is now the center of downtown Seattle. The Olympic Hotel stands on the ground occupied by the first University of Washington building.)

The plan to establish curricula in engineering was formulated at the time the University was preparing to move to its present campus. Instruction in mining engineering was authorized by the Regents in 1893 and the Catalogue of 1894-95, which listed courses in civil engineering, including surveying, descriptive geometry, hydraulics, irrigation, and strength of materials, also announced that instruction in electrical engineering was planned for 1895. It was not until 1898, however, that the Department of Civil Engineering and the School of Mining Engineering were established on a firm basis with qualified faculty members. In 1901 the sporadic courses in electrical engineering were brought into a definite curriculum.

The College of Engineering was recognized as a major unit of the University in 1899, when Professor Almon H. Fuller was appointed the first Dean of Engineering. The first engineering degree was awarded in 1900 in mining engineering. The first degree in civil engineering was awarded in 1901, the first degree in electrical engineering in 1902, the first degree in mechanical engineering in 1906, and the first degree in chemical engineering in 1907. The Department of Aero-

nautical Engineering was established in 1929 and its first degrees awarded in 1930.

In 1911 the School of Mines became the College of Mines, and in that year the Northwest Mine Rescue Station of the United States Bureau of Mines was established at the University. Later, in 1916, the Training Station was joined by the Northwest Experiment Station, a coal and nonmetallic mining laboratory of the Bureau. The College of Mines remained a college until 1947, when it became the School of Mineral Engineering within the College of Engineering.

In 1955 the College established a graduate program in Nuclear Engineering leading to the degree of Master of Science in Engineering, and the first degree was awarded in 1958.

The College of Engineering, participating in the technological development of the Northwest, has shared the University's rapid growth. The College has a faculty of more than a hundred and fifty members. In 1959 some twenty-four hundred undergraduate and four hundred graduate students were enrolled in engineering curricula.

## **BUILDINGS AND FACILITIES**

The departments of the College of Engineering occupy seven major campus buildings: More Hall (Civil), Hydraulics Laboratory (Civil), Electrical Engineering Building, Roberts Hall (School of Mineral Engineering), Guggenheim Hall (Aeronautical and Humanistic-Social Studies), General Engineering Building, and Mechanical Engineering Building. In addition to numerous smaller isolated laboratories, substantial portions of the following buildings are also used: Bagley Hall (Chemical Engineering), and Engineering Shops (Mechanical Engineering). Brief descriptions of the departmental facilities are given in the following paragraphs.

### **AERONAUTICAL ENGINEERING**

Equipment is available for laboratory instruction and experimental investigations in the fields of aerodynamics and structures.

The F. K. Kirsten Aeronautical Laboratory houses a 250 mph wind tunnel, plus supporting offices and facilities. The test section measures 8 by 12 feet. This laboratory is used for industrial testing, sponsored research projects, and student research investigations.

The supersonic laboratory in Guggenheim Hall contains a three square inch blow-down wind tunnel, including a Schlieren optical system. Speeds up to Mach 5 can be achieved; furthermore, the simplicity and flexibility of this tunnel renders it very useful for student research studies.

A hypersonic shock tunnel is currently being put into operation. It is expected that speeds in excess of Mach 10 will be reached with this new facility.

Several additional wind tunnels are available for laboratory instruction.

The Structures Laboratory is located in Guggenheim Hall and is equipped for both static and dynamic structural tests. Basic equipment includes a 60,000-pound Tinius Olsen mechanical type testing machine, Brush oscillograph, Ellis amplifiers, SR4 strain recording equipment, oscilloscopes, and specially constructed loading devices.

A well-equipped machine and model shop is maintained by the Department. This is available to students engaged in research projects undertaken as part of their training in the Department of Aeronautical Engineering.

### **CHEMICAL ENGINEERING**

The Department of Chemical Engineering is in Bagley Hall, where, in addition to laboratories for instruction in chemistry, a number of laboratories with extensive special equipment are provided for students in chemical engineering courses. The two-story chemical engineering unit operations laboratory contains equipment for study of fluid flow, heat transfer, evaporation, absorption, distillation, centrifuging, drying, filtration, and crystallization. Grinding and sieving equipment is in a separate room. A unit operations laboratory has pilot-plant-size equipment for

study of chemical processing. Complete equipment is available for study of paper pulping processes on a pilot-plant basis and for laboratory investigations of electro-chemistry. Machine, instrument, and glass-blowing shops staffed by full-time employees are maintained. A wide variety of special equipment for research is used by seniors and graduate students for thesis investigations, and a branch library in Bagley Hall houses a special collection of reference books and periodicals.

#### **CIVIL ENGINEERING**

More Hall, the civil engineering building, has modern structural, concrete, mineral aggregates, soil mechanics, bituminous and sanitary engineering laboratories. The structural laboratory contains a 2,400,000-pound testing machine with 120 inches between screws, a number of smaller machines ranging in capacity from 60,000 to 300,000 pounds, and complete electronic apparatus for stress and strain measurements. The concrete laboratory has facilities for making, curing, and testing concrete specimens. The aggregates laboratory houses apparatus for testing the hardness, soundness, and wearing qualities of rock and for control of grading. The soil mechanics laboratory is of top rank in this field, and is equipped for all generally recognized tests encountered in foundation and earthwork engineering.

The bituminous laboratory contains apparatus for the usual tests required of asphaltic road building materials and is exceptionally well equipped for research in the design of stable bituminous surfacings. A complete sanitary engineering laboratory for the chemical, bacteriological, microscopic, and radiological analysis of water, sewage, and industrial waste is available for study and professional research. The Charles W. Harris Hydraulics Laboratory, on the shore of Lake Union, is equipped with the latest facilities for investigations and laboratory studies of many problems in experimental hydraulics and water power. It is supplemented by a half-acre outdoor laboratory for construction and study of models of river channels.

#### **ELECTRICAL ENGINEERING**

The Department of Electrical Engineering is housed in Electrical Engineering Hall, a three-story building of modern design completed in 1948. All classrooms, laboratories, and most of the research facilities are included in the approximately 80,000 square feet of this building. Most classrooms are designed to accommodate a maximum of 24 students each.

Laboratories include two large undergraduate laboratories in which most of the sophomore and junior work is done. A number of smaller laboratories are also provided in such specialized areas as microwaves, controls, fields, computers, servo-systems, acoustics, measurements, and transients, most of which are used by both graduate and undergraduate students.

Field laboratories include a 44-acre site in the south end of Seattle which is devoted to study of antennas, radio propagation, satellite reception, ionosphere measurements, etc., and a smaller site near Kenmore.

Graduate students are usually assigned to one of the smaller laboratories or to a field site where they carry on research leading to a thesis, under the supervision of a graduate faculty adviser.

#### **GENERAL ENGINEERING**

The Department of General Engineering occupies a new centrally located modern four-story building, especially designed for the use of the first year engineering student. Besides adequate classrooms and offices, the building contains a student reading and study room, a blueprinting room with high-speed printing and developing machine, a shop for model building, and a well-designed lecture and motion picture auditorium seating 160.

#### **HUMANISTIC-SOCIAL STUDIES**

The Department of Humanistic-Social Studies is unusually well provided with modern equipment to supplement conventional teaching methods. Foremost among

its facilities is a library of its own, stocked with books in a wide variety of non-technical fields. These volumes are on open shelves, readily accessible to students who wish to browse. The library also has a collection of records for circulation. The Department has equipment for most of the audio-visual activities now common in teaching, including the recording and playing back of students' talks.

### **MECHANICAL ENGINEERING**

A new building, occupied in June 1959 and containing 100,000 square feet, houses all of the activities of the department except those in manufacturing processes, which are located in an adjacent building. Approximately 15,000 square feet are devoted to laboratory instruction and research facilities for the study of engineering materials, experimental stress analysis, instrumentation, and vibration. All the usual physical testing equipment is available in these laboratories. The experimental stress analysis and non-destructive testing areas are especially well-equipped. The instrumentation laboratory contains facilities for the study of automatic control, including apparatus to demonstrate principles by electronic, pneumatic, and hydraulic analogs. A well-equipped instrument and experimental shop is an adjunct of these laboratories.

Instructional and research laboratories, serving the thermodynamics and heat transfer areas, occupy about 18,000 square feet and are equipped to exemplify the modern trends in heat power laboratory instruction and also to lend themselves to research. Substantially all of the equipment is new. Molten-metal and water heat transfer loops are housed in special quarters and are instrumented to be used effectively in undergraduate and graduate instruction as well as for research in nuclear reactor applications. Facilities are provided for instruction and research in the use of radiation-tracer techniques in lubrication and wear studies. Solar heat collectors and associated equipment are mounted on the roof of the building. Through cooperation of the United States Navy, rocket dynamometer test stands of the department are quartered at the Sand Point Naval Air Station, two miles from the campus.

Laboratories serving the manufacturing methods area are arranged and outfitted to demonstrate the basic principles of forming and fabricating for engineering purposes and to exemplify the economic aspects of production. Work in this area is carefully directed to give the optimum return to the student for the limited time spent in it.

### **MINERAL ENGINEERING**

**CERAMIC ENGINEERING.** The laboratories of the Ceramic Engineering Division are made up of five groups, the first of which contains facilities for grinding and classifying raw materials, mixing and tempering them, and forming these materials into shapes. The second group, principally in the Hewitt Wilson Ceramic Laboratory, contains the various kilns necessary for firing and testing ceramic ware. Included in these are a small scale continuous electric-fired tunnel kiln and a small rotary kiln. A larger rotary kiln of sufficient size for pilot-plant experiments is also available outside this building. A physical testing laboratory makes up the third unit, also in the Hewitt Wilson Laboratory. The fourth group is the coatings laboratory in which glazes for ceramic ware and coatings for materials are prepared, applied, and fired. The research laboratory is the fifth of these groups and contains the equipment needed for specialized undergraduate and graduate research including a supercentrifuge for sub-sieve particle size determination, thermal expansion unit, differential thermal analysis equipment, and petrographic microscope for mineral identification and analysis and electro-dialysis equipment. For X-ray diffraction, the laboratory is equipped with the latest Norelco diffraction and fluorescent analysis units by means of which either the direct reading techniques or camera technique can be employed.

**METALLURGICAL ENGINEERING.** The Division of Metallurgical Engineering maintains a laboratory with facilities for extractive process and physical metallurgical investigations. The process laboratories are equipped for studies in sinter-

ing, roasting, smelting, leaching, and electro-recovery of metals. Fire assay and wet assay laboratories are adjuncts for process control. A fuels analytical laboratory is available for studies of fuel characteristics and values.

The physical metallurgy laboratories include a preparation laboratory for cutting and coarse grinding of specimens, a polishing and physical testing laboratory, a metallographic laboratory with several dark rooms, and a heat treatment laboratory with furnaces ranging from salt-bath to controlled atmosphere and vacuum units. Other equipment is available for dilatometry, resistivity measurements, and special quenching techniques. The X-ray diffraction laboratory features spectroscopy, fluorescent units, and recording goniometric equipment together with the usual camera units. Alloys are prepared in a 17-Kva induction furnace. A separate laboratory is established for work in nuclear metallurgy. Field trips are made to plants of the diverse metal industry of western Washington.

**MINING ENGINEERING.** Laboratories of the Division of Mining Engineering include full-scale commercial equipment supplemented by laboratory machines of the latest design. Mining practices are studied with the aid of models, maps, and frequent field trips. An equipment catalog file enables the student to relate class problems to field practice. Case problems from actual mine operation are used for instruction, following the study of fundamental elements. The important coal fields of western Washington, the mining districts of the Cascade Mountains, and the large quarry industry of Puget Sound afford opportunity to observe all phases of mining. Annual excursions to more distant mining districts supplement the local studies. The facilities of the Department of Geology are also used by the mining students.

The ore-dressing and mineral-preparation laboratories are equipped for research in all milling problems. A microscopy and fine-sizing laboratory is used in the basic approach to concentration and grinding problems. A well-equipped flotation and magnetic separation laboratory is maintained. A complete pilot plant treating 50 pounds of feed per hour, with equipment units movable so that any suitable flow through the plant can be arranged, is used in studying advanced milling problems. A crushing and screening laboratory and a sampling room complete the special facilities. A wide variety of ores are in storage and available for experimental testing. In cooperation with the School, the U.S. Bureau of Mines maintains the most extensive coal preparation laboratory in the West, and wide recognition is accorded the research performed in it. Graduate students work with the Bureau staff.

Students selecting the geological option have at their disposal the complete laboratories of the Department of Geology. The origin of mineral deposits and their characteristics are studied with the aid of maps, structural sections, and suites of typical specimens with polished and thin sections for microscope examination. The large collection of ores at the School of Mineral Engineering is also available. Stratigraphic and paleontological laboratories are supplemented by field study in the Eocene area around Puget Sound and by summer field courses held in other localities. A feature of the senior year is field study, under supervision of faculty members, of the geology of a mine or a prospect.

#### **NUCLEAR ENGINEERING**

The nuclear engineering program is a cooperative effort of the Departments of Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Metallurgical Engineering. Each department offers laboratory facilities for training in one or more of the specialized fields of nuclear engineering. See page 91 for a detailed description of the nuclear engineering laboratories and facilities.

#### **ENGINEERING EXPERIMENT STATION**

In a typical year the total number of research projects active in the College of Engineering approximates seventy-five of which approximately 50 per cent are

sponsored by the Engineering Experiment Station. The E.E.S. projects are manned by half-time graduate research assistants paid by the Experiment Station which also provides a suitable subsidy for equipment and supplies. All investigations are carried on by research assistants under the supervision of the teaching faculty.

The Experiment Station publishes *The Trend in Engineering*, a quarterly journal of research, as well as occasional bulletins growing out of faculty supervised research. Research articles published in standard engineering journals are re-printed each year for distribution to the principle engineering libraries at home and abroad.

## Revised Admission Requirements for 1961

Effective September, 1961, the admission requirements for the College of Engineering will be as follows:

Graduates of accredited high schools who meet University entrance requirements are eligible for admission as freshmen with regular standing in the College of Engineering provided that: (a) they have a cumulative grade-point average of 2.50 (C+) or better for all subjects; (b) they have a cumulative grade-point average of 2.50 or better for mathematics and science subjects; (c) they present 16 high school units conforming to the following subject matter requirements:

Elementary algebra	1 unit	Chemistry	1 unit
Advanced algebra	½ unit	English	4 units
Plane geometry	1 unit	Other academic subjects	2 units
Trigonometry	½ unit	Electives	5 units
Physics	1 unit		

The English credits must include a course in senior composition and may include ½ unit of Language Arts. The elective units may be entirely vocational or entirely academic, or a combination of both.

## CURRENT ADMISSION REQUIREMENTS

### GENERAL ADMISSION REGULATIONS

Regulations pertaining to admission to the University are administered by the Board of Admissions, an administrative board appointed by the President. First preference is given to qualified residents of Washington and all sons and daughters of University of Washington alumni. The College of Engineering, like most colleges in the University, admits qualified out-of-state students and encourages those who meet the nonresident scholarship requirements to apply. See Scholarship Requirements, pages 31-35.

Applications for Admission must be submitted by prescribed deadlines and must be substantiated by certain credentials and reports submitted in accordance with University rules and practices. It is important that the student's application be submitted by the proper time, for the University *will assume no responsibility for applicants who come to the campus before their credentials have been forwarded or before they have been notified of acceptance.*

Correspondence regarding admission should be addressed to the Office of Admissions.

It is the student's responsibility to make sure that complete credentials covering all his previous secondary and college education are submitted to the University. To be official, they must be forwarded by the principal or registrar of the last school attended, direct to the University's Office of Admissions. These records become part of the official file and cannot be returned to the student nor duplicated for any purpose whatsoever, as the University does not issue or certify copies of transcripts from other institutions. Failure to supply complete college creden-

tials will be considered a serious breach of honor and may result in permanent dismissal from the University.

To be assured of admission in Autumn Quarter, it is imperative that complete required credentials are forwarded after high school graduation and no later than July 15. The July 15 deadline also applies to applicants desiring to transfer from other colleges and universities. Applications, with complete credentials, post-marked between July 15 and August 15 will be accepted in order of receipt only as long as additional new students can be accommodated. No applications post-marked after August 15 will be considered. For admission in the other quarters, applications and credentials should be submitted by published deadlines. (For specific dates see Calendar, pages 4-11.) This applies to *all* new students seeking admission as graduates or undergraduates. *It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.* Telegraphed or airmailed messages or requests will *not* be given precedence over other material already received by regular mail.

#### ADMISSION FROM ACCREDITED HIGH SCHOOLS

Graduates who earn diplomas of graduation from accredited high schools and who meet the College of Engineering unit and scholarship requirements for entrance are eligible for admission as freshmen with regular standing.

No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

Each entering freshman is required to submit from an accredited high school an official Application for Admission blank (obtainable from any high school principal or from the Office of Admissions of the University) which includes all credits and grades and a statement that the student has completed his high school course with a diploma of graduation. A high school diploma cannot be substituted for the official blank. Accredited high schools in Washington are those accredited by the State Department of Public Instruction; in Alaska, by the Northwest Association of Secondary and Higher Schools; in other states, by the state university of the state or a regional accrediting association.

A high school senior may submit, after the end of the seventh semester, an official Application for Admission blank which includes all credits and grades through the seventh semester, a list of eighth-semester courses, and the expected date of graduation. Those who are found qualified will be notified they have been granted conditional admission; final admission will be contingent upon submission of a supplementary transcript after high school graduation, which includes the eighth-semester subjects with satisfactory grades and a statement that the high school course has been completed with a diploma of graduation. *Final admission to the University will continue to be based on complete records through the eighth semester and a statement that a diploma of high school graduation has been awarded.*

#### SCHOLARSHIP REQUIREMENTS FOR APPLICANTS ENTERING DIRECTLY FROM HIGH SCHOOL

See page 33 for applicants who have had college work.

**Legal Residents of the State of Washington and All Sons and Daughters of University of Washington Alumni**

#### REGULAR CLASSIFICATION

Graduates of accredited high schools who meet University entrance requirements are eligible for admission as freshmen with regular standing in the College of Engineering provided that: (a) they have a cumulative grade-point average of 2.50 (C+) or better for all subjects; (b) they have a cumulative grade-point average of 2.50 or better for mathematics and science subjects; (c) they present 16 high school units<sup>1</sup> conforming to the following subject matter requirements:

<sup>1</sup> To count as a unit, a subject must be taught five times a week, in periods of not less than forty-five minutes, for a high school year of thirty-six weeks. The maximum allowance toward University entrance for junior high school study is 4 units.

Elementary algebra	1 unit	Chemistry	1 unit
Advanced algebra	$\frac{1}{2}$ unit	English*	$3\frac{1}{2}$ units
Plane geometry	1 unit	Other academic subjects	$2\frac{1}{2}$ units
Trigonometry	$\frac{1}{2}$ unit	Electives**	5 units
Physics	1 unit		

\*The English credits must include a course in senior composition.

\*\*The elective units may be entirely vocational or entirely academic, or a combination of both.

Students must possess a good working knowledge of both algebra and trigonometry at the beginning of their course. Qualifying examinations in algebra and trigonometry are required by the Mathematics Department before registration for college algebra. This is to ascertain the student's present knowledge of and ability to use this subject matter. An adequate review in these subjects, shortly before taking the examination, is strongly advised. Dates for these tests are given on the information sheet included with the admission notice.

No foreign language is required for admission, but students who take a foreign language in high school will find German or French the most useful in an engineering career.

#### PROVISIONAL CLASSIFICATION

Students who meet College of Engineering entrance requirements except those in chemistry and trigonometry will be admitted with provisional status until these deficiencies are removed.

A limited number of graduates from accredited high schools with a grade-point average between 2.20 and 2.50, who meet all of the subject matter requirements of the College and have at least a 2.50 grade-point average in mathematics and science, may be admitted on provisional status if college resources permit. They will be placed on regular status for the second quarter if their first quarter grades are satisfactory.

Veterans and mature students who do not fully meet the requirements stated above may petition the Board of Admissions for special consideration, provided they present acceptable credits in  $1\frac{1}{2}$  years of algebra, one year of plane geometry, and at least the first semester of physics.

#### Nonresidents or Students Residing in States and Countries Other Than the State of Washington.

The University scholarship requirement for nonresidents\* or students residing outside the state of Washington who apply for admission directly from high school is a grade-point average of 3.00 (equivalent to a B average on the state of Washington grading system), or placement in the upper 25 per cent of their graduating class. No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state (see Admission from Accredited High Schools, paragraph 3, page 31).

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in the preceding section. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students from high schools in other states which use different grading systems will find their scholarship averages adjusted to the state of Washington four-point system.

A nonresident applicant who cannot meet the 3.00 (B) scholarship requirement, if he believes there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the college of his choice, may petition the Board of Admissions for a review of his case. The Board, which



has final authority, will determine whether or not, in its estimation, an exception should be made.

#### **GRADUATES FROM UNACCREDITED HIGH SCHOOLS**

A graduate of an unaccredited high school in Washington, if he has the recommendation of his principal, may petition the Board of Admissions for permission to enter if he meets other entrance requirements. Before granting such permission, the Board may require these students to pass certain examinations.

#### **NON-HIGH SCHOOL GRADUATES**

In general, the Board of Admissions considers that College Entrance Board Examinations may be used to supplement unaccredited or incomplete preparatory study but may not be used as the sole basis to supply entrance credits. Applications of this kind must be reviewed by the Board of Admissions.

Information regarding College Entrance Board Examinations may be obtained by writing to the Educational Testing Service, P. O. Box 592, Princeton, New Jersey, or Box 27896, Los Feliz Station, Los Angeles 27, California.

#### **ADMISSION WITH ADVANCED UNDERGRADUATE STANDING**

Students in other institutions who plan to transfer to the College of Engineering are urged to pattern their schedules after the curricula of this College, so that they may transfer as many credits as possible.

Applicants are admitted to the University and to the College of Engineering by transfer from accredited colleges, universities, and junior colleges under these conditions:

1. Credits for engineering courses may be transferred only from accredited engineering schools.

2. Complete transcripts and letters of honorable dismissal must be sent directly to the University Office of Admissions by the registrar of the former school. In general, the University will not accept a student who is in scholastic or disciplinary difficulty at his former school. Failure to supply full transcripts will be considered a serious breach of honor and may result in permanent dismissal from the University.

3. *Applicants who are legal residents of the state of Washington and all those who are sons or daughters of University of Washington alumni* and who have completed a year or more of college work must have a 2.50 (C+) grade-point average in both their entire college record and in their mathematics and science courses. The last term in college must also show recommending grades. Those applicants with less than a year of college work must, in addition to meeting these college transfer requirements, also meet the regular high school admission requirements.

4. *Applicants who are not legal residents\* of the state of Washington, applying with fewer than 45 acceptable college credits*, must have a 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also have a 3.00 (B) average in their standard college courses.

5. *Applicants who are not legal residents\* of the state of Washington and who have completed 45 or more standard college credits* must have a 2.70 (B-) average in their standard college courses.

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in paragraph 3 above. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students transferring from colleges or universities that employ a three-point or five-point system of passing grades will find their admission grade point adjusted to the four-point system of the University of Washington.

A nonresident applicant who cannot meet the 3.00 (B) or 2.70 (B-) scholarship requirement, whichever applies in his case, if he believes that there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the College of Engineering, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS

The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted.

1. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined until the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or senior standing. Transfer credit will not be allowed in the senior year.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution.

3. Transfer credits from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits, exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training schools credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the senior year.

6. A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of these credits can apply in the senior year. Extension and correspondence credits from schools that are not members of the National University Extension Association are accepted only after examination.

7. Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Department of Extension Classes and Department of Correspondence Study. All credits earned by advanced-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum. Up to 10 extension or correspondence credits from this University can apply toward the work of the senior year.

8. For work done in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advanced-credit examinations must be filed during the first quarter in residence.

9. No credit will be granted for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

10. In some background subjects, a student, with formal training below the university level but more than is usually given in American high schools, may be registered for a more advanced course.

**ADMISSION OF FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD**

Students educated entirely or partially in foreign countries must meet the same general requirements as those educated in American schools and must demonstrate a satisfactory command of the English language. A student who has graduated from a high school system that provides less than twelve years of instruction may be required to take additional school work.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in university attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students must meet the scholarship requirement for nonresident students. See pages 32 and 34.

In some background subjects, a student, with formal training below the university level but more than is usually given in American high schools, may be registered for a more advanced course.

Where there is reasonable doubt concerning equivalent engineering training or course work, an examination, either oral or written, shall be given by an instructor of the subject in question to determine whether the student meets minimum standards. If the number of transfer credits in a particular course equals at least three-fourths the number of credits required, exemption from that course may be granted at the discretion of the student's adviser and the instructor in that field, provided that such allowances occur in not more than three courses. However, general deficiency, especially in the major field, shall not be condoned. Field training or experience may apply to the extent that it augments a small deficiency in course credit or provides the knowledge for passing an examination for exemption from a course.

**ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Persons twenty-one or older who are legal residents of Washington and are not eligible for admission as regular students, may apply to the Board of Admissions for admission with special standing. With their applications they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the Dean of the College permits but may not participate in student activities or receive degrees. By fulfilling requirements for admission to the College, special students may change their status to that of regular students and may receive degrees.

Persons twenty-one or older may register as auditors in nonlaboratory courses or the lecture parts of laboratory courses by obtaining the consent of the Dean of the College and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter. Students who have been dropped for low scholarship, or new applicants who do not qualify for admission, may not register as auditors until they have been reinstated or accepted in some college of the University.

**ADMISSION TO THE GRADUATE SCHOOL**

Prospective graduate students must apply for admission to the Graduate School. Entrance requirements are described in the *Graduate School Bulletin*, which may be obtained from the Addressograph Service.

**KOREAN VETERANS**

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. If the veteran has any questions regarding application for a certificate, he should contact the Veterans Division, 1B Administration Building. Educational allow-

ance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

### KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented, along with his Program of Studies, to the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

There are restrictions for veterans returning to training following an interruption in excess of twelve months. Korean veterans should consult with the Veterans Division, 1B Administration, or the nearest Veterans Administration office to see if they are eligible for further benefits.

### QUARTER CREDIT REQUIREMENTS (Public Law 550)

14 credits .....	Full subsistence
10 to 13 credits.....	Three-fourths subsistence
7 to 9 credits.....	One-half subsistence
6 credits or less.....	Established tuition and fees
or credits $\div$ 14 $\times$ \$110.00, whichever is the lesser.	

### GRADUATE CREDIT REQUIREMENTS (500-level Courses or Above)

9 credits .....	Full subsistence
7 to 8 credits .....	Three-fourths subsistence
5 to 6 credits .....	One-half subsistence
4 credits or less.....	Established tuition and fees
or credits $\div$ 14 $\times$ \$110.00, whichever is the lesser.	

*If a graduate is combining 400-level courses with 500-level courses, he should check with the Veterans Division, 1B Administration, to determine the scale of pay.*

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

### DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

### CHILDREN OF DECEASED VETERANS

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, 1B Administration Building, on the date of registration.

## WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 42).

## REQUIRED TESTS AND EXAMINATIONS

### WASHINGTON PRE-COLLEGE DIFFERENTIAL GUIDANCE TEST

New students of freshman standing (including transfer students with less than 45 quarter college credits, exclusive of credits in physical education activity and Army, Air Force, and Navy ROTC subjects) are required to take Differential Grade Prediction Test at a time to be announced each quarter.

These tests have been selected on the basis of their proven value for the prediction of grades most likely to be earned by each student. The achieved scores are often used by members of staff in counseling students. In addition, a student's score on three parts of the battery (spelling, usage, and vocabulary) is used to assign him to the appropriate section in English composition; a student who scores in the lower fifth on these three tests must take the remedial, noncredit course, English N50 (Basic Grammar), offered only in Evening Classes, for which an additional fee is charged. Little can be gained by preliminary study for these tests. Sample copies are not available. Special, foreign, and blind students and auditors are exempted.

Foreign students who have markedly inadequate previous training in the use of English are required to take a special examination under the supervision of the English department. *Since the aptitude tests are a prerequisite to English 101 (Composition) and Humanities-Social Studies 265 (Techniques of Communication) any student otherwise exempted must take these tests if he wishes to register for either of these courses.*

### MATHEMATICS QUALIFYING AND EXEMPTION TESTS

Students who have taken third-semester algebra in high school, or the equivalent course in any other college, and who plan to take Mathematics 104 (Plane Trigonometry) and/or 105 (College Algebra) are required to take a qualifying test before they are permitted to register for these University courses. Those who fail the qualifying test and who wish to study trigonometry at the University must choose one of the following alternative plans:

1. Pass Mathematics 101 (without credit for such students) and then take 104.

NOTE: Mathematics 101 will not be offered as a regular University course, but only in Evening Classes, beginning Autumn Quarter, 1961.

2. Take Mathematics 103 which meets five hours per week, but carries only 3 credits.

Those who fail the qualifying test and who wish to study college algebra must first pass either Mathematics 101 or 103.

Students who have taken trigonometry and/or college algebra in high school and whose University courses of study require these subjects may obtain exemption from Mathematics 104 and/or 105 by taking an exemption test. Particularly high scores on both of these tests will qualify students to be placed in special sections of Mathematics 153. Directions for taking these tests are included in *Registration Information for New Students* which is enclosed with the Official Notice of Admission blank. Students are advised to review their high school work before taking these tests.

**ENGINEERING ENGLISH QUALIFYING TEST**

All engineering freshmen and other new engineering students who have not passed a college course in English composition must write a paper which is used, along with general aptitude scores, to determine their readiness to take the course Humanities-Social Studies 265 (Techniques of Communication). This paper is in addition to the General Aptitude tests and must be written before registration is completed. Directions for taking this test are included in *Registration Information for New Students* which is enclosed with the Official Notice of Admission blank.

**MEDICAL EXAMINATION**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the University Health Center a form containing his health history and a report of a physical examination by a physician. The form will be sent to new students by the Office of Admissions, and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the University Health Center without charge.

With the exception of Canadian students, who will follow the above instruction, foreign students must take the required physical examination at the University Health Center when they arrive on the campus.

**REGISTRATION****REGULAR STUDENTS**

A regular student is a student who fulfills the following requirements: (1) he has been granted regular admission to a school or college of the University; (2) his current schedule for credit is satisfactory to the dean of his school or college; (3) he has completed registration, including paying tuition and fees.

**PROCEDURE**

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration procedures, dates, and deadline which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to, calling at, or telephoning the Registrar's Office at the time specified in the Calendar but in no case later than the stated deadline (see pages 4-11).

**ADVISING**

After notification of admission and before registration, new freshmen and transfer students may write to the Executive Office of the Department of General Engineering for help concerning any special problems which may arise in connection with their registration. Academic advising for all freshmen and for transfer students in their first quarter is done through the Department of General Engineering. Other students are advised by the executive officer and staff of their major department.

**REGISTERED CREDITS ALLOWED EACH QUARTER**

Except with the consent of his dean, no student may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent), or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no

case may a student be registered for, or receive credit for, more than 20 credits (or the equivalent) of work, exclusive of physical education activity courses and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove deficiencies, or concurrently in extension classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

#### **CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the Dean of the College. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean and the instructor whose class the student wishes to enter.

#### **WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

#### **WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the dean of his school or college the Request for Withdrawal From the University form. The same system of grading applies as that described under Withdrawal from a Course.

#### **SCHOLARSHIP AND MINIMUM CREDITS**

The rules of the College of Engineering provide that, as a prerequisite to registration for required junior and senior courses, students must earn a grade-point average of 2.30 in the required courses for the first two years. Grade points are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; and D, 1 point. The grade of E signifies failure and the grade-point equivalent is 0. The grade-point average is computed by multiplying the grade point received in a course by the total number of credits the course carries, totaling these values, and dividing by the total number of credits for which the student registered.

For graduation, the College of Engineering requires completion of one of the prescribed engineering curricula, including the required quarters of physical education activity and military training. This requirement supersedes the minimum credit requirement of the University (180 academic credits plus physical education activity and military training). In order to graduate, the student must earn a grade-point average of at least 2.30 in the upper-division subjects in his major department. No more than 9 quarter credits in advanced ROTC courses may be counted toward graduation. Grades earned at other institutions may not be used to raise the grade-point average at the University of Washington.

**SENIOR-YEAR RESIDENCE**

Senior standing is attained when 135 credits, and the required credits in ROTC and physical education, have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in a minimum of three quarters in residence. The remaining 10 credits may be earned either in residence or in this University's extension or correspondence courses.

**QUARTERLY HIGH SCHOLARSHIP LISTS**

The quarterly high scholarship lists include the names of regular undergraduate students who have attained a grade-point average or score of 3.50 in the final grades for at least 12 registered credits exclusive of lower-division physical educational activity and lower-division Army, Air Force, and Navy ROTC courses. These averages are not cumulative. These lists are published in the Daily and the newspapers of the state about four weeks after the end of each quarter.

**RULES PERTAINING TO LOW SCHOLARSHIP**

At the end of any quarter in residence a student who has not made satisfactory progress toward meeting graduation standards shall be reported to the dean of his college. The dean shall take appropriate action, which may be to place him on probation, to require him to petition for continuation, to deny him continuation in the College of Engineering, or to drop him from the University.

**Probation.** When a student has been placed on probation because of low scholarship, the dean of the college concerned shall have complete authority over his academic and activity program. The dean of the college concerned shall decide when a student on probation, because of continued low scholarship, shall be denied continuation or shall be dropped from the college, or when, because of an improvement in his work, he shall be removed from probation.

**Petition.** If a student has been held for a petition for continuation, he is excluded from all classes until he presents his petition in person to his department. If the petition for continuation is accepted by the department, the student is allowed to continue on probation. Petition forms are available in the dean's office.

**Denied Continuation.** A student may be denied continuation in the College of Engineering if he fails to meet the College scholastic requirements but does meet the all-University requirements (cumulative grade-point average of 2.00). Students denied continuation are not automatically dropped from the University.

**Drop.** A student who is dropped from a college is automatically dropped from the University. In order to gain readmission he must petition the dean of his former college or of a different college. Petition forms are available in the college deans' offices.

**REMOVAL FROM SCHOLASTIC PROBATION**

Any student who is placed on probation by the dean of his college will be automatically removed from probation at the end of any quarter in which he receives a 2.00 average, provided his cumulative average is also 2.00. Although freshmen are required to maintain only a 1.80 average, once they have been placed on probation they must attain a 2.00 cumulative average to be removed from probation.

**FRESHMAN SCHOLARSHIP REQUIREMENTS**

No student will be transferred from the General Engineering Department to a degree-granting department until he has a cumulative grade-point average of 2.00 or better.

**MILITARY TRAINING**

Male students who enter the University as freshmen or sophomores are required to complete six quarters of military training. Students should meet this requirement during the first two years they are in residence (registered in regular University classes).



The requirement may be met with courses in one of three University departments: Air Science, Military Science and Tactics, or Naval Science. The Departments of Air Science and Military Science and Tactics offer six-quarter (two-year) basic programs of classwork and drill which fulfill University requirements, and two years of advanced ROTC training which selected students may enter after completing the basic program. Information about these programs may be obtained from the Professor of Air Science and the Professor of Military Science and Tactics at the University. The Department of Naval Science offers four-year programs only, and prospective students who are interested in Naval ROTC should write to the Professor of Naval Science.

Students with junior or senior standing in the Naval ROTC, and those who enter advanced Air Force or Army ROTC, must complete the program as a condition of graduation unless excused or dismissed by authority of the Secretary of the service concerned.

Exemptions from the requirement are granted to:

1. Students who are twenty-three or over at the time of original entry into the University.

2. Students who enter as juniors or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who are not citizens of the United States.

6. Students who, because of physical condition, are exempted by the University Health Officer.

7. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.

8. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.

9. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.

10. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.

11. Students who seek exemptions on grounds other than specified above, and whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the Dean of the College after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 5 or 11 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

#### PHYSICAL AND HEALTH EDUCATION

**Activity Courses.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

*Men* students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

*Women* students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

The following students are exempt from the requirement of activity courses:

1. Students who have attained the age of twenty-five. A student who attains the age of twenty-five during a quarter in which he is registered for a required

physical education activity course shall be held for the completion of that course. This rule shall not be retroactive in its application to students who entered prior to Spring Quarter, 1951, and were exempted from required physical education courses under previous rules.

2. Students who enter as sophomores, juniors, or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who because of physical condition are exempted by the Graduation Committee upon the recommendation of the Dean of the College. Such action will be taken only when the Dean has received a joint recommendation for exemption from the University Health Officer and the Executive Officer of the Department of Physical Education for Men or for Women, whichever is appropriate. All other students who are reported by the University Health Officer as physically unfit to join regular classes will be assigned by the Executive Officer of the Department of Physical Education for Men or for Women to special programs adapted to their needs.

6. Students who are veterans of military service. Complete exemption is granted for one year or more of active duty. This exemption does not grant credit. Veterans with less than one year of service receive no exemption.

7. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**Health Courses.** All men students who enter the University as freshmen are required to take Health Education 175, a course in personal health, within the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption does not grant credit.

Women students who enter the University as freshmen are required to take Health Education 110 within the first three quarters of residence. Women entering the University for the first time may satisfy this requirement by passing a health-knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 110.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

### Tuition

Resident students, per quarter

\$35.00

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter

105.00

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter

12.00

### Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges.

Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one half the nonresident tuition. This exemption is not granted to Summer Quarter students.

<b>Incidental Fee, per quarter</b>	
Full-time resident students	27.50
Part-time resident students (registered for 6 credits or less, exclusive of ROTC)	10.00
Full-time nonresident students	52.50
Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC)	35.00
Auditors do not pay an incidental fee; there are no other exemptions.	
<b>ASUW Fees</b>	
Membership, per quarter	8.50
Optional for auditors and part-time students.	
Athletic admission ticket (optional for ASUW members)	3.50-6.50
Autumn, Winter, and Spring Quarters, \$6.50; Winter and Spring Quarters, \$3.50; Spring Quarter, \$3.50.	
<b>Military Uniform Deposit</b>	25.00
Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.	
<b>Breakage Ticket Deposit</b>	3.00
Required in some laboratory courses; ticket is returnable for full or partial refund.	
<b>Locker Fee, per quarter</b>	1.50
Required of men students taking physical education activities.	
<b>Grade Sheet Fee</b>	.50
One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.	
<b>Transcript Fee</b>	1.00
One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.	
<b>Graduation Fee</b>	10.00

### SPECIAL FEES

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Appointments or Permits to register by In-Person Registration. A late registration fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarter for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. The fee for a special examination is \$1.00 and for removal of an incomplete, \$2.00. A fee of \$5.00 is charged each student entering with less than 45 credits who has not previously taken the Washington Pre-College Differential Guidance (Grade Prediction) Test.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter are: bowling, \$5.00; canoeing, \$2.50; golf instruction, \$1.50 per quarter.

### REFUND OF FEES

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

## ESTIMATE OF YEARLY EXPENSES

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

### *Tuition, Incidental, and ASUW Membership Fees*

Full-time resident student	\$213.00
Full-time nonresident student	498.00

*Athletic Admission Ticket (optional)* 6.50

*Health and Accident Insurance (optional)* 12.90

*Special Fees and Deposits* 38.50

Military uniform deposit, breakage ticket, and locker fees.

*Books and Supplies* 90.00

### *Board and Room*

Room and meals in Men's Residence Halls 630.00

Room and meals in Women's Residence Halls 540.00-660.00

Room and meals in fraternity or sorority house 660.00-700.00

Initial cost of joining is not included; this information may be obtained from the Interfraternity or Panhellenic Councils.

*Personal Expenses* 300.00

## STUDENT ACTIVITIES AND SERVICES

### ASSOCIATED STUDENTS

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

### ENGINEERING STUDENT COUNCIL

The Engineering Student Council is made up of representatives elected from student organizations in the departments of the College. Tau Beta Pi, the honorary fraternity, and the *Washington Engineer* also have representatives on the Council, which supervises various student activities.

### WASHINGTON ENGINEER

The *Washington Engineer*, which is written and managed entirely by engineering students, is published six times a year. It has achieved a national reputation as an outstanding engineering college magazine.

### PROFESSIONAL AND HONOR SOCIETIES

All the great professional engineering societies, such as the American Society of Civil Engineers, the American Institute of Electrical Engineers, and the American Society of Mechanical Engineers, have student chapters on the campus, and every engineering student is encouraged to join the chapter that represents his field of interest.

Honor societies open to engineering students are Tau Beta Pi, Phi Beta Kappa, and Sigma Xi. Students who have maintained high scholarship and are of commendable character may be elected to membership in Tau Beta Pi in their junior or senior year. Election to Tau Beta Pi constitutes one of the highest honors an undergraduate engineering student can receive.

**AWARDS AND LOANS**

The University offers a number of awards for outstanding academic achievement. Some are given by the University and others are supported through the generosity of friends and alumni. A handbook listing the current awards may be obtained from the Office of the Dean of Students.

Fellowships, scholarships, and awards especially for engineering students are listed below:

**ENGINEERING EXPERIMENT STATION RESEARCH ASSISTANTSHIPS.** The Board of the Engineering Experiment Station each year awards a limited number of assistantships to graduate students in various departments of the College of Engineering. These assistantships are granted to students who qualify for full graduate standing at the University and who submit outstanding records of scholarship in their undergraduate courses. The assistantships amount to \$205 a month for twelve months, or a total of \$2,460. Approximately one half time will be devoted to research leading to a thesis. Additional information and application forms may be obtained from the Director of the Engineering Experiment Station.

**AMERICAN SOCIETY FOR METALS SCHOLARSHIP, \$400.** Awarded to sophomore student in metallurgical engineering.

**AMERICAN SMELTING AND REFINING COMPANY SCHOLARSHIP, \$500.** Awarded to undergraduate in metallurgical engineering.

**ASPHALT PAVING ASSOCIATION FELLOWSHIP, \$500.** Awarded to graduate student in civil engineering.

**ASSOCIATED GENERAL CONTRACTORS FELLOWSHIP, \$250.** Awarded to two senior students in civil engineering for graduate study.

**SAMUEL G. BAKER AWARD IN CHEMICAL ENGINEERING, \$100.** Awarded to outstanding senior student.

**BECHTEL CORPORATION SCHOLARSHIPS, \$250.** Awarded to four entering freshmen.

**FRIENDS OF B-E-C-K CONSTRUCTORS SCHOLARSHIP IN ENGINEERING, \$500.** Awarded to a sophomore or a junior engineering student.

**HENRY K. BENSON SCHOLARSHIP, variable.** Awarded to students in chemical engineering.

**BOEING AIRPLANE COMPANY SCHOLARSHIPS, \$300.** Awarded to four freshman students in aeronautical engineering, civil engineering, electrical engineering, and mechanical engineering, and continuing for the four undergraduate years.

**BOEING AIRPLANE COMPANY GRADUATE FELLOWSHIPS, \$1,350 plus tuition and fees.** Awarded to two graduate students in aeronautical engineering, civil engineering, electrical engineering, or mechanical engineering.

**BOW LAKE EQUIPMENT COMPANY SCHOLARSHIP IN CIVIL ENGINEERING, \$100.** Awarded to three students in civil engineering.

**CONSTRUCTION EQUIPMENT SCHOLARSHIP, \$250.** Awarded to junior or senior student in civil engineering.

**DOUGLAS AIRCRAFT COMPANY SCHOLARSHIP, \$750.** Awarded to senior student in aeronautical engineering or mechanical engineering.

**DOW CHEMICAL COMPANY SCHOLARSHIPS.** Tuition scholarships awarded to ten undergraduate students in chemical engineering.

**DOW CHEMICAL COMPANY FELLOWSHIP, \$1,650.** Awarded to graduate student in chemical engineering.

**ELECTRIC CLUB OF WASHINGTON SCHOLARSHIP IN ELECTRICAL ENGINEERING, \$150.** Awarded to junior student in electrical engineering.

**ENGINEERING COUNCIL SERVICE AWARD.** Awarded to outstanding undergraduate student in the College.

MAJOR REUBEN H. FLEET SCHOLARSHIP, \$500. Awarded to an undergraduate aeronautical engineering student.

GLADDING McBEAN & COMPANY SCHOLARSHIPS IN CERAMICS, \$350. Awarded to two freshman students in ceramic engineering.

GLADDING McBEAN & COMPANY FELLOWSHIP IN CERAMIC ENGINEERING, \$1,500. Awarded to graduate student.

LARRY HARRINGTON SCHOLARSHIP, \$300. Awarded to a junior student in mechanical engineering.

HEWLETT-PACKARD WASHINGTON ALUMNI SCHOLARSHIP, \$213. Awarded to undergraduate students in engineering, industrial design, or science.

HOOKER ELECTROCHEMICAL COMPANY RESEARCH FELLOWSHIP IN CHEMICAL ENGINEERING, \$2,000. For graduate students.

CLIFFORD A. HOULAHAN SCHOLARSHIP IN CERAMIC ENGINEERING, \$100. Awarded to undergraduate student in ceramic engineering.

KAISER ALUMINUM AND CHEMICAL CORPORATION FELLOWSHIP, \$1,500 plus tuition. Awarded to a graduate student in mechanical engineering.

LADIES AUXILIARY SEATTLE SECTION AMERICAN SOCIETY OF CIVIL ENGINEERS SCHOLARSHIP, \$100. Awarded to undergraduate student in civil engineering.

LINK BELT COMPANY SCHOLARSHIP, \$500. Awarded to junior student in civil engineering or mechanical engineering.

LIVINGSTON WERNECKE MEMORIAL SCHOLARSHIP IN MINERAL ENGINEERING, stipend variable. For undergraduate students, including freshmen.

LONGVIEW FIBRE COMPANY SCHOLARSHIP, \$200. Awarded to student in chemical engineering and to student in mechanical engineering.

WILLIAM MCKAY SCHOLARSHIP IN MINERAL ENGINEERING, stipend variable. For upper-division undergraduate students.

PACIFIC COAST DIVISION PULP & PAPER MILL ASSOCIATION SCHOLARSHIP, tuition only. Awarded to freshman students in chemical engineering.

LARRY PENBERTHY SCHOLARSHIP IN CERAMIC ENGINEERING, \$350. Awarded to a student in ceramic engineering.

PENNSYLVANIA GLASS SAND CORPORATION SCHOLARSHIP IN CERAMIC ENGINEERING, tuition only. Awarded to junior student in ceramic engineering.

PROCTOR & GAMBLE FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,400. Awarded to graduate student.

PUGET SOUND CHAPTER AMERICAN SOCIETY OF METALS, \$200. Awarded to undergraduate student in metallurgical engineering.

RAYONIER FOUNDATION SCHOLARSHIP, \$500. Awarded to two senior students in chemical engineering, electrical engineering, or mechanical engineering.

RAYONIER FOUNDATION FELLOWSHIP IN CHEMICAL ENGINEERING, \$2,500. Awarded to graduate student.

RCA NATIONAL BROADCASTING COMPANY SCHOLARSHIP IN ELECTRICAL ENGINEERING, \$800. Awarded to undergraduate student in electrical engineering.

RICHFIELD OIL CORPORATION FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,500. Awarded to graduate student.

SQUARE D. SCHOLARSHIP, \$250. Awarded to a junior and senior in electrical engineering, industrial engineering, or mechanical engineering.

STANDARD OIL COMPANY OF CALIFORNIA SCHOLARSHIP IN MECHANICAL ENGINEERING, \$750. Awarded to undergraduate student in mechanical engineering.

STANDARD OIL COMPANY OF CALIFORNIA FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,500. Awarded to graduate student.

MELVIN O. SYLLIAASEN MEMORIAL SCHOLARSHIPS, \$500. Awarded to two students in civil engineering.

TECHNICAL ASSOCIATION OF PULP AND PAPER INDUSTRY FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,845. Awarded to graduate student.

TEXAS COMPANY FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,845. Awarded to graduate student.

TODD-HICKOCK MEMORIAL SCHOLARSHIP, \$250. Awarded to freshman student after first quarter in residence.

WEST COAST ELECTRONIC MANUFACTURERS' SCHOLARSHIP IN ELECTRICAL ENGINEERING, \$600. Awarded to undergraduate student in electrical engineering.

WESTERN ELECTRIC COMPANY SCHOLARSHIP, \$400. Awarded to undergraduate student in civil engineering, electrical engineering, or mechanical engineering.

WESTINGHOUSE ACHIEVEMENT SCHOLARSHIP IN ELECTRICAL ENGINEERING, \$500. Awarded to undergraduate student in electrical engineering.

Engineering Student Loan Fund, administered through the Office of the Dean of the College. Loans up to \$200 may be made to students who find it difficult to continue in school because of insufficient funds. Other emergency loans are made through the Office of the Dean of Students.

#### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and social problems. The Dean of Students Office also has current information on Selective Service regulations.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, employment, and home hospitality should be referred to this Adviser. Students who are interested in study abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

#### COUNSELING CENTER

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors and psychologists, works closely with other student services and supplements the academic advisory program.

#### HOUSING

Information and applications for residence in University owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Reference in assignment to vacancies is given to students under 21 years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time subfaculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

#### HEALTH SERVICES

The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

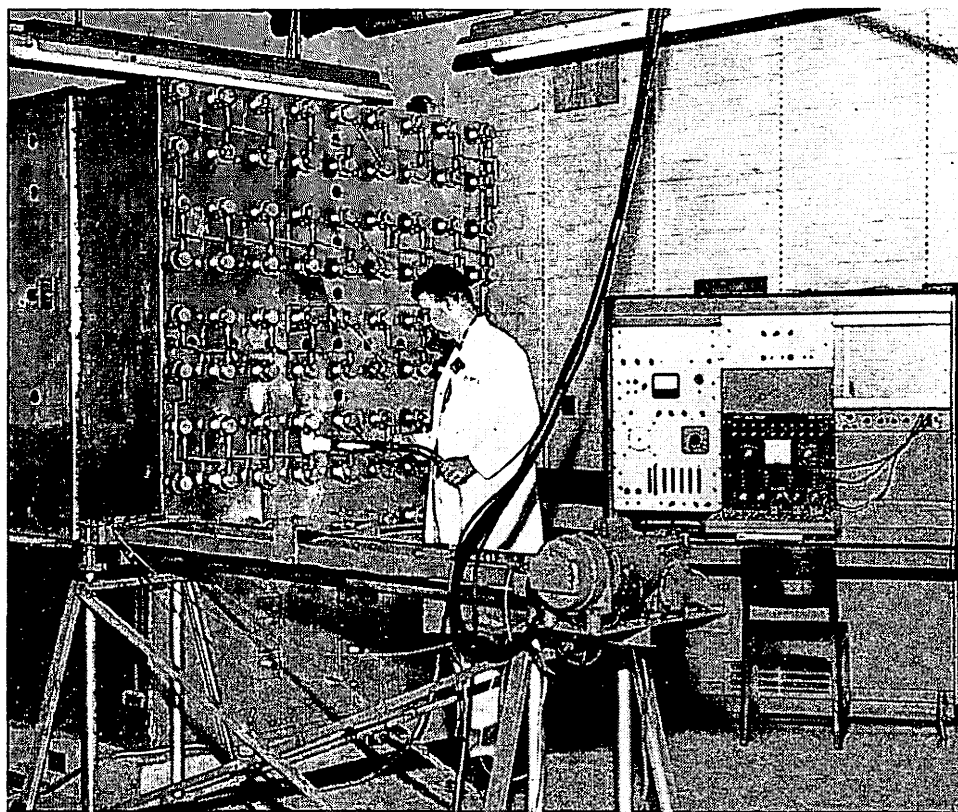
Health and Accident Insurance for students is available at the time of registration.

#### EMPLOYMENT

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Department and the ASUW Personnel Office.

Graduating seniors and recent graduates will be interested in the positions offered by major industrial organizations and government agencies. Many industry representatives visit the campus every year to select qualified seniors and graduate students. Arrangements for interviews with industrial representatives are made by the Office of the Dean of the College of Engineering and the various degree-granting departments.





## THE DEPARTMENTAL PROGRAMS

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## THE DEPARTMENTAL PROGRAMS

**C**URRICULA in the College of Engineering are accredited by the Engineers' Council for Professional Development, the principal accrediting agency of the engineering profession in the United States. All courses of study are designed to provide an understanding of the physical sciences; a fundamental background for the conception, design, construction, operation, and improvement of structures and machines, of processes and projects; and an educational foundation in the humanities and the social sciences.

Four-year curricula leading to bachelor's degrees are offered in the Departments of Aeronautical, Chemical, Civil, Electrical, and Mechanical Engineering, and in the School of Mineral Engineering through the Divisions of Ceramic, Metallurgical, and Mining Engineering.

The Department of General Engineering administers the first-year curriculum for the other departments in the College. It provides courses in basic engineering subjects, orientation courses, and advisory services to help freshmen prepare for entrance to their major departments.

The Department of Humanistic-Social Studies offers an integrated sequence of courses in the humanities and the social sciences. These courses are included in all engineering programs of study and do not constitute a separate curriculum.

In addition to the four-year curricula, the College offers a course of study in industrial engineering for which a second bachelor's degree is awarded at the end of five years; the first four years comprise the standard four-year curriculum of any branch of engineering in which the College grants a bachelor's degree, while the fifth is made up of courses in industrial management and related subjects.

### ENGINEERING PHYSICS

A four-year curriculum in engineering physics, leading to the degree of Bachelor of Science in Engineering Physics, is administered by the Department of Physics in the College of Arts and Sciences. The program combines preparation in basic engineering subjects with full training in physics, and it appeals particularly to students interested in advanced studies in physics, or in any of the new fields demanding training in both physics and technology. The curriculum is so organized that the student (a) may enter the College of Arts and Sciences as a freshman and choose certain engineering electives in the prescribed curriculum for the

Bachelor of Science in Physics or (b) may transfer to the College of Arts and Sciences after two years in the College of Engineering. Details of the program, including the curriculum prescribed for engineering students who transfer to Arts and Sciences, will be found in the announcements of the Department of Physics in the *College of Arts and Sciences Bulletin*.

### **NUCLEAR ENGINEERING**

A graduate program in nuclear engineering leading to the degree Master of Science in Engineering is now offered by the College of Engineering. It was instituted in response to a growing demand by the atomic engineering industries for engineers trained in this new field. The program is a cooperative undertaking of the Departments of Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Metallurgical Engineering. See page 90 for a detailed description of the nuclear engineering program.

### **BACHELOR'S DEGREES**

Students working toward bachelor's degrees in engineering must meet certain general requirements of the University and the College as well as the particular course requirements of their major department. Course requirements for each degree are described in the curricular announcements of the departments (see pages 51-98). General requirements for all degrees include military training, physical education, scholarship and minimum credits, and senior-year residence.

Students should apply for bachelor's degrees during the first quarter of the senior year. If not more than ten years have elapsed since the date of a student's entry into the school or college in which he is to graduate, he may choose to graduate under the requirements set out in either the bulletin published by the appropriate school or college most recently prior to the date of his entry, or that published most recently prior to his anticipated date of graduation; provided, that when, in the opinion of the faculty of the school or college or a departmental executive officer or a dean acting for such faculty, substantial changes have been made in the curriculum since the student's entry, the student's choice shall be subject to the approval of the appropriate faculty, executive officer, or dean. Disapproval of the student's choice shall be faculty action and subject to the procedures of the Faculty Code. All responsibility for fulfilling graduation requirements shall rest with the student concerned. No student whose standing is provisional because he has not removed his entrance deficiencies can have an application for degree accepted until the deficiency is cleared.

### **ADVANCED DEGREES**

Graduate study leading to a Master of Science degree with departmental designation is available in the Departments of Aeronautical, Chemical, Civil, Electrical, and Mechanical Engineering, and in the School of Mineral Engineering through the Divisions of Ceramic, Metallurgical, and Mining Engineering.

The degree of Master of Science in Engineering (without departmental designation) is offered to qualified advanced students whose undergraduate majors have been in departments different from those in which they have worked toward master's degrees, and to students who are doing graduate work in several engineering departments with the approval of advisers in their major departments. This degree may be of particular interest to those students who are planning a program of graduate studies that will prepare them for the field of nuclear engineering. Elective course in nuclear physics may be incorporated in the study program for such students.

The degrees of Master of Aeronautical Engineering and Master of Electrical Engineering are offered to students who satisfactorily complete an approved two-year program of graduate work in aeronautical or electrical engineering.

Graduate study leading to the Doctor of Philosophy degree is available in aeronautical, chemical, civil, electrical, and mechanical engineering.

Students who intend to work toward advanced degrees must fulfill the admission requirements of the Graduate School (as outlined in the *Graduate School Bulletin*) and of the department in which they expect to major. Graduate students must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.

## **COURSE-NUMBERING SYSTEM**

Courses numbered from 100 through 299 are lower-division courses, for freshmen and sophomores; those numbered from 300 through 499 are upper-division, for juniors and seniors.

Courses numbered 500 and above are intended for and restricted to graduate students. Some courses numbered in the 300's and 400's are open both to graduates and to upper-division undergraduates. Such courses, when acceptable to the major department and the Graduate School, may be part of the graduate program. The Graduate School accepts credit in approved 300-level courses for the minor or supporting fields only; approved 400-level courses are accepted as part of the major. For a listing of approved 300- and 400-numbered courses, consult the *Graduate School Bulletin*.

Undergraduate students of senior standing who wish to register for a 500-level course must obtain permission from both the instructor of the class and the Dean of the Graduate School.

The number in parentheses following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is *not* granted until the series of courses is completed.

Courses to which the letter J is appended are joint courses in two or more departments and as such grant credit in one of the departments.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## **GENERAL ENGINEERING**

**Acting Executive Officer: VERNON B. HAMMER,**  
**111 General Engineering Building**

The Department of General Engineering administers the first-year curriculum in the College of Engineering. The courses given provide orientation and basic training for all entering students, and special attention is given to advising and personnel work with freshmen. At the beginning of the sophomore year, regular students enter the curriculum of the department in which they have decided to major. However, the College of Engineering sets no required minimum number of credits per quarter. Thus, students may extend their course of study over a period longer than four years and may adjust to part-time work, remedial courses, or a broader program to include courses such as languages, accounting, music, etc., from any department of the University.

The regular first-year curriculum is outlined below. Exceptions to it are as follows: Students without high school chemistry will take Chemistry 100 instead of Chemistry 110, followed by Chemistry 150, 160, 170. Students in chemical, ceramic, and metallurgical engineering will substitute Chemistry 170 for General Engineering 121. Those who fail the Qualifying Algebra Test will take Mathematics 101 or 103 the first quarter, depending on the test score. (Mathematics 101 will be given through Evening Classes only beginning Autumn Quarter, 1961.) If they can pass a qualifying test in this course at the end of four weeks, they will

continue with trigonometry for the next six weeks; otherwise, they will transfer into Mathematics 101 (Intermediate Algebra). Those who have not had trigonometry in high school or who fail the qualifying test in trigonometry but pass the Qualifying Algebra Test will register for Mathematics 104 (Plane Trigonometry) the first quarter.

#### First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Gen. Engr. 100		Engr. Graphics 102	2	Gen. Engr. 103 Applied	
Orientation	1	Gen. Engr. 112 Statics	3	Descriptive Geom.	3
Engr. Graphics 101	3	Chem. 150 General	4	*Gen. Engr. 121 Plane	
Gen. Engr. 111 Problems	3	Math. 153 Analytic		Survey & Measurements	3
Chem. 110 General	3	Geom. & Calc.	5	Chem. 160 General	3
Math. 105 College Algebra	5	Phys. Educ. activity	1	Math. 251 Analytic	
Phys. Educ. activity	1	ROTC	2-3	Geom. & Calc.	5
ROTC	2-3		15-18	Hlth. Educ. 175 Health	2
	16-19			Phys. Educ. activity	1
				ROTC	2-3
					17-20

\* Students in aeronautical, electrical, and mechanical engineering, who are qualified to take Physics 217 in the third term, may substitute this course for General Engineering 121.

## COURSES FOR UNDERGRADUATES

- 100 Engineering Orientation (1)** **Macartney, Staff**  
Lectures, discussion, and reading assignments on the various fields of professional engineering and on the College of Engineering.
- 101 Engineering Graphics (3)** **Boehmer, Staff**  
Use of instruments, scales; techniques of lettering and line work. Fundamentals of orthographic projection, including sections. Simple isometrics drawings. Orthographic and isometric sketches. Introduction to dimensioning of shop drawings. Simple rectilinear graphs.
- 102 Engineering Graphics (2)** **Messer, Staff**  
Orthographic projection continued, including secondary auxiliary views. Reading and interpretation of engineering drawings, diagrams, and notes, including the making and using of freehand sketches. The study and interpretation of drafting standards, tables, and other references. The study of shop practice as it affects the making of drawings. The making of acceptable engineering drawings and graphs. Prerequisite, 101.
- 103 Applied Descriptive Geometry (3)** **Douglass, Staff**  
Applied descriptive geometry. Practical application of fundamental principles to the solution of problems in the different fields of engineering by drafting room methods. Includes point, line, and plane problems, intersections and developments, and forces in space. Prerequisites, 101 and 102.
- 111 Engineering Problems (3)** **Brown, Staff**  
Training in methods of analyzing and solving simple engineering problems, principally dynamics and energy problems; introduction to the slide rule; coaching in proper methods of work and study, including training in systematic arrangement and clear workmanship. Prerequisites, high school physics, advanced algebra, and trigonometry.
- 112 Statics (3)** **Alexander, Staff**  
Fundamental principles of statics; mathematical and graphical analysis of force, systems; forces in frames, trusses, and simple mechanisms. Prerequisites, 101, 111, and trigonometry.
- 121 Plane Surveying and Measurements (3)** **McNeese, Staff**  
Plane surveying methods; use of the engineer's level, transit, and tape; computations of bearings, plane coordinate systems, areas, stadia surveying; public land system; optical tooling. The theory of measurements and errors, and the applications of probability to engineering measurements. Prerequisites, 101 and trigonometry.
- 351 Inventions and Patents (1)** **Seed**  
Law and procedures for patenting inventions, employer-employee relationship, and trademarks. Primarily for engineering students. Prerequisite, junior standing.

## AERONAUTICAL ENGINEERING

**Executive Officer: HAROLD C. MARTIN, 207 Guggenheim Hall**

The Department of Aeronautical Engineering offers courses leading to the degrees of Bachelor of Science in Aeronautical Engineering, Master of Science in Aeronautical Engineering, Master of Science in Engineering (see Advanced Degrees, page 52), Master of Aeronautical Engineering, and Doctor of Philosophy.

## BACHELOR OF SCIENCE IN AERONAUTICAL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 53).

### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
H.-S.S. 265 Tech. of Commun. ....	3	Civil Engr. 291 Dynamics	3	Aero. Engr. 200 Intro. ....	2
Mech. Engr. 201 Metal Castings ....	1	H.-S.S. 270 Engr. Report Writing ....	2	Civil Engr. 292 Mechanics of Matls. ....	3
Mech. Engr. 260 Mechanism ....	3	Mech. Engr. 202 Welding	1	H.-S.S. 331 Hum.-Soc. St.	3
Math. 252 Analytic Geom. and Calc. ....	5	Mech. Engr. 220 Heat Engines ....	3	Mech. Engr. 320 Thermodynamics ....	5
Physics 218 Engr. Physics	4	Math. 253 Analytic Geom. and Calc. ....	3	Math. 321 Diff. Equations	3
ROTC ....	2-3	Physics 219 Engr. Physics	4	ROTC ....	2-3
	16-19	ROTC ....	2-3		16-19

### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Aero. Engr. 300 Aerodynamics ....	3	Aero. Engr. 301 Aerodynamics ....	3	Aero. Engr. 302 Aerodynamics ....	3
Aero. Engr. 360 Aircraft Engines ....	3	Aero. Engr. 330 Aircraft Struct. Anal. ....	3	Aero. Engr. 320 Aerodyn. Lab. ....	3
Civil Engr. 293 Dynamics and Mechanics ....	3	Mech. Engr. 341 Aircraft Matls. ....	2	Aero. Engr. 331 Aircraft Struct. Anal. ....	3
Mech. Engr. 203 Metal Machining ....	1	Mech. Engr. 361 Machine Design ....	3	Mech. Engr. 362 Machine Design ....	3
H.-S.S. 332 Hum. Soc. St.	3	Tech. electives ....	3	Tech. electives ....	3
Mech. Engr. 340 Engr. Matls. ....	3		14		15
	16				

### Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Aero. Engr. 332 Aircraft Struct. Anal. ....	3	Aero. Engr. -N391 Seminar	0	Aero. Engr. -392 Seminar	1
Aero. Engr. 350 Aircraft Struct. Lab. ....	2	Aero. Engr. 411 Aircraft Design ....	3	Aero. Engr. 412 Aircraft Design ....	3
Aero. Engr. -N390-Seminar	0	Elect. Engr. 400 Vacuum Tubes & Electronics ....	5	Bus. Law 307 Bus. Law	3
Aero. Engr. 410 Aircraft Design ....	3	H.-S.S. 491 Hum.-Soc. St.	2	Hum. Rel. 365 Indust. Rel.	3
Elect. Engr. 303 Elements of Elect. Engr. ....	4	Econ. 211 General	3	Tech. electives ....	3
Elect. Engr. 304 Elect. Engr. Lab. ....	1	Tech. electives ....	3		13
Tech. electives ....	3		16		
	16				

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*.

**MASTER OF SCIENCE IN AERONAUTICAL ENGINEERING.** Candidates for this degree must have the degree of Bachelor of Science in Aeronautical Engineering or its equivalent. A total of 36 credits of course work and a thesis, equivalent to 9 credits of course work, are required. Courses 404, 405, 516, -522, 530, 553, 571, 572, and 573 are usually a part of the program. No foreign language is required. The thesis for the Master of Science degree may be waived in certain cases. Such a waiver requires staff approval and 9 additional credits of course work.

**MASTER OF AERONAUTICAL ENGINEERING.** This is a more advanced degree than that of Master of Science in Aeronautical Engineering. A total of 72 credits of course work and a more extensive thesis, equivalent to 18 credits of course work, are required. Other requirements are similar to those for the Master of Science degree.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge.

- 200 Introduction to Aeronautics (2)** **Staff**  
Introduction to the field of aeronautical engineering; discussion of basic concepts and typical problems.
- 300 Aerodynamics (3)** **Staff**  
Properties of the atmosphere; continuity, momentum, and energy equations for compressible flow; dimensional analysis; stream function and circulation theory; aerodynamic characteristics of airfoils in perfect and real fluids at subsonic and supersonic speeds. Prerequisites, Civil Engineering 291, Mechanical Engineering 320, Physics 217, 218, 219, and Mathematics 251.
- 301 Aerodynamics (3)** **Staff**  
Induced effects; spanwise lift distribution; power drag characteristics of wings and complete airplanes; propeller characteristics. Prerequisite, 300.
- 302 Aerodynamics (3)** **Staff**  
Performance of propeller and jet-driven aircraft; static stability and control. Prerequisite, 301.
- 320 Aerodynamics Laboratory (3)** **Staff**  
Laboratory facilities; wind-tunnel-wall corrections; tests of subsonic and supersonic operating characteristics of wind tunnels; pressure distribution and wake tests of two-dimensional airfoils; three-dimensional tests involving model build-up. Prerequisite, 302, which may be taken concurrently.
- 330 Aircraft Structural Analysis (3)** **Dill, O'Brien**  
Bending stresses in unsymmetrical and tapered beams; shear stresses in thin skin structures; membrane stress in shell; bending of thin plates. Prerequisites, Civil Engineering 293 and Mechanical Engineering 340.
- 331 Aircraft Structural Analysis (3)** **Dill, O'Brien**  
Calculation of deflections and analysis of statically indeterminate structures. Prerequisite, 330.
- 332 Aircraft Structural Analysis (3)** **Dill, O'Brien**  
Stability of structural elements; ultimate strength; design formulas. Prerequisites, 331 and Mechanical Engineering 341, which may be taken concurrently.
- 350 Aircraft Structure Laboratory (2)** **Staff**  
Methods and techniques of aircraft structural testing; laboratory tests of typical structural components of an airplane. Prerequisite, 332, which may be taken concurrently.
- 360 Aircraft Engines (3)** **Eastman**  
Performance and operating characteristics of reciprocating and jet engines for aircraft. Prerequisite, Mechanical Engineering 320.
- N390-N391-392 Seminar (0-0-1)** **Staff**  
Preparation and presentation of at least one topic by the student. Prerequisite, senior standing.
- 404 Introduction to Theoretical Aerodynamics (3)** **Ganzer, Street**  
Euler's equations of motion; potential and stream functions; sources, sinks, and vortex flow; two and three dimensional flow; airfoil and wing theory. Prerequisite, Mathematics 253.
- 405 Elements of Gas Dynamics (3)** **Ganzer, Nielsen**  
Thermodynamics of perfect gases; one-dimensional gas dynamics; flow in ducts and channels; waves in supersonic flow; general equations of motion; small perturbation theory; similarity rules. Prerequisite, senior standing.
- 410 Aircraft Design (3)** **Staff**  
Preliminary design of a modern airplane to satisfy a given set of requirements; estimation of size, selection of configuration, weight and balance, and performance. Prerequisite, 302.
- 411 Aircraft Design (3)** **Staff**  
Stability and control; elementary dynamics of the rigid airplane; flight and handling loads; CAA load requirements. Prerequisite, 410.
- 412 Aircraft Design (3)** **Staff**  
Loads analysis for the entire airplane; selection and disposition of structural materials for airplane components; influence of fabrication techniques on structural design; coordination of structural design with aerodynamic and other design requirements; basic principles of optimum design. Prerequisites, 411 and 332.
- 422 Aerodynamics Laboratory (3)** **Staff**  
Supersonic wind tunnel tests of simple models; comparison of experimental and theoretical results. Prerequisite, 320.
- 425 Flight Test Laboratory (3)** **Joppa**  
Theory of flight test; calibration of flight instruments, performance and stability measurements in flight; reduction of flight test data. Prerequisite, 302.
- 441 Advanced Structural Design (3)** **Staff**  
Comprehensive approach to the aircraft structural design problem; such factors as materials, weight, and aerodynamic considerations will be taken into account. Prerequisite, 332.
- 450 Astronautics (3)** **Street**  
Celestial mechanics; calculation of terrestrial and interplanetary trajectories and orbits; fundamental rocket principles; dynamics of rocket flight; introduction to aerodynamic, thermal, and other problems associated with hypersonic flight. Prerequisite, senior standing.

- 461 Jet Propulsion (3)** **Ganzer**  
Study of jet engines with regard to flow through inlets, compressors, burners, turbines, and nozzles. Prerequisite, 302.
- 462 Propellers and Moving Wing Systems (3)** **Eastman**  
Aerodynamic characteristics common to all moving wings; analysis of the screw propeller, the helicopter, and other possible types of moving wing systems. Prerequisite, 302.
- 470 Analytical Problems in Aeronautics (3)** **Staff**  
Application of mathematical methods to problems in aerodynamics, structures, and dynamics. Prerequisite, Mathematics 321 or permission.
- 480 Elementary Dynamics (3)** **Staff**  
Equations of motion and solutions for selected problems; natural frequencies and mode shapes; response of simple systems to applied loads. Prerequisite, senior standing.
- 481 Elementary Aero-elasticity (3)** **Staff**  
Discussion of aero-elastic problems in aircraft design; elementary development of static and dynamic aero-elastic problems. Prerequisite, 480.
- 499 Special Projects (2-5, maximum 10)** **Staff**  
An investigation on a special project by the student under the supervision of a staff member. Prerequisite, senior standing.

## COURSES FOR GRADUATES ONLY

- 505 Aerodynamics of Incompressible Fluids (3)** **Street**  
Euler's equations of motion; circulation and vorticity, potential flow, conformal transformations, and theory of the two-dimensional airfoil; theory of the finite wing. Prerequisite, 404 or permission.
- 506 Aerodynamics of Incompressible Fluids (3)** **Street**  
Theory of viscous incompressible fluids; the Navier-Stokes equations, dimensional analysis, exact solutions; Prandtl's boundary layer theory, Karman's integral theorem, laminar and turbulent boundary layer over airfoils and bodies of revolution. Prerequisite, 505.
- 508 Aerodynamics of Compressible Fluids (3)** **Street**  
Equations of motion of a perfect gas; exact solutions for shock waves, expansion waves and flow past cones; small perturbation theory applied to bodies of revolution and wings in subsonic and supersonic flow. Prerequisite, 405 or permission.
- 509 Aerodynamics of Compressible Fluids (3)** **Street**  
Equations in the hodograph variables; theory of characteristics; transonic and hypersonic flow; real gas effects. Prerequisite, 508 or permission.
- 513 Heat Transfer in Aeronautics (3)** **Street**  
Equations of viscous compressible flow; laws of heat transfer; forced convection and laminar boundary layer with heat transfer; thermal radiation; applications to high speed aerodynamic heating. Prerequisite, 405 or permission.
- 516 Stability and Control (3)** **Ganzer**  
Aerodynamics of control; the general problem of dynamic stability; the influence of aerodynamic parameters on flying characteristics.
- N520-N521-522 Seminar (0-0-1)** **Staff**
- 530 Theory of Elastic Structures (3)** **Martin**  
Discussion of stresses, strains, displacements; development of the basic equations of elasticity; principle of virtual work and the energy theorems; approximate methods; application of basic theory in formulating and solving problems in elastic structures.
- 533 Theory of Plasticity (3)** **Staff**  
Physical behavior of elastic-plastic and plastic structures; development of stress-strain relations and conditions for yielding; discussion of extremum principles; application of theory of representative problems. Prerequisite, 530 or Civil Engineering 572.
- 540 Aircraft Structural Problems (3)** **Martin**  
Application of the methods of elasticity to aircraft structural problems using original papers and reports as source material; discussion of problems of current interest. (Offered when demand is sufficient.) Prerequisite, 530 or Civil Engineering 572.
- 550 Dynamics of Aircraft Structures (3)** **Staff**  
Equations of motion of restrained and unrestrained elastic structures; response of elastic systems to time dependent forces and to forces arising from motion of the system; calculation of dynamic overstresses in complex structures. Prerequisites, 553.
- 553 Aircraft Vibrations (3)** **Dill**  
Natural frequencies and modes of vibration of simple linear systems; free, damped, and forced vibrations; continuous systems with emphasis on aircraft-type structures; development of Lagrange's equation; matrix methods.
- 556 Aero-elasticity (3)** **O'Brien**  
Two- and three-dimensional flutter theory; aerodynamic forces; flutter stability determinant and its solution; wing divergence and aileron reversal; flutter prevention; control effectiveness. Prerequisite, 553.
- 557 Nonlinear Problems in Airplane Dynamics (3)** **Street**  
The application of nonlinear ordinary differential equations and the topology of their integral curves in the phase plane; dynamical interpretation of singular points; existence of periodic solutions; questions of stability; nonlinear resonance; frequency demultiplication; relaxation oscillations. (Offered when demand is sufficient.) Prerequisites, Mathematics 321 and permission.



**571, 572, 573 Analysis in Aeronautics (3,3,3)****Staff**

Mathematical methods for solving problems arising in aeronautical engineering; complex variables, vector analysis, matrices, cartesian tensors, calculus of variations, operational calculus, finite difference methods, partial differential equations, and boundary value problems. Prerequisite, Mathematics 321.

**599 Special Projects (2-5, maximum 15)****Staff**

An investigation on a special project by the student under the supervision of a staff member.

**600 Research (2-5)****Staff****700 Thesis (\*)****Staff**

## CHEMICAL ENGINEERING

**Executive Officer: RALPH W. MOULTON, 37 Bagley Hall**

The Department of Chemical Engineering offers courses leading to the degrees of Bachelor of Science in Chemical Engineering, Master of Science in Chemical Engineering, Master of Science in Engineering (see page 52), and Doctor of Philosophy.

### BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 53).

#### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. Engr. 271 Intro....	1	Chem. Engr. 272 Intro....	1	Chem. Engr. 273 Intro....	1
Chem. 221 Quant. Anal....	5	Chem. 355 Physical.....	4	Chem. 356 Physical.....	3
Math. 252 Analytic		H.-S.S. 265 Tech. of		Civil Engr. 292 Mechanics	
Geom. & Calc.....	5	Commun.....	3	of Matls.....	3
Physics 217 Engr. Physics	4	Math. 253 Analytic Geom.		H.-S.S. 270 Engr. Report	
ROTC.....	2-3	& Calc.....	3	Writing.....	2
	15-18	Mech. Engr. 203 Metal		Math. 321 Diff. Equations	3
		Mach.....	1	Physics 219 Engr. Physics	4
		Physics 218 Engr. Physics	4	ROTC.....	2-3
		ROTC.....	2-3		16-19
			16-19		

#### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. Engr. 384 Indust.		Chem. Engr. 385		Chem. Engr. N381	
Stoichiometry.....	3	Thermodynamics.....	4	Field Trip.....	0
Chem. 335 Organic Chem..	3	Chem. 336 Organic Chem..	3	Chem. Engr. 470 Trans.	
Chem. 345 Organic		Chem. 346 Organic		Process Principles.....	4
Chem. Lab.....	2	Chem. Lab.....	2	Chem. 337 Organic Chem..	3
Chem. 357 Physical.....	3	Chem. 358 Physical		H.-S.S. 332 Hum.-Soc. St.	3
Elect. Engr. 300 Elem.		Chem. Lab.....	4	Physics 320 Intro. to	
of Elect. Engr.....	5	H.-S.S. 331 Hum.-Soc. St.	3	Modern Physics.....	3
	16		16	Tech. electives.....	3
					16

#### Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. Engr. 471 Unit		Chem. Engr. 472 Unit		Chem. Engr. N382	
Oper.....	3	Oper.....	3	Field Trip.....	0
Chem. Engr. 474 Unit		Chem. Engr. 475 Unit		Chem. Engr. 473 Unit	
Oper. Lab.....	2	Oper. Lab.....	2	Oper.....	3
Chem. Engr. 481 Process		Chem. Engr. 482 Chemical		Chem. Engr. 476 Unit	
Design Principles.....	3	and Nuclear Processes..	3	Oper. Lab.....	2
Chem. Engr. 499		Chem. Engr. 499 Special		Chem. Engr. 483 Process	
Special Projects.....	2	Projects.....	2	Design.....	4
Econ. 211 General.....	3	Bus. Law 307 Bus. Law..	3	H.-S.S. 493 Hum.-Soc. St.	1
H.-S.S. 491 Hum.-Soc. St.	2	Tech. electives.....	3	*Tech. electives.....	5
	15		16		15

\*May include Special Projects 2 credits.

### ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. Entrance, or qualifying, examinations are required of prospective candi-

dates for the degrees of Master of Science in Chemical Engineering and Doctor of Philosophy. These examinations are designed to assess the student's knowledge and understanding of the material normally contained in an undergraduate program with a major in chemical engineering. They are usually given Thursday and Friday preceding the opening of Autumn Quarter, during the first week of Winter Quarter, and toward the end of Spring Quarter.

**MASTER OF SCIENCE IN CHEMICAL ENGINEERING.** The requirements for this degree are 36 credits of course work and a thesis. The course work is usually divided in the ratio of about two to one between the major department and other departments. It is recommended that candidates for this degree include Chemical Engineering 570, 571, 574, and 575 among their courses. No foreign language is required.

**DOCTOR OF PHILOSOPHY.** Students who have completed at least one year of satisfactory graduate study and are acceptable for work leading to the Doctor of Philosophy degree in chemical engineering are required to take cumulative examinations regularly, twice each quarter. They are not then required to take formal examinations in courses offered by the Department, except as may be specified by their research professors or advisory committees. The cumulatives are general examinations in the field of chemical engineering and are designed to stimulate independent study and thought. They attempt to evaluate the breadth of knowledge gained from courses, seminars, and literature, and the student's ability to apply this knowledge to problems of a diverse nature. The cumulative requirement is satisfied when six examinations are passed, usually out of the first twelve taken.

## COURSES FOR UNDERGRADUATES

- 271, 272, 273 Introduction to Chemical Engineering (1,1,1)** **David**  
Calculation techniques; material balances, heat balances; plant visits. Prerequisite, sophomore standing or permission.
- N381 Field Trip (0)** **David**  
A two- to four-day field trip during the Spring Quarter in which various chemical industries in the Pacific Northwest are visited. Prerequisite, junior standing or permission.
- N382 Field Trip (0)** **David**  
A two- to four-day field trip during Spring Quarter in which various chemical industries in the Pacific Northwest are visited. Prerequisite, senior standing or permission.
- 383 Industrial Stoichiometry (2)** **Staff**  
Calculation techniques, material balances, heat balances, special graphical procedures, plant visits. A condensation of 271, 272, and 273 for irregular and transfer students. Prerequisite, sophomore standing.
- 384 Industrial Stoichiometry (3)** **David**  
Introduction to first law of thermodynamics. Heat balances; thermophysics and thermochemistry. Prerequisite, 273 or permission.
- 385 Chemical Engineering Thermodynamics (4)** **Staff**  
Thermodynamic definitions and laws. P-V-T and thermal relations; calculation of the functions. Heat and work of state change. Compressor and expander engines and power cycles. Phase equilibria and chemical equilibria in multicomponent systems. Prerequisites, 384 or permission and Chemistry 356.
- 470 Transport Process Principles (4)** **Staff**  
Rates of heat mass and momentum transfer are discussed with particular emphasis on fluid flow. Molecular and turbulent mechanisms are considered. The analogies among the transport processes are pointed out. Prerequisite, 385.
- 471 Unit Operations (3)** **Johanson**  
Applications of transport principles are made to such unit operations as fluid flow, filtration, fluidized beds, heat transfer, and evaporation. Prerequisite, 470.
- 472 Unit Operations (3)** **Moulton**  
A continuation of 471. Humidification, distillation, absorption, and liquid extraction are studied from the standpoint of equilibria, operating lines, rates, and sizes of equipment required. Prerequisite, 471.
- 473 Unit Operations (3)** **Johanson**  
A continuation of 472. Drying and absorption operations are studied. Chemical reaction kinetics and transport principles are applied to reactor design. Prerequisite, 472.
- 474 Unit Operations Laboratory (2)** **Staff**  
The laboratory experiments cover primarily the subject matter of 470. Prerequisite, 470.

- 475 Unit Operations Laboratory (2)** **Staff**  
The laboratory experiments cover the subject matter of 471, together with evaporation and instrumentation. Prerequisite, 471.
- 476 Unit Operations Laboratory (2)** **Staff**  
The laboratory experiments cover primarily the subject matter of 472 and 473. Prerequisite, 472.
- 481 Process Design Principles (3)** **Staff**  
Economic principles, instrumentation, homogeneous reaction kinetics, chemical and nuclear reactor design principles. Prerequisite, 470 or permission.
- 482 Chemical and Nuclear Processes (3)** **Staff**  
Discussion of specific processes, such as sulphuric acid manufacture, detergent manufacture, polymer production, catalytic cracking of petroleum, nuclear reactor fuel preparation and recovery. An exposition of the principles of 481 applied to particular industries. Prerequisite, 481.
- 483 Chemical Engineering Process Design (4)** **Staff**  
Comprehensive design of a specific process, including economic feasibility, market survey, plant site selection, process equipment design and over-all plant integration. Capital and operating cost estimation. Prerequisite, 482.
- 485 Industrial Electrochemistry (3)** **Moulton**  
Theoretical and applied electrochemistry; units and laws; overvoltage and polarization; analysis; oxidation and reduction; deposition; refining; metallurgy; electrothermics. (Offered when demand is sufficient.) Prerequisite, Chemistry 356 or permission.
- 499 Special Projects (1-6, maximum 6)** **Staff**  
An assigned problem in unit operations or applied chemistry is investigated first in the literature and then in the laboratory and the results are incorporated into a thesis.

## COURSES FOR GRADUATES ONLY

- 520 Graduate Seminar (1-5)** **Staff**
- 570 Introduction to Transport Properties (3)** **Babb**  
Derivation of general differential equations for transport of heat, mass, and momentum; kinetic theory of fluids and its application to transport phenomena based on molecular motion; methods for estimating transport coefficients in fluids. Prerequisite, 471.
- 571 Heat Transfer (3)** **David**  
Steady and unsteady state conduction with emphasis on numerical methods. Radiation; design theory background and application to furnace design; convection; introductory concepts; methods for predicting coefficients; recent developments in theory; heat-exchanger design. Prerequisites, 570 and 575 or permission.
- 572 Distillation (3)** **Johanson**  
Application of fundamental principles to industrial problems in binary and multicomponent distillation. Equilibrium and rate of transfer; ideal and nonideal systems. Graphical and analytical calculation methods. Design, control, and instrumentation of fractionating equipment. (Offered alternate years; offered 1960-61.) Prerequisites, 570 and 575 or permission.
- 573 Absorption and Extraction (3)** **Babb**  
Diffusion theory; transfer of material between phases; design of absorption equipment; multicomponent systems; performance of absorption equipment; simultaneous absorption and chemical reaction; solvent extraction. (Offered alternate years; offered 1959-60.) Prerequisites, 570 and 575 or permission.
- 574 Fluid Flow** **McCarthy**  
Mechanism of fluid flow. Total energy balance and Bernoulli's Theorem. Integration of the differential equations for motion of a fluid. Poiseuille, Fanning, and other equations. Turbulent flow and boundary-layer relationships. High velocity flow. Introductory design calculations. Prerequisites, 570 and 575 or permission.
- 575 Advanced Chemical Engineering Thermodynamics (3)** **McCarthy**  
Principle of thermodynamics. Applications to unit operations and to prediction of phase equilibria and chemical equilibria. Prerequisite, 375.
- 581 Kinetics and Catalysis (3)** **Johanson**  
Homogeneous and heterogeneous systems, with emphasis on chemical engineering principles applied to industrial reactor design. Prerequisites, 571 and 575 or permission.
- 582 Multistage Separation Processes (3)** **Staff**  
Theoretical and practical study of special batch and continuous multistage processes for separation of various substances, including isotopes. Ion exchange, chemical exchange, gas and thermal diffusion, chromatographic, electrophoretic, and other processes are considered. Prerequisite, permission.
- 583 Topics in Chemical Engineering Unit Operations (1-3)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering unit operations. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.
- 584 Topics in Chemical Engineering Unit Processes (1-3)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering unit processes. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.

- 585 Topics in Chemical Engineering Plant Design (1-3)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering plant design. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.
- 586 Chemistry of High Polymers (3, maximum 6)** **McCarthy**  
Fundamentals of substances with high molecular weight, including study of valence consideration, molecular weight determination, polymerization and condensation, reactions, cracking, fiber and film formation, glasses, and mechanical properties as related to chemical structure. (Offered alternate years; offered 1959-60.) Prerequisites, Chemistry 232 and 356.
- 587 Cellulose and Lignin (3)** **McCarthy**  
Chemistry and technology of cellulose, lignin, and related substances. Origin and status in plant tissue, isolation procedures, physical characteristics, and chemical reactions. Chemical processing in pulp, paper, rayon, and plastic industries. (Offered alternate years; offered 1960-61.) Prerequisites, Chemistry 336 and 356 or permission.
- 596 Topics in Chemical Engineering Research (3, maximum 18)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering research. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## CIVIL ENGINEERING

**Executive Officer: ROBERT B. VAN HORN, 201 More Hall**

The Department of Civil Engineering offers courses leading to the degrees of Bachelor of Science in Civil Engineering, Master of Science in Engineering (see page 52), Master of Science in Civil Engineering, and Doctor of Philosophy.

### BACHELOR OF SCIENCE IN CIVIL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 53).

The fourth-year program calls for five 3-credit civil engineering elective courses. Electives in the field of hydraulics are courses 445, 447, 448; in materials, courses 467, 468; in structures, course 485; in sanitary, courses 452, 453, 454, 456, 457; in transportation, courses 315, 403, 422, 423, 424, 426, 428, 429, 430. One of these electives must be in the sanitary engineering field, preferably 454. Students planning graduate work in structures should elect Mathematics 321 (Differential Equations) and those planning to take a degree in industrial engineering should elect Accounting 150 (Fundamentals of Accounting).

#### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Civil Engr. 212 Route Location	3	Civil Engr. 213 Earthwork Measurements	3	Civil Engr. 214 Control Surveys	3
H.-S.S. 265 Tech. of Commun.	3	Civil Engr. 291 Dynamics	3	Civil Engr. 292 Mechanics of Matls.	3
Math. 252 Analytic Geom. & Calc.	5	H.-S.S. 270 Engr. Report Writing	2	Civil Engr. 350 Sanitary	3
Physics 217 Engr. Phys.	4	Math. 253 Analytic Geom. & Calc.	3	Econ. 211 General	3
ROTC	2-3	Physics 218 Engr. Phys.	4	Physics 219 Engr. Phys.	4
	15-18	ROTC	2-3	ROTC	2-3
			15-18		16-19

#### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Civil Engr. 293 Dynamics & Mechanics	3	Civil Engr. 343 Hyd. Engr.	5	Civil Engr. 321 Roads	3
Civil Engr. 342 Fluid Mechanics	5	Civil Engr. 362 Matls. of Constr.	3	Civil Engr. 363 Matls. of Constr.	3
Elect. Engr. 303 Elem. of Elect. Engr.	4	Civil Engr. 371 Struct. Theory	3	Civil Engr. 372 Struct. Theory	3
Elect. Engr. 304 Lab.	2	Geol. 310 Engineering	5	Civil Engr. 373 Struct. Theory	3
H.-S.S. 491 Hum.-Soc. St.	1		16	Mech. Engr. 325 Thermodynamics	3
	15				15

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Civil Engr. 466		Civil Engr. 476 Struct.		Civil Engr. 477 Struct.	
Soil Mechanics	3	Design	3	Design	3
Civil Engr. 475 Struct.		Civil Engr. Tech. Elective	3	Civil Engr. Tech. Elective	3
Design	3	Civil Engr. Tech. Elective	3	Civil Engr. Tech. Elective	3
Civil Engr. Tech. Elective		H.-S.S. 332 Hum.-Soc. St.	3	H.-S.S. 333 Hum.-Soc. St.	3
or Physics 320 Modern	3	H.-S.S. 493 Hum.-Soc. St.	1	Bus. Law 307 Bus. Law	3
H.-S.S. 331 Hum.-Soc. St.	3	Hum. Rel. 365 Indust. Rel.	3		
H.-S.S. 492 Hum.-Soc. St.	2				15
	14		16		

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*.

**MASTER OF SCIENCE IN CIVIL ENGINEERING.** Graduate work leading to this degree is offered in the fields of hydraulic engineering, sanitary engineering, soil mechanics, structural engineering, and transportation (highway) engineering. The requirements are: a minimum of 45 credits, of which 36 credits must be in formal course work and 9 in thesis. No foreign language is required.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge. This research program may be in one of the following areas: hydraulics and fluid mechanics, sanitary engineering, soil mechanics, structural engineering, or transportation engineering.

## COURSES FOR UNDERGRADUATES

- 212 Route Location (3)** **Chittenden, Hoag, W. M. Miller**  
Reconnaissance, preliminary and location surveys of transportation routes utilizing maps and aerial photographs. Horizontal alignment problems involving circular, compound, and spiral curves. Geometric applications and office design. Prerequisites, General Engineering 121, and Mathematics 153 or 156.
- 213 Earthwork Measurements (3)** **Chittenden, Hoag, Sawhill**  
Profiles, vertical curves and sight distance, superelevation, area, and volume computations including adjustments for shrinkage and swell, and the application of the mass diagram to economic design of transportation routes. Application of electronic computers to earthwork calculations. Prerequisites, General Engineering 112, 121, and Civil Engineering 291 or General Engineering 121, Mathematics 153 or 156, and Physics 102 and 107.
- 214 Control Surveys (3)** **Chittenden, Hoag, W. M. Miller**  
Design of engineering surveys and analysis of errors. State plane coordinates, calibration and adjustment of instruments, triangulation and traverse, leveling and engineering astronomy. Modern optical and electronic instruments and computers. Prerequisites, General Engineering 121, and Mathematics 153 or 156.
- 291 Dynamics (3)** **Campbell, Staff**  
Static and kinetic friction, equations of motion; translation and rotation of rigid bodies; kinetics, energy, work, power, momentum and impulse, and impact. Prerequisites, General Engineering 112, Mathematics 251 or equivalent, and Physics 217.
- 292 Mechanics of Materials (3)** **Campbell, Staff**  
Basic theory, analysis and design of machine and structural members. Deformation, normal and shearing stresses in tension members, beams and columns. Torsional stresses and deformations. Prerequisites, 291, Mathematics 251 or equivalent, and Physics 217 or permission; 292 may be taken prior to 291 or concurrently with permission.
- 293 Dynamics and Mechanics of Materials (3)** **Campbell, Staff**  
Review problems on material of 291 and 292, with emphasis on engineering applications. Combined stresses, introduction to structural continuity, eccentric loadings, resilience, dynamic loadings. Prerequisites, 291, 292, and Mathematics 252 or equivalent.
- 315 Photogrammetry (3)** **Chittenden**  
Characteristics and geometry of aerial photographs, photo interpretation, flight planning, and topographic map compilation from ground control and aerial photographs using the stereoscope and parallax measuring devices. Prerequisites, General Engineering 121 and junior standing; permission for non-engineering students.
- 321 Roads and Pavements (3)** **Ekse, Meese, Sawhill**  
The historical development and modern practice in the construction of highway subgrades, base courses, surface treatments, and pavements. Engineering properties and identification characteristics of road building materials. Four hours of lecture and two hours of soils and asphalt laboratory per week. Prerequisite, junior standing.

- 342 Fluid Mechanics (3 or 5)** **Campbell, Chenoweth, Kent, Moritz, Richey**  
Practical fluid mechanics with engineering application to the energy and flow of real liquids through various orifices, intakes, pipes, reducing and expanding passages, open channels, including streams, over weirs, and in tangential wheels, reaction turbines, and centrifugal pumps. Emphasis is on fundamental principles, accompanied by laboratory verification. Three lectures, three hours problems, three hours laboratory. Prerequisite, 291.
- 343 Hydraulic Engineering (5)** **Chenoweth, Moritz, Richey**  
Complete projects and hydrometric methods; design of gravity spillway; flume intakes; surge; economical design of pipe line. Prerequisite, 342.
- 350 Introduction to Sanitary Engineering (3)** **Bogan, Carlson, Sylvester**  
Basic concepts of water supply, sewerage, refuse disposal, and stream pollution; chemical, bacteriological, and physical analysis of water and sewage. Prerequisite, Chemistry 160 or equivalent.
- 362 Materials of Construction (3)** **Clanton, Mittet**  
Concrete, Portland cement, and concrete mixtures. Prerequisite, 292.
- 363 Materials of Construction (3)** **Hartz, W. M. Miller, Vasarhelyi**  
Strength and physical characteristics of timber, steel, and structural aluminum alloys. Prerequisite, 293.
- 371 Structural Theory (3)** **Chenoweth, Hartz, Mittet, Paris**  
Introduction to the theory of continuous beams and rigid frames by moment-area and moment-distribution methods. Basic reinforced concrete theory. Analysis of retaining walls. Prerequisite, 293.
- 372 Structural Theory (3)** **Chenoweth, Hartz, Mittet, Paris**  
Strength and deflection of beams, columns, and combined stress members of steel and of wood. Unsymmetrical bending. Supports, attachments, and connections of wood and steel members. Prerequisite, 293.
- 373 Structural Theory (3)** **Clanton, Mittet, Rhodes**  
Stresses and deflections of wood and steel trusses. Trussed bents and portals. Space frames. Moving loads and influence lines. Williot-Mohr and strain-energy methods. Prerequisite, 371.
- 403 Principles of Urban Planning (3)** **Horwood**  
Introduction to the urban planning process. Characteristics and determinants of urban land utilization. Elements of physical land planning and the comprehensive plan. Prerequisite, senior standing.
- 422 Railway Engineering (3)** **Ekse**  
Locomotive performance and train resistances; permanent way; economics of railway location; sidings and terminals. Prerequisite, 213.
- 423 River and Harbor Engineering (3)** **Ekse, Meese**  
Breakwaters, shore protection, channel protection and regulation; theory of waves. Prerequisites, 213 and 342.
- 424 Highway Pavement Design (3)** **Ekse**  
Evaluation of subgrade soils for pavement design; laboratory testing and field control. Design of bituminous mixtures; theories of flexible and rigid pavement design; selection of adequate surfacing; culvert design. Prerequisite, 321.
- 426 Airfield Design (3)** **Ekse**  
Airport planning; layout of runways, taxiways, and building area; subgrade soil evaluation; flexible and rigid pavement requirements; surface and sub-surface drainage systems; lighting and marking layouts. Three periods of combined discussion and project work. Prerequisite, 321.
- 428 Highway Policy and Economics (3)** **Hennes, Horwood**  
The economic determinants of highway improvement. Highway systems interrelations, development, and finance. Prerequisite, senior standing in engineering or permission.
- 429 Traffic Engineering—Operations (3)** **Horwood, Sawhill**  
Traffic engineering functions and administration. Vehicle and driver characteristics. Traffic surveys. Design and warrants for control devices. Laws and ordinances. Prerequisite, senior standing in engineering, major in urban planning, or permission.
- 430 Traffic Engineering—Design (3)** **Sawhill**  
Geometric design of major streets and highways, intersections at grade, interchanges, and parking facilities. Prerequisite, senior standing in Civil Engineering or permission.
- 445 Hydraulic Machinery (3)** **Moritz, Nece**  
Application of hydraulic principles to the design and function of hydraulic machinery, with emphasis on turbine design and pump analysis. Topics include: head, speed, power, type, shape, losses; details of runner, shaft, guides, bearing casing governor, auxiliaries, etc., pumps and other hydraulic devices. Prerequisite, 342.
- 447 Applied Hydrology (3)** **Campbell, Richey**  
Theory and applications of hydrology, with emphasis on water-power development. Precipitation, runoff, maximum and minimum flows, flood routing. Economics of storage and transportation of water. Types of hydroelectric installations; multiple use projects. Prerequisite, 343 or 342.
- 448 Reclamation (3)** **Campbell, Van Horn**  
A study of the transportation of water especially by gravity flow using the project method. Conduit sections include earth and lined canals, flumes, tunnels, transitions, and inverted siphons. Preliminary design of division structures, drops and checks. Distribution of water and special problems pertaining to irrigation engineering. Prerequisite, 343.

- 450 Advanced Sanitary Engineering Laboratory (5)** **Bogan, Sylvester**  
Analytical procedures and control methods involved in the analysis and treatment of water, sewage, and industrial wastes; their application and limitations. Prerequisites, 454, Microbiology 301 or equivalent, one quarter analytical chemistry, and senior or graduate standing.
- 452 Water Supply (3)** **Bogan, Sylvester**  
Water sources, consumption, fire protection, financing, cost comparisons, intakes and supply conduits, pipe line materials and appurtenances, distribution system design and analysis, storage on the distribution system, and ground water and wells. Prerequisites, 343 and 350.
- 453 Water Treatment (3)** **Bogan, Sylvester**  
Water sources and their quality, interpretation of water analyses, theory of a water filtration plant design, water softening, corrosion control and miscellaneous water treatment methods. Prerequisites, 342 and 350.
- 454 Sewerage (3)** **Bogan, Sylvester**  
Population estimates, quality and quantity of sewage. Hydraulics of sewers. Storm water runoff. Design of storm and sanitary sewers and their appurtenances. Sewage pumping problems. Prerequisites, 342 and 350.
- 456 Sewage Treatment (3)** **Bogan, Sylvester**  
Theory and fundamental principles of the major unit operations and processes employed in sewage treatment together with their applications and design. Prerequisites, 342 and 350.
- 457 Environmental Engineering Problems (3)** **Bogan, Sylvester**  
Air pollution, its significance, study and control. Industrial wastes, their characteristics, origin and methods of control. Refuse characteristics, collection, and disposal. Prerequisites, 343, 350, and senior or graduate standing.
- 466 Soil Mechanics (3)** **Hennes, Meese**  
Mechanical properties of soils. Theoretical mechanics and engineering practice in the evaluation of lateral earth pressures, bearing capacity, and settlement of foundations. Underground exploration and sampling techniques. Prerequisite, 321, or permission.
- 467 Earthwork Engineering (3)** **Hennes, Meese**  
Further development of the principles of soil mechanics, with emphasis on problems involving plastic equilibrium and seepage forces. The stability of earth cuts and embankment. Seepage under and through dams. Flow net construction for the solution of groundwater problems. Underdrainage; quicksand; filter design. Soil compaction, in practice and in laboratory, for earth fill construction. Design and analysis of an earth dam. Prerequisite, 466.
- 468 Engineering Properties of Soils (3)** **Hennes, Meese**  
Theoretical study of those soil properties which are of concern to the civil engineer. Training in soil laboratory techniques. Soil sampling and testing, including consolidation, direct shear, unconfined and triaxial compression, compaction, permeability, capillarity, Atterberg limits, and mechanical analysis. Prerequisite, 466.
- 475 Structural Design (3)** **Clanton, Miller, Rhodes, Sergev**  
Design of reinforced concrete buildings, retaining walls and footings. Continuity and rigid frame action. Reinforced concrete details. Use of building codes. Prerequisite, 371.
- 476 Structural Design (3)** **Clanton, Rhodes, Sergev**  
Design of steel bridges with R/C roadways. Steel details including bolted, riveted, and welded connections. Highway and railway design specifications. Prerequisites, 372 and 373.
- 477 Structural Design (3)** **Clanton, Miller, Rhodes, Vasarhelyi**  
Design of wood and steel building elements. Trussed beams. Wood details including modern connectors and glue-laminated members. Wind loads. Prerequisites, 372 and 373.
- 485 Applied Structural Analysis (3)** **Miller**  
Theory of statically indeterminate structural assemblies including rigid frames and continuous trusses. Redundant members. Members of non-uniform sections. Introduction to arches and curved members. Moment-area, moment-distribution, and strain-energy methods. Prerequisites, 373 and 475.
- 499 Special Projects (2-5, maximum in one field 15)** **Staff**  
Students should register for H (hydraulic), M (materials), P (planning), S (structural), W (sanitary), or T (transportation). Prerequisite, permission of Executive Officer.

## COURSES FOR GRADUATES ONLY

- 509 Engineering Relations (2)** **Staff**  
Methods of setting up engineering problems and investigations; written and oral presentation of professional ideas and analysis of current research and investigations, both professional and economic, in the student's major field. Prerequisites, graduate standing and permission of executive officer.
- 520 Seminar (1)** **Staff**  
Formal presentation for discussion and criticism of all research of the graduate year. Required of all candidates for a master's degree during their final quarter in residence.
- 521 Seminar in Urban Transportation Planning (2)** **Hennes, Sawhill**  
Prerequisite, Civil Engineering or Urban Planning graduates, or permission.
- 523 Port Development (4)** **Ekse, Hennes**  
Engineering design of port facilities, river and protective works; study of tides, currents, wave action, layout of channels and anchorage basins, and wharf and other waterfront constructions. Prerequisites, 342 and senior or graduate standing; not open to students with credit in 423.

- 524 Modern Pavement Theory (4)** **Ekse**  
Elastic slab theory as applied to rigid pavements, considering such factors as subgrade reaction, stress repetition, temperature, and warping stresses; theories of plastic equilibrium as applied to base courses and flexible mats. Other elements of highway design. Two lectures, one laboratory period, and one conference. Prerequisite, graduate standing; not open to students with credit in 424.
- 530 Advanced Traffic Engineering—Freeways (4)** **Sawhill**  
Factors and elements in the geometric design and location of arterials, freeways, interchange connections, and parking facilities. Special studies and reports. Prerequisite, graduate standing in Civil Engineering, or permission; not open to students with credit in 430.
- 547 Advanced Hydrology (4)** **Campbell, Richey**  
Theory and application of hydrology, with emphasis on water power development. Precipitation, runoff, maximum and minimum flows, flood routing. Economics of storage and transportation of water. Types of hydroelectric installations; multiple use projects. Special problems in hydrology and hydraulic power. Prerequisites, 342 and graduate standing; not open to students with credit in 447.
- 553 Advanced Water Treatment Design (4)** **Bogan, Sylvester**  
Functions and performance of unit operations employed in water treatment. Methods of design and process applications involving sedimentation, chemical coagulation, filtration, demineralization, and the removal of radioisotopes. Functional design of a complete water treatment plant by the student to meet specific requirements. Prerequisites, 343, 452; not open to students with credit in 453.
- 556 Advanced Sewage Treatment Design (4)** **Bogan, Sylvester**  
Application and design of unit operations and processes employed in sewage treatment, including mechanical and gravitational separations, aerobic and anaerobic biochemical transformations, aeration and ORP control. Functional design of a complete sewage treatment plant. Prerequisites, 454, Microbiology 300 or 301; not open to students with credit in 456.
- 557 Industrial Waste Treatment (4)** **Bogan, Sylvester**  
Origin and properties of waste gases, aerosols, and liquids from industries, including chemical, petroleum, pulp and paper, food processing, metallurgical, pharmaceutical, and nuclear energy. Laboratory analysis and treatment of wastes. Prerequisites, 452, 454, Physics 320, Microbiology 300 or 301; not open to students with credit in 457.
- 567 Advanced Soil Mechanics and Foundations (4)** **Hennes, Meese**  
Design of earth dams and analysis of slope stability. Dam foundations. Stress distribution in a semi-infinite elastic solid, and its application to foundation analysis. Hydraulics of groundwater flow, including piping, uplift, and quicksand phenomena. Flow net construction. Moisture-density control in earth embankment. Weekly seminar on current publications in the field of soil mechanics with special emphasis on landslides, seepage, and earth fill. Prerequisites, 466 and graduate standing; not open to students with credit in 467.
- 569 Applied Soil Mechanics (3)** **Hennes, Meese**  
Soil mechanics in engineering practice; the application of theory to the analysis of footings, piling, retaining walls, tunnels, and other substructures. Prerequisites, 467 and senior or graduate standing.
- 570 Strain Measurements (3)** **Hartz, Vasarhelyi**  
Experimental determination of strain under static and dynamic loads; mechanical, optical and electrical strain gages; transducers for displacement, velocity and acceleration; photoelasticity, strain rosette, brittle coating and other methods; problems of instrumentation, and analysis of data.
- 571 Advanced Strength of Materials (3)** **Hartz, Sergev**  
Stresses and deflection of curved bars, beams on elastic foundation, beams with axial forces, shear center, stresses and deflection of thin plates; stresses in thick cylinders; stresses in pressure vessels. Particular emphasis is on the technique of breaking down the problems to fundamentals and solving the resultant mathematical equations.
- 572 Theory of Elasticity (3)** **Sergov**  
A more rigorous approach to stress and strain problems, including differential equations of equilibrium, compatibility, conditions, stress function; stresses in and deflection of beams, stresses in semi-infinite plates, disks, curved bars, and stress concentration. Introduction to torsion of prismatic bars and energy methods. The subject matter deals primarily with two-dimensional problems.
- 573 Elastic Stability (3)** **Sergov**  
The study of buckling phenomena in columns, beams, plates, and tubes, with practical application.
- 574 Dynamics of Structures (3)** **Hartz**  
Stresses and deflections in structures due to dynamic loads. Methods for the analysis of lumped and distributed mass systems. Response of structures to earthquake, moving, and blast loads. Prerequisite, graduate standing in engineering.
- 575 Plastic Design of Structures (3)** **Vasarhelyi**  
Plastic (inelastic) behavior of structural materials. Applications to the design of structural members and systems. Principles of upper and lower bound. Limitations and economy of the procedure. Prerequisite, graduate standing in engineering.
- 576 Theory of Plates and Shells (3)** **Sergov**  
Stresses and deflections of flat plates and shells. Effect of transverse loads on circular and rectangular plates. General theory of thin shells. Prerequisite, 573 or equivalent.



- 577 Energy Methods in Structural Mechanics (3)** **Hartz**  
Basic energy and minimal principles of mechanics; calculus of variations and variational methods; applications to structures, elasticity, plates and shells, stability and vibrations. Prerequisites, 571, 581, or permission.
- 578 Advanced Analytical Mechanics (3)** **Paris**  
Generalized coordinates and LaGrange's equations; fundamental theorems and applications; Hamilton's principle; canonical equations; transformation theory; integrals of dynamical equations. Prerequisite, Mathematics 321 or permission.
- 581 Advanced Structures (3)** **Miller**  
Truss deflection and secondary stresses. Trussed arches. Multi-span trusses. Redundant members. Mueller-Breslau, Maxwell-Mohr, and strain-energy methods.
- 582 Advanced Structures (3)** **Miller**  
Multi-story, multi-bay rigid frames including wind and earthquake loads. Theory of flexure of members of nonuniform section. Nonrectangular rigid frames. Moment-area and moment-distribution methods.
- 583 Advanced Structures (3)** **Miller**  
Ideal, two-hinged and hingeless elastic arches. Influence lines for statically indeterminate structures. Castigliano's Theorem and strain-energy methods applied to curved members of nonuniform section.
- 585 Structural Model Analysis (3)** **Hartz, Vasarhelyi**  
Basic structural theory taught in laboratory by structural model analysis. A rational examination of structural theory, its development from the elements of physics, geometry, and properties of materials, and its application to statically determinate and indeterminate structures.
- 586 Structural Materials and Design (3)** **Vasarhelyi**  
A critical review and discussion of the mechanical properties of structural steel, structural aluminum alloy, and reinforced concrete which affect structural design. Fatigue and impact in metal structures. Failure of structures and structural members.
- 587 Design of Welded Structures (3)** **Vasarhelyi**  
A broad review of the factors such as the function of the structure, the mechanical properties of the base metal and welds, structural details, and type of loading which must be considered in the design of a welded structure. Prerequisite, 586.
- 590 Structures Under Wind (3)** **Farquharson**  
Fundamental principles governing the static or dynamic response of suspended structures, transmission lines, tall stacks and other flexible structures subject to deflection, overturning or oscillation as a result of wind action.
- 595 Advanced Professional Design and/or Analysis (2-5, maximum in one field 15)** **Staff**  
Special studies under the direction of staff members. Students should register for H (hydraulic), M (materials), P (planning), S (structural), W (sanitary), or T (transportation). Prerequisite, permission of executive officer.
- 600 Research (\*)** **Staff**  
Special investigations by graduate students under the direction of staff members. Students should register for H, M, P, S, W, or T. Prerequisite, permission of executive officer.
- 700 Thesis (\*)** **Staff**  
Prerequisite, permission of executive officer.

## ELECTRICAL ENGINEERING

**Executive Officer: AUSTIN V. EASTMAN, 202 Electrical Engineering**

The Department of Electrical Engineering offers courses leading to the degrees of Bachelor of Science in Electrical Engineering, Master of Science in Electrical Engineering, Master of Science in Engineering (see page 52), Master of Electrical Engineering, and Doctor of Philosophy.

### BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 53).

High scholarship students who plan to study for an advanced degree may, with the advice of a faculty counselor and approval of the executive officer, make a limited number of substitutions for normally required courses in the junior and senior years.

Students planning to take a degree in industrial engineering should elect Accounting 150 (Fundamentals of Accounting).

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Elect. Engr. 231		Elect. Engr. 233		Elect. Engr. 235	
Elect. Circuits I ..... 5		Elect. Circuits II ..... 5		Elect. Circuits III..... 5	
H.-S.S. 265 Tech. of Commun. .... 3		Elect. Engr. 234		Elect. Engr. 236	
Math. 252 Analytic Geom. & Calc. .... 5		Elect. Meas. Lab. I..... 2		Elect. Meas. Lab. II.... 1	
Physics 218 Engr. Physics 4		Math. 253 Analytic Geom. & Calc. .... 3		Elect. Engr. 243	
ROTC ..... 2-3		Physics 219 Engr. Phys. 4		D.C. Mach. .... 3	
	17-20	ROTC ..... 2-3		Civil Engr. 291	
			14-17	Dynamics	3
				H.-S.S. 270 Engr. Report	2
				Writing	2
				ROTC	2-3
					14-17

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Elect. Engr. 311		Elect. Engr. 331 Fields and Matls. .... 4		Elect. Engr. 333 Basic Electronics 1 ..... 4	
Elect. Transients ..... 4		Elect. Engr. 332 Fields Lab. .... 1		Elect. Engr. 334 Electronics Lab. .... 1	
Elect. Engr. 312		H.-S.S. 331 Hum.-Soc. St. 3		H.-S.S. 332 Hum.-Soc. St. 3	
Elect. Transients Lab. .... 1		Mech. Engr. 340 Matls. .... 3		Mech. Engr. 368	
Elect. Engr. 340 A.C. Machinery ..... 4		Econ. 211 General ..... 3		Kinematics	3
Elect. Engr. 341 A.C. Mach. Lab. .... 2			14	Physics 320 Intro. to Modern Physics	3
Civil Engr. 292 Mechanics of Matls. .... 3					14
Math. 321 Diff. Equat. .... 3					
	17				

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Elect. Engr. 335 Basic Electronics II ..... 4		Elect. Engr. 411 Trans. Lines & Netwks. .... 4		Elect. Engr. Elect'ves .... 5	
Elect. Engr. 336 Electronics Lab. .... 1		Elect. Engr. 412 Trans. Lines Lab. .... 1		H.-S.S. 493 Hum.-Soc. St. 1	
H.-S.S. 333 Hum.-Soc. St. 3		Civil Engr. 342 Fluid Mechanics	5	Hum. Rel. 365 Ind. Relations	3
Mech. Engr. 466 Mach. Design ..... 4		H.-S.S. 491 Hum.-Soc. St. 2		Mech. Engr. 426 Thermo-Dynamics	5
Bus. Law 307 Bus. Law ..... 3		Mech. Engr. 325 Thermo-Dynamics	3		14
	15		15		

No options are designated but students may place special emphasis on a given area of study by suitable selection of senior electives in electrical engineering.

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. No foreign language is required for the master's degrees, but mathematics through at least one quarter of differential equations is a prerequisite to all graduate work.

Students who received their undergraduate training at other institutions are expected to have substantially the same training as that given to students at this University. In case of deficiencies, students may be required to take certain undergraduate courses in addition to the normal graduate program.

**MASTER OF SCIENCE IN ELECTRICAL ENGINEERING.** A total of 36 credits of course work and a suitable thesis are required for this degree. Course work should be divided between electrical engineering and supporting courses in other fields in the ratio of approximately two to one. Electrical engineering courses must normally be chosen from those numbered above 500 and must include Electrical Engineering 510 and 520-521-522.

**MASTER OF ELECTRICAL ENGINEERING.** This is a more advanced degree than that of Master of Science in Electrical Engineering. A total of 72 credits of course work and a more extensive thesis are required. Other requirements are similar to those for the Master of Science degree. Certain physics courses may be used in partial satisfaction of the major requirements.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge. Courses taken must include Electrical Engineering 510, 511, 512, and 520-521-522, or their equivalents at other institutions.

## COURSES FOR UNDERGRADUATES

- 231 Electric Circuits I (5)** **Staff**  
Basic concepts of electric circuits, including the concepts of inductance and capacitance. Includes study and application of Ohm's Law and Kirchhoff's Laws, Thevenin's Theorem, Norton's Theorem, superposition theorem, nodal and mesh methods, and sufficient study of electric and magnetic fields to gain the necessary concepts of inductance and capacitance. Applications to d-c sources only. Prerequisites, General Engineering 111, and Mathematics 251 and Physics 218 which may be taken concurrently.
- 233 Electric Circuits II (5)** **Staff**  
Applications of the principles covered in 231 to circuits containing a-c sources. Elementary concepts of electric and magnetic fields; ferromagnetism. To be taken concurrently with 234. Prerequisites, 231, and Mathematics 252 which may be taken concurrently.
- 234 Electrical Measurements I (2)** **Staff**  
A four-hour laboratory to be taken concurrently with 233, covering direct- and alternating-current circuits.
- 235 Electric Circuits III (5)** **Staff**  
Continuation of 233 covering polyphase circuits, nonsinusoidal wave forms and Fourier series, resonance and S-plane analysis, and four-terminal networks. To be taken concurrently with 236. Prerequisite, 233.
- 236 Electrical Measurements Laboratory II (1)** **Staff**  
A four-hour laboratory on alternate weeks covering alternating-current measurements. To be taken concurrently with 235.
- 243 Direct-Current Machinery (3)** **Staff**  
Construction, operation, characteristics, and applications of direct-current machinery. Includes one four-hour laboratory on alternate weeks. Prerequisites, 233, 234.
- 303 Elements of Electrical Engineering (4)** **Staff**  
Short course in direct- and alternating-current circuits with introduction to electronics. For nonelectrical engineering majors. To be taken concurrently with 304. Prerequisites, Physics 218, Mathematics 153, and General Engineering 111.
- 304 Electrical Engineering Laboratory (1)** **Staff**  
A four-hour laboratory, on alternate weeks, to be taken concurrently with 303.
- 305 Electrical Machinery (5)** **Staff**  
Short course in electrical machinery. For nonelectrical engineering majors. Includes one three-hour laboratory per week. Prerequisite, 303.
- 311 Electric Transients (4)** **Staff**  
Single- and double-energy transients in circuits containing R, L, and C either singly or in combinations, and with direct, alternating, or other types of applied emf's; magnetically coupled circuits and circuits with variable parameters; use of classical, Laplace, and step-by-step methods of solving the differential equations involved. To be taken concurrently with 312. Prerequisite, 235 and Mathematics 321 which may be taken concurrently.
- 312 Electric Transients Laboratory (1)** **Staff**  
A four-hour laboratory on alternate weeks. To be taken concurrently with 311.
- 331 Fields and Materials (4)** **Staff**  
Formulation of Maxwell's equations and their application to problems in electrical engineering. Study of the interaction of physical materials and electromagnetic fields to be taken concurrently with 332. Prerequisite, 235 and Mathematics 321.
- 332 Fields and Materials Laboratory (1)** **Staff**  
A four-hour laboratory on alternate weeks. To be taken concurrently with 331.
- 333 Basic Electronics I (4)** **Staff**  
Characteristics of electron tubes and semiconductor devices; equivalent circuits; vacuum tube and transistor amplifier fundamentals. To be taken concurrently with 334. Prerequisite, 235.
- 334 Electronics Laboratory (1)** **Staff**  
A four-hour laboratory on alternate weeks. To be taken concurrently with 333.
- 335 Basic Electronics II (4)** **Staff**  
Continuation of 333, including fundamentals of rectifiers and power supplies; band pass amplifiers; tuned power amplifiers; oscillators, modulators and demodulators. To be taken concurrently with 336. Prerequisite, 333.
- 336 Electronics Laboratory (1)** **Staff**  
A four-hour laboratory on alternate weeks. To be taken concurrently with 335.
- 340 Alternating-Current Machinery (4)** **Staff**  
Theory of synchronous machines, induction motors, and transformers. To be taken concurrently with 341. Prerequisite, 243.

- 341 Alternating-Current Machinery Laboratory (2)** **Staff**  
One four-hour laboratory per week covering experimental work with alternating-current machinery. To be taken concurrently with 340.
- 400 Vacuum Tubes and Electronics (5)** **Staff**  
Principles of operation and application of electronic tubes and circuits in the fields of instrumentation control and communication. Includes one four-hour laboratory on alternate weeks. Prerequisite, 303.
- 411 Transmission Lines and Networks (4)** **Staff**  
Theory of transmission lines; use of Smith chart and other transmission-line charts; theory and design of constant-K, m-derived, and other types of filters; impedance-matching with transmission-line stubs and with lumped constants; series and parallel resonance. To be taken concurrently with 412. Prerequisite, 235.
- 412 Transmission Lines Laboratory (1)** **Staff**  
A four-hour laboratory on alternate weeks. To be taken concurrently with 411.
- 433 Transistor Circuit Engineering (3)** **Cochran**  
Basic concepts of semi-conductor devices including construction, principles of operation, application as amplifiers, oscillators, and switching or control elements. Includes one two-hour laboratory per week. Prerequisite, 335.
- 450 Advanced Alternating Currents (6)** **Staff**  
Theory of electrical and mechanical rectifiers; single-phase motors; introduction to symmetrical components and transmission lines. Includes one four-hour laboratory per week. Prerequisite, 340.
- 453 Electric Power Systems (3)** **Robbins**  
Elements and economics of electrical power generation, transmission, and distribution. Theory, design, and operation of integrated power system. Includes one three-hour laboratory per week. Laboratory includes several field trips to typical electrical power installations. Prerequisite, 340.
- 457 Industrial Control (4)** **Hoard**  
Introduction to theory and operation of control circuits; study of vacuum tubes, rotating amplifiers, magnetic amplifiers, and other circuit components and their application to typical control circuits. Includes one four-hour laboratory on alternate weeks. Prerequisites, 333 and 340.
- 461 Fields and Waves (4)** **Rogers**  
Application of Maxwell's Equations. Wave propagation in homogeneous and inhomogeneous media. Boundary value problems in statics and quasi-statics. Circuits and fields in relative motion. Electron ballistics. Introduction to radiation phenomena. Includes one three-hour laboratory. Prerequisites, 331, 411.
- 469 Advanced Field Theory (4)** **Ishimaru**  
Applications of Maxwell's Equations to wave propagation, skin effect, circuit impedance elements, and other time-varying electrical phenomena; wave guides and resonators; electro-magnetic radiation and ultra-high-frequency techniques. Includes one four-hour laboratory on alternate weeks. Prerequisite, 331.
- 471 Amplifier Theory (5)** **Staff**  
Theory of small-signal low-pass and band-pass amplifiers; study of feedback amplifiers, power amplifiers; analysis of distortion, transient response, and effects of noise. Includes one four-hour laboratory on alternate weeks. Prerequisite, 335.
- 473 Pulse Circuits (5)** **Cochran**  
Wave shaping circuits including clipping circuits, square-wave generators, differentiator and integrator circuits, d-c restoration, and clippers. Free-running and driven trigger circuits. Ringing circuits. Applications to high-frequency circuits including television and radar. Includes one four-hour laboratory on alternate weeks. Prerequisite, 335.
- 475 Digital Circuits (4)** **Cochran**  
Digital circuits, transmission gates, voltage comparators, time modulation and measurement, pulse and digital systems. Includes one four-hour laboratory on alternate weeks. Prerequisite, 473.
- 477 Principles of Computer Application (4)** **Johnson**  
Digital and analog computer application fundamentals. Specific preparation and programming of simple problems for various computers. Number systems and Boolean Algebra relative to computer application. General types of computer storage, control, and circuitry in reference to application. Prerequisite, senior standing or permission.
- 479 Fundamentals of Automatic Control (4)** **Clark, Noges**  
Linear servomechanism theory and design principles. Dynamic analysis of linear systems through use of pole-zero plots. Stability and performance analysis of feedback systems by the root locus technique, and by the real frequency response method. Nyquist stability criteria, Bode diagrams, and Nichols charts. Introduction to advanced topics in automatic control theory. Includes one three-hour problem period per week. Prerequisite, 311.
- 481 Fundamentals of Microwaves (4)** **Harrison**  
Microwave circuit elements, waveguides and resonators; microwave measurement techniques; high frequency triodes, transit time oscillators, and amplifiers. Includes one three-hour laboratory per week. Prerequisites, 331, 335, 411.
- 483 Introductory Communication Theory (3)** **Swarm**  
Frequency analysis modulation; mathematical concepts of Fourier Integral and probability theory; correlation techniques; elementary study of noise and communication theory. Prerequisite, 335.

- 485 Introduction to Solid State Electronics (4)** Bjorkstam, Wei  
General properties of solids with emphasis on the effects of point imperfections; band concept, classical and quantum statistics; the behaviors of electrons, holes and traps in semiconductors; theory of p-n junction and junction devices; theory of metal-semiconductor contact; dielectric and magnetic properties; phenomena and applications of energy absorption and emission by solids. Prerequisites, 331, Physics 320.
- 499 Special Projects (2-5, maximum 10)** Staff  
Assigned construction or design projects carried out under the supervision of the instructor. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 510 Introductory Network Theory (5)** Lewis, Lytle, Stevens  
Mathematical concepts applicable to network theory, including Fourier series and integrals. Transfer characteristics of networks, applicable to the transient and steady state. Elements of complex variables, including conformal transformations and complex potential, applied to fields and networks. Network relations involving matrices and determinants. The Laplace transform, and relation to Fourier integrals and frequency analysis. Prerequisite, graduate standing.
- 511 Network Analysis (3)** Lewis, Lytle, Stevens  
Network representation in the complex-frequency domain, stability criteria, realizability conditions, steady-state relations in closed-loop systems, optimum relations and design criteria in applications involving feedback. Prerequisite, 510.
- 512 Network Synthesis (3)** Lewis, Lytle  
Frequency-domain synthesis of driving-point and transfer impedances, in active and passive systems. Canonical forms and network equivalents. Time-domain synthesis and considerations of pulsed-data systems. Prerequisite, 511.
- 514 Power System Analysis (5)** Bergseth  
Methods of analysis of power systems, with emphasis on the interrelations between generation, transmission, and distribution; symmetrical components; evaluation of system parameters and sequence networks; fault studies; transient and steady-state behavior of systems; elements of system protection. Prerequisite, 340.
- 515 Measurements and Circuit Components (3)** Cochran  
Measurements of resistance, inductance, capacitance, and frequency at all frequencies from d-c to 10,000 megacycles; use of inductance bridges, r-f bridges, Twin-T circuits, Q meters, susceptance variation methods, frequency standards, and standing wave detectors. Includes two three-hour laboratories per week. Prerequisite, 411.
- N520-N521-522 Seminar (0-0-2)** Lewis, Rogers, Shimada  
Required for all graduate students.
- 531 Solid State Electronics I (4)** Bjorkstam, Wei  
A study of the basic physical principles underlying operation of modern electronic devices; elementary quantum mechanics and statistics; band theory of solids; semiconductors (rectifiers and transistors); luminescence; magnetic relaxation. Includes one two-hour laboratory per week. Prerequisite, 485 or permission.
- 532 Solid State Electronics II (4)** Bjorkstam, Watt  
Theory and application of modern electronic devices including the Maser, parametric amplifier, active ferrite elements, optoelectronic and superconducting devices, semiconductor devices. Includes one two-hour laboratory per week. Prerequisite, 531.
- 545 Power Transmission (5)** Bergseth  
Circuit theory; lumped and distributed constants; power circle equations and power transmission diagrams; voltage control and line compensation. Surge impedance loading and loading for maximum economy; transmission line design; traveling waves. Prerequisite, 514.
- 547 Advanced Studies in Power Systems (5)** Bergseth  
Power flow in systems with two voltage sources. General network equations; synchronous-machine power-angle characteristics; composite systems. Equivalent reactance of synchronous machines; stability criteria, stability characteristics of turbo-generators; transmission-line electrical loadings and comparative economic study. System design; torque-angle characteristics, two-machine stability. Multi-machine problems. Prerequisite, 545.
- 551 Power System Protection (3)** Bergseth  
Protection of power systems and equipment against both overvoltages and overcurrents; includes power circuit breakers, fuses, relays, lightning arrestors, expulsion tubes, and the influence of neutral grounding methods on overvoltages. Prerequisite, 514.
- 560 Wave Phenomena (4)** Rogers  
Solution of ordinary differential equations as applied to the vibrations of lumped systems; vector analysis and the solution of the partial differential equations of continuous systems; Fourier series, Bessel's functions, and orthogonality; solution of the field equations for wave guides and radiating systems. Prerequisite, 331.
- 562 Advanced Vacuum Tubes (4)** Hill  
Energy distribution functions, emission theory; conformal transformation and solution of electric fields; current flow in diodes, triodes, and tetrodes; noise in vacuum tubes; analysis of problems in electron optics; high-intensity cathodes and beam formation. (Offered alternate years; offered 1960-61.) Prerequisites, 333, and 510 which may be taken concurrently.

- 563, 564 Electrical Noise (3,3)** **Shimada**  
Introduction to the theory of fluctuating phenomena such as thermionic emission and random motion of electrons in solids. Analysis of noise from electronic devices and circuits. Prerequisite, 335 or permission.
- 566 Microwave Measurements (2)** **Harrison**  
Measurements of wave length, admittance, power, dielectric constant, and losses in the microwave frequency region utilizing wave guide techniques. Problems in impedance matching and impedance transformation based on laboratory work. Includes one three-hour laboratory per week. Prerequisites, 335 and 411.
- 567 Microwave Vacuum Tubes (4)** **Harrison**  
Theory of microwave vacuum tubes, including triodes, klystrons, traveling wave tubes, and magnetrons, and their modulation characteristics. Oscillator theory is considered in detail, with klystron oscillators used to illustrate general principles. Prerequisite, 566 or permission.
- 570 Antenna Theory (3)** **Reynolds**  
Theory of radiation; impedance characteristics and radiation patterns of thin linear antenna elements; properties and synthesis of antenna arrays. Prerequisites, 331 and 510.
- 571 Radio Propagation (3)** **Swarm**  
Theory of tropospheric and ionospheric propagation, study of ground to ground, ground to air, and air to air propagation characteristics; theory of scattering, meteor reflection, and auroral propagation. Prerequisite, 469.
- 572 Microwave Network Theory (4)** **Held**  
A brief review of transmission line theory and associated impedance concepts in the light of applicability to uniform waveguides. Equivalent circuit for waveguide discontinuities will be developed on the basis of mode theory, linearity, reciprocity, and symmetry ideas. Application of general network theory to waveguides, cavity resonators, and antennas. Prerequisites, 469, 416, 510.
- 574 Microwave Antennas (4)** **Held**  
Fundamental principles underlying the design of microwave antennas. Radiation from current distributions. Scattering and diffraction of electromagnetic waves. Prerequisites, 572, and Mathematics 429, which may be taken concurrently, or permission.
- 575 Microwave Propagation (3)** **Ishimaru**  
Microwave propagation through anisotropic media, ferrite-filled or partially filled-waveguides, slow waves, surface waves, strip lines. Diffraction and scattering. Prerequisite, 572.
- 576 Communication Theory I (3)** **Swarm**  
Statistical theory of communication systems. Description of periodic and random signals. Theory of information measure and channel capacity. Analysis of circuits with random inputs and optimization systems. Prerequisite, 483 or permission.
- 577 Communication Theory II (3)** **Swarm**  
Mathematical description of noise, analysis of circuits with random inputs, optimum linear systems, statistical detection of signals and evaluation of communication systems. Prerequisite, 576.
- 580 Electroacoustics (4)** **Rogers**  
Vibration of strings, bars, and membranes; acoustical wave equation and solutions; electric, acoustic, and mechanical analogies; acoustical networks and measurements; architectural acoustics; properties of hearing; loudspeakers, microphones, and sound reproduction. Includes one four-hour laboratory on alternative weeks. (Offered alternate years; offered 1959-60.) Prerequisite, 411.
- 581 Control System Measurements (2)** **Guilford**  
Theory and practice in measurement of control system parameters. Determination of transfer functions for various system components by transient and frequency response measurements. Prediction of feedback system performance, from experimentally derived data, with experimental verification. Use of the analog computer in simulation. Includes one three-hour laboratory per week. Prerequisite, 479.
- 582 Analytical Design of Linear Control Systems (4)** **Clark**  
Synthesis of automatic control systems to satisfy analytical performance criteria. Elements of statistical analysis, stochastic processes, probability density functions, correlation functions, and power-density spectra. Minimization of mean square error in presence of noise, and optimization according to other analytical performance functions. Use of constraints in design. Special problems in linear control system design. Prerequisites, 479, 510.
- 583 Nonlinear Control Systems (3)** **Clark**  
Dynamic analysis of nonlinear control systems. Graphical and numerical methods for solution of nonlinear differential equations. Limit cycles and other phenomena peculiar to nonlinear systems. Use of phase-space, describing function, and simulation techniques in the analysis of nonlinear servomechanisms. Self-adaptive control systems. Prerequisites, 479, 510.
- 584 Sampled-Data Control Systems (4)** **Hsu**  
Sampling process and data reconstruction; Z-transform analysis of linear sampled-data systems; sampled-data systems design; behavior of systems between sampling instants; multirate sampled systems; sampled-data systems with random inputs. Prerequisites, 479, 510, Mathematics 427.
- 586 Electrical Computing Methods (4)** **Johnson**  
Study of field models, analog and digital computers, and various special-purpose computers for solving electrical problems. Includes one three-hour laboratory per week. Prerequisite, 510.

- 587 Applications of Digital Computers to Engineering Problems (4)** **Johnson**  
Evaluation and application of numerical methods in solution of typical engineering problems by means of digital computers. Choice of method, problem organization, error, convergence, limitations and considerations for specific computers. Curve fitting and random selection. Prerequisite, 586.
- 588 Logical Design of Digital Computers (3)** **Johnson**  
Circuit components and binary numbers, Boolean algebra and the simplification of Boolean functions. Memory element input and application equations. Digital computer memories, computer arithmetic units, control units. Computer design organization. Prerequisite, graduate standing.
- 600 Research (2-5)** **Staff**
- 700 Thesis (\*)** **Staff**

## HUMANISTIC-SOCIAL STUDIES FOR ENGINEERS

Executive Officer: **STUART W. CHAPMAN, 316 Guggenheim Hall**

The Department of Humanistic-Social Studies offers courses designed to give engineering students a general, nontechnical education as an integral part of their professional training. Most of these courses are required in all engineering curricula.

The Department's aim is to help its students to understand the growth of the society in which they live; to recognize and analyze critically some of the problems of that society; to think logically and express themselves lucidly; to appreciate great works of art; and to develop social and philosophical concepts which will help them lead effective lives as professional men, citizens, and individuals. To this end the Department offers an integrated program of study which begins in the sophomore year and continues through the senior year.

Several nontechnical courses offered in other colleges of the University are also required as part of the various engineering curricula: Business Law 307 (Business Law), Human Relations 365 (Industrial Relations for Engineers), and Economics 211 (General).

## COURSES FOR UNDERGRADUATES

- 265 Techniques of Communication (3)** **Hunner, Trimble, Staff**  
Organization, development, and expression of ideas. Prerequisite, passing of tests.
- 270 Engineering Report Writing (2)** **Souther, Trimble, Staff**  
Practical problems in making a logical, concise, and attractive presentation of technical materials; periodicals and reference works; the requirements of the reader; style; principles of spacing; illustrations; accepted abbreviations, proper bibliographical usages. Prerequisite, 265 or equivalent.
- 302 Technical Writing (3)** **Souther**  
Advanced technical report writing; technical and semi-technical articles; emphasis on organization, effective use of illustrative materials, and functional use of layout. Prerequisite, 270 or equivalent.
- 331 Humanities-Social Studies (3)** **Chapman, Skeels, White, Staff**  
The nature of man, the nature of culture, and the individual's relationship to his culture; application of these concepts to an understanding of the ancient past. Prerequisite, 270 or equivalent.
- 332 Humanities-Social Studies (3)** **Botting, Elliott, Higbee, Staff**  
The shaping of modern institutions and of the ideas behind them; the process of historical change; the nature and implications of modern changes in politics and technology. Prerequisite, 331 or equivalent.
- 333 Humanities-Social Studies (3)** **Botting, Higbee, Rustad, Staff**  
Background and nature of some contemporary political and social problems; conflicting modern philosophies. Prerequisite, 332 or equivalent.
- 491 Humanities-Social Studies (2)** **Elliott, Hunner, Skeels, White, Staff**  
Reading and discussion of literature as an art form, as a reflection of the culture which produced it, and as a manifestation of man's motivations and beliefs. Prerequisite, 270 or equivalent.
- 492 Humanities-Social Studies (2)** **Rustad, Hunner, Skeels, White, Staff**  
Further analysis of particular forms of literatures. Prerequisite, 491 or equivalent.
- 493 Humanities-Social Studies (1)** **Staff**  
Reading and discussion, primarily in the area of the humanities. Prerequisite, 491 or equivalent.

## INDUSTRIAL ENGINEERING

The industrial engineering curriculum consists of a regular four-year course of study in any engineering department that offers a full curriculum, supplemented by a fifth year devoted to study in industrial management, accounting, quality control, and related subjects. Since the College does not have a department of industrial engineering, students registering for this fifth year of study must have their schedule of courses approved by the department through which they received their first bachelor's degree.

Students who plan to enter the industrial engineering curriculum should take Accounting 150 (Fundamentals of Accounting) as an elective subject for the first bachelor's degree. Those who fail to do so will need to take Accounting 150 as a prerequisite to the accounting courses listed below, during their fifth year. This will require completion of Accounting 330 (Cost Accounting) in extension study or in residence during the fourth quarter.

### BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

The second bachelor's degree is granted when 45 credits in the curriculum outlined below are successfully completed. In case of schedule difficulties, Production 301 (Principles of Production) may be substituted for Mechanical Engineering 410, and Production 351 (Production Planning and Control) for Mechanical Engineering 411.

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Acctg. 151 Fundamentals	3	Acctg. 255 Basic Acctg.		Acctg. 330 Cost Acctg.	5
Mech. Engr. 410 Engr.		Anal.	3	Fin. 301 Fin. Mgmt.	5
Admin.	3	Fin. 201 Banking & Bus.	5	Tech. electives	6
Mech. Engr. 417 Meth.		Mech. Engr. 411 Engr.			
Anal.	3	Econ.	3		16
Tech. electives	6	Mech. Engr. 415 Stat.			
	15	Qual. Control	3		
			14		

## MECHANICAL ENGINEERING

**Executive Officer: BRYAN T. McMINN, 142 Mechanical Engineering Hall**

The Department of Mechanical Engineering offers courses leading to the degrees of Bachelor of Science in Mechanical Engineering, Master of Science in Engineering (see page 52), Master of Science in Mechanical Engineering, and Doctor of Philosophy.

### BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 53).

#### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mech. Engr. 201 Metal Casting	1	Mech. Engr. 202 Welding	1	Mech. Engr. 203 Metal Machining	1
Mech. Engr. 220 Heat Engines	3	Civil Engr. 291 Dynamics	3	Mech. Engr. 221 Lab.	3
Mech. Engr. 260 Mechanism	3	H.S.S. 265 Tech. of Commun.	3	Mech. Engr. 263 Mech. Engr. Anal. I	3
Math. 252 Analytic Geom. & Calc.	5	Math. 253 Analytic Geom. & Calc.	3	Civil Engr. 292 Mechanics of Matls.	3
Physics 218 Engr.		Physics 219 Engr. Physics	4	H.S.S. 270 Engr. Report Writing	2
Physics	4	ROTC	2-3	Econ. 211 General	3
ROTC	2-3		14-17	ROTC	2-3
	16-19				15-18



**Third Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mech. Engr. 305		Mech. Engr. 306	Prod.	Mech. Engr. 307	Prod.
Prod. Tooling	1	Tech.	1	Plan.	1
Mech. Engr. 326		Mech. Engr. 327		Mech. Engr. 330	Exper.
Thermodynamics I	5	Thermodynamics II	3	Thermodynamics	3
Mech. Engr. 340		Mech. Engr. 361	Mach.	Mech. Engr. 362	Mach.
Materials	3	Design	3	Design	3
Civil Engr. 293	Dynamics 3	Mech. Engr. 367		Elect. Engr. 305	
H.-S.S. 491	Hum.-Soc. St. 2	Dynamics	3	Elect. Mach.	5
Math. 321	Diff.	Elect. Engr. 303	Elem.	H.-S.S. 331	Hum.-Soc. St. 3
Equations	3	of Elect. Engr.	4		
	17	Elect. Engr. 304			15
		Elect. Engr. Lab.	1		
		H.-S.S. 492	Hum.-Soc. St. 2		
			17		

**Fourth Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mech. Engr. 430	Intro.	Mech. Engr. 434	Adv.	Tech. electives	7
to Heat Trans.	3	Mech. Engr. Lab.	3	Electives	8
Civil Engr. 342		Mech. Engr. 468	Mach.		15
Fluid Mechanics	5	Design	3		
H.-S.S. 332	Hum.-Soc. St. 3	H.-S.S. 333	Hum.-Soc. St. 3		
Bus. Law 307		Hum. Rel. 365	Indust.		
Business Law	3	Rel.	3		
Tech. electives	2	Tech. electives	3		
	16		15		

Although options are not designated, the 20 elective credits provided in the curriculum allow students to develop special aptitudes and interests and to achieve a moderate degree of specialization. At least 12 of these credits must be in technical courses. Technical electives appropriate to the fields indicated are listed here as recommendations. All electives must be approved by the Department.

**DESIGN.** Mechanical Engineering 403 (Tool Design), 436 (Friction and Lubrication), 443 (Instrumentation), 469 (Dynamics of Machines), and 483 (Internal Combustion Engine Design). See also graduate courses.

**HEAT POWER.** Mechanical Engineering 424 (Power Plants), 425 (Air Conditioning), 428 (Refrigeration), 432 (Gas Dynamics I), 436 (Friction and Lubrication), 443 (Instrumentation), 481 (Internal Combustion Engines), 482 (Internal Combustion Engine Laboratory), and 485 (Rocket Propulsion). See also Nuclear Engineering (page 90) and graduate courses.

**MARINE ENGINEERING AND NAVAL ARCHITECTURE.** Mechanical Engineering 490, 491, 492 (Naval Architecture).

**PRODUCTION ENGINEERING.** Mechanical Engineering 403 (Tool Design), 410 (Engineering Administration), 411 (Engineering Economy), 414 (Industrial Safety), 415 (Statistical Quality Control), 417 (Methods Analysis), and 443 (Instrumentation).

**ADVANCED DEGREES**

Students who intend to work toward the master's degree must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*.

**MASTER OF SCIENCE IN MECHANICAL ENGINEERING.** Although options are not designated, graduate offerings in mechanical engineering are so arranged that candidates for the master's degree who are interested in the special fields of heat power, gas dynamics, air conditioning, refrigeration, nuclear power, stress analysis, and advanced engineering materials and design will find well-integrated programs available. Subject to the approval of the candidate's committee, work beyond bachelor requirements in physics, mathematics, and aeronautical, civil, and electrical engineering is permitted, and sometimes required. The thesis is normally the equivalent of 9 credits, in which case 36 credits of course work are required for the master's degree. No foreign language is required.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge.

## COURSES FOR UNDERGRADUATES

- 201 Metal Casting (1)** **Setchfield, Snyder**  
Theory and application of the science of producing metal castings; preparation and testing of foundry sands; manual and machine preparation of sand molds and cores; gravity casting of gray cast iron and aluminum alloys into sand, shell, and permanent molds. Lecture and laboratory.
- 202 Welding (1)** **Anderson, Holt**  
Basic theory and application of the art and science of thermal metal-joining processes; fundamentals of weld design, sequence and distortion; flame cutting and flame bending. Lecture and laboratory.
- 203 Metal Machining (1)** **Anderson, Kenny**  
Introduction to basic machining methods used in industrial metal processing. Fundamental concepts of the use of machine tools, layout methods, and measuring tools. Lecture and laboratory.
- 220 Heat Engines (3)** **Childs, Crain, Thomas**  
Studies of the function and operation of the various components making up a heat power plant, covering steam and internal combustion installations. Elementary work in thermodynamics. Prerequisite, General Engineering 102 or permission.
- 221 Mechanical Engineering Laboratory (3)** **Crain, Meador, Shouman, Thomas**  
Laboratory and industrial techniques in the measurement of pressure, temperature, power output from prime movers, and power input to nonprime movers. Methods of performance testing of steam generators, steam engines, and internal combustion engines. Prerequisite, 220.
- 260 Mechanism (3)** **Day, Fritz, Taggart**  
Velocity analysis of linkages and other mechanisms; geometry of gearing; transmission of motion by links, gears, cams, and flexible couplings. Prerequisites, General Engineering 103 and Mathematics 153 or permission.
- 263 Mechanical Engineering Analysis I (3)** **Balise, Childs, Kobayashi, Mills, Morrison**  
Study of the mathematically common ground in basic engineering principles. Transient and steady-state solutions; validity of approximations; vector representations. Illustrative use of analog computer. Prerequisites, 260, Mathematics 252, Civil Engineering 291.
- 305 Production Tooling (1)** **Anderson, Kenny**  
Application of production aids to machine-tool operation. The use of jigs and fixtures to facilitate a higher rate of production on basic machine tools. Laboratory. Prerequisites, 201, 202, 203.
- 306 Production Techniques (1)** **Schaller, Snyder**  
Application of techniques and engineering standards to founding, welding, forging, stamping, and heat-treating of engineering metals as applied in manufacturing and production methods. Lecture and laboratory. Prerequisite, 305.
- 307 Production Planning (1)** **Schaller, Snyder**  
Layout of a manufacturing plant designed to meet specific production requirements. Materials handling and processing are especially stressed. Field trips to local industrial operations. Laboratory. Prerequisite, 305.
- 312 Machine Tool Fundamentals (3)** **Anderson**  
Study of machine tools and machining processes, including exercises on all principal tools. Laboratory. Not open to engineering students. Prerequisite, junior standing in industrial education or permission.
- 320 Thermodynamics (5)** **Childs, McMinn, Nordquist**  
A study of the basic thermodynamic laws covering the relationships between heat energy and work, with particular emphasis on the application of these laws to engineering problems. Prerequisite, 220.
- 325 Thermodynamics for Nonmajors (3)** **Childs, Nordquist, Shouman, Thomas**  
The general energy equation; second law; ideal and actual cycles; media; elements of power plants; elements of refrigeration; nozzles. Prerequisite, junior standing in engineering.
- 326 Thermodynamics I (5)** **Childs, Costello, McMinn, Nordquist**  
A study of the basic laws of thermodynamics and of their application to engineering problems. Prerequisite, 221.
- 327 Thermodynamics II (3)** **Costello, McMinn, Nordquist**  
A continuation of Mechanical Engineering 326, with emphasis on the application of the basic laws to engineering problems involving power cycles, refrigeration cycles, and fluid flow. Prerequisite, 326.
- 328 Elementary Thermodynamics (3)** **Hendrickson**  
For fisheries students and others concerned with foods-processing involving thermodynamics, heat-power equipment and processes. Lecture and laboratory. Not open to engineering students. Prerequisite, junior standing in fisheries or permission.

- 329 Refrigeration (3)** **Hendrickson**  
For fisheries students and others concerned with refrigeration in the food-preservation and food-processing industries. Lecture and laboratory. Not open to engineering students. Prerequisite, 328.
- 330 Experimental Thermodynamics (3)** **Costello, Crain, Firey, Thomas**  
Experimental demonstration of the basic principles of mechanical engineering thermodynamics. Tests for energy balances of boilers, turbines, refrigeration plants, and air compressors. Lecture and laboratory. Prerequisite, 327.
- 340 Engineering Materials (3)** **Day, Ford, Kobayashi, Meador, Mills**  
Fundamental aspects of the nature, behavior, application, and evaluation of engineering materials. Elastic and plastic behavior, creep, fatigue, impact, corrosion, electrical properties. Elementary aspects of experimental stress analysis. Lecture and laboratory. Prerequisite, Civil Engineering 292.
- 341 Aircraft Materials (2)** **Schaller**  
Selection, processing, and heat treatment of nonferrous and ferrous materials in aircraft construction. Lecture. Prerequisites, 201, 202, and 203.
- 342 Industrial Materials and Processes (3)** **Ford, Mills**  
The nature, behavior, and application of materials of particular interest to industrial designers. Factors involved in materials selection. Interrelation of properties and fabrication methods. Not open to engineering students. Lecture, laboratory, and field trips. Prerequisite, junior standing in industrial design or permission.
- 361, 362 Machine Design (3,3)** **Crain, Fritz, Kielsing, Morrison**  
Application of the principles of mechanics, strength of materials, materials of engineering, and manufacturing methods to the design of machine elements. Design problems on shafting, bolts and rivets, pressure vessels, springs, gears, brakes, clutches, and bearings. Lecture and laboratory. Prerequisites, 260, 340, and Civil Engineering 292.
- 367 Dynamics of Machines (3)** **Balise, Morrison, Nordquist**  
A study of the principles of dynamics as applied to the analysis and design of machinery in motion. Problems on engine torque diagrams, flywheels, governors, and the balancing of rotating and reciprocating machinery. Prerequisites, 263 and Civil Engineering 291.
- 368 Kinematics (3)** **Day, Kielsing, Morrison**  
Linkages, velocity and acceleration analysis; cams; principles of gear design; trains of mechanisms; inertia and balancing of rotating masses; flywheels. For nonmechanical engineering students. Prerequisites, 340 and Civil Engineering 292.
- 403 Tool Design (3)** **Staff**  
The study and design of specialized tooling from the standpoint of economical manufacture. Fundamental concepts of the press working of metals, of jigs and fixtures, and of production measuring tools. Application of these concepts to the design of production tools. Lecture and laboratory. Prerequisites, 306 and 340.
- 410 Engineering Administration (3)** **Schaller**  
Structure, organization, management, and operation of manufacturing enterprises as related to production planning and control, methods analysis, product development, and industrial and human relations. Prerequisite, senior standing.
- 411 Engineering Economy (3)** **Schaller, Setchfield**  
The evaluation of engineering alternatives. Use of interest computations, valuation, depreciation, and operating cost estimates to predict the economic result of the application of engineered products or processes. Prerequisite, senior standing in engineering or permission.
- 414 Industrial Safety (2)** **Staff**  
Recognition of hazards; analysis of industrial accidents, their costs, and fundamentals of prevention; organization of safety programs; personnel training for safety. Prerequisite, senior standing in engineering or permission.
- 415 Statistical Quality Control (3)** **Fritz, Owens**  
Elementary industrial statistics, with special application to the control of manufacturing processes. Statistical methods involving sampling procedure, calculations of probabilities, properties of normal distribution, control charts, and analysis of variance. Prerequisite, senior standing in engineering or business, or permission.
- 417 Methods Analysis (3)** **Owens**  
Motion and time-study principles; flow-process charts; operations studies measuring human performance and the effects of fatigue on time required; delay and time-utilization studies; policies involved in using methods analysis; economic and morale limitations upon the use of motion and time study. Lecture and laboratory. Prerequisite, senior standing in engineering or business, or permission.
- 418 Work Simplification (2)** **Owens**  
For majors in nursing, home economics, and allied fields. Principles of motion economy, work distribution and human-activity analysis; flow-process charts and diagrams; layout of work areas; economic and human factors involved in methods-study applications. Lecture and laboratory. Prerequisite, senior standing in nursing or home economics, or permission.
- 424 Power Plants (5)** **Waibler**  
The application of the elements of thermodynamics, heat transfer and fluid mechanics to the analysis and design of steam power station components. Prerequisite, senior standing in mechanical engineering or permission.
- 425 Air Conditioning (3)** **Crain, Hendrickson**  
Theory and practice in the field of heating, ventilating, and air conditioning for human comfort, including psychrometry, heat transfer, air distribution, humidity and temperature control, cooling and dehumidifying equipment, and air cleaning. Prerequisite, 327.

- 426 Thermodynamics for Nonmajors (5)** **Childs, McFeron, Nordquist**  
Vapors vs. perfect gases; basic processes; basic cycles; elements of heat transfer; thermodynamics of combustion; laboratory exercises in measuring efficiency and performance of thermodynamic machines and in heat transfer. Lecture and laboratory. Prerequisite, 325.
- 428 Refrigeration (3)** **Hendrickson, McMinn**  
Theory and practice in the field of commercial and industrial refrigeration. Includes study of cycles, cooling load calculations, compressor, condenser, and evaporator analysis. Laboratory testing of refrigeration systems and field trips to representative plants. Lecture and laboratory. Prerequisite, 327.
- 430 Introduction to Heat Transfer (3)** **Childs, Costello, Firey, Shouman, Waibler**  
Study of steady-state heat transfer by conduction, radiation, and natural and forced convection; design of elementary heat-exchanges; transient heat flow. Prerequisites, 327 or equivalent, and senior standing in engineering.
- 432 Gas Dynamics I (3)** **Childs, Costello**  
A study of the dynamic and thermodynamic relationships for the flow of a gas within closed channels. Analysis of the basic flow equations; study of the effects of friction and normal shock; application to thermodynamic processes involving nozzles, diffusers, compressors, and turbines. Prerequisites, 327, and Civil Engineering 342.
- 434 Advanced Mechanical Engineering Laboratory (3)** **Firey, Meador, Shouman**  
Methods of measurement and analysis in compressible fluid flow and heat transfer; laboratory investigations of prime movers and other heat power equipment. Prerequisites, 330, 430.
- 436 Friction and Lubrication (3)** **Firey, Mills**  
Study of the fundamental principles of friction and lubrication. Bearing materials and bearing design. Behavior of lubricants. Engineering applications, including plain bearings, ball and roller bearings, gears, and metal processing. Prerequisites, Civil Engineering 342 and senior standing in mechanical engineering, or permission.
- 443 Instrumentation (3)** **Baliso**  
Principles and practice of industrial measurement. Dynamics of instrument response; theory of transducers for temperature, pressure flow, and other measurements. Indicating, recording, and telemetering in industry. Lectures and laboratory. Prerequisite, senior standing in engineering.
- 446 Machine Design (4)** **Day, Kieling, Morrison**  
Design of machine elements. Application of statics, dynamics, strength of materials, and shop practices to the design of machine parts. For nonmechanical engineering students. Prerequisite, 368.
- 448 Machine Design (3)** **Day, Morrison, Kieling**  
Advanced topics in machine design, including analysis of curved beams and thick cylinders, force fits, and design of major machine assemblies. Prerequisite, 362.
- 449 Dynamics of Machines (3)** **Baliso, Kobayashi, Morrison, Nordquist**  
Acceleration effects in machine design; equation of motion with variable mass and friction forces; elementary vibration theory; gyroscopic effects in machinery; flexible machine members in motion. Prerequisite, 367.
- 481 Internal Combustion Engines (3)** **Firey, Guidon, Meador**  
Study of the fundamental principles of operation of gasoline and Diesel engines; analysis of theoretical and actual cycles; fuels; combustion; detonation; carburetion, ignition, injection and performance characteristics of typical engines. Prerequisite, 327.
- 482 Internal Combustion Engine Laboratory (3)** **Firey, Guidon, Meador**  
Performance testing of gas, gasoline, and Diesel engines with special emphasis on effects of operating variables and deviations from normal operating conditions. Automobile engine tune-up analysis. Laboratory. Prerequisite, 481.
- 483 Internal Combustion Engine Design (3)** **Firey, Guidon**  
Fundamental principles of engine design, laws of similitude; properties of engine materials; design of important component parts; preliminary calculations for an engine. Lecture and laboratory. Prerequisite, 481.
- 485 Rocket Propulsion (3)** **Guidon**  
Study of the types of rocket engines; thermodynamic relations and nozzle theory; characteristics of gaseous, liquid, and solid propellant systems; rocket testing; performance calculations. Prerequisite, 327.
- 490 Naval Architecture (3)** **Rowlands**  
Theory of naval architecture: ships' lines, displacement, stability, metacenters, curves of form, and displacement sheet computations. Prerequisite, junior standing in engineering.
- 491 Naval Architecture (3)** **Rowlands**  
Theory of naval architecture; weights, strength, A.B.S. Rules, construction, resistance, powering, model tests, steering, and launching. Prerequisite, 490.
- 492 Naval Architecture (3)** **Rowlands**  
Ship model making and model testing. Prerequisite, 491.
- 499 Special Projects (2-5, maximum 6)** **Staff**

## COURSES FOR GRADUATES ONLY

- 516 Statistical Analysis of Engineering Measurements (3)** **Owens**  
Application of statistical techniques to engineering problems; design of engineering test procedures so as to evaluate experimental error; investigation of inherent variability of processes and systems. Prerequisite, 415 or equivalent.
- 521 Thermodynamics III** **Childs, Costello, McMin, Nordquist, Waibler**  
The fundamental concepts of temperature, thermodynamic properties, and systems. The first, second, and combined laws. The general form of the energy equation, and applications. Development of the relations of classical thermodynamics. Prerequisites, graduate standing in engineering, Mathematics 321.
- 522 Thermodynamics IV (3)** **Waibler**  
Selected topics from the thermodynamics and dynamics of fluid flow. The thermodynamics of reactive systems. Introduction to the kinetic theory of gases. Prerequisite, 521.
- 524 Combustion (3)** **Firey**  
Chemical and physical processes of combustion, sources, and preparation of fuels, applications, design of combustion equipment. Prerequisite, 521.
- 526 Air Conditioning (3)** **Hendrickson**  
Study at the graduate level of heat-transfer aspects of air-conditioning problems; special problems in humidifying and dehumidifying; automatic control and zoning; noise and vibration control; laboratory and field tests of air-conditioning installations. Prerequisites, 425 and graduate standing, or permission.
- 529 Advanced Refrigeration (3)** **Hendrickson**  
Review of basic cycles and equipment, cold storage practice, refrigeration in food manufacture and distribution, industrial applications, frozen foods and other low temperature applications, capital and operating cost studies, and design problems. Prerequisites, 428 and graduate standing, or permission.
- 531 Heat Transfer (3)** **Childs, Costello, Waibler**  
The analysis of steady-state and transient heat conduction by mathematical and numerical methods. Thermal radiation and radiant-energy interchanges. Prerequisites, 430, graduate standing in engineering, Mathematics 321.
- 532 Convective Heat Transfer (3)** **Waibler**  
An introduction to fluid flow and boundary layer theory as applicable to forced- and natural-convection heat transfer. Dimensional analysis. Condensation and boiling heat transfer. The design of heat exchangers. Prerequisites, 531, or permission.
- 533 Gas Dynamics II (3)** **Childs, Costello**  
A continuation of Mechanical Engineering 432. A study of the dynamic and thermodynamic relationships for the flow of fluids; application of basic laws to flow processes in pipes, nozzles, diffusers, compressors, and turbines; wave phenomena; introduction to multi-dimensional flow; experimental techniques and measurements. Prerequisites, 432 and graduate standing, or permission.
- 534 Experimental Heat Transfer (3)** **McFeron, Waibler**  
Study of instrumentation and techniques used in heat transfer measurements; investigation of conduction, radiation, and convection phenomena. Liquid metal and water heat-transfer loops will be used for experiments to determine heat flux, film coefficients, boiling pressure drops, and other phenomena of current interest. Prerequisites, 531 or 532, or permission.
- 541 Advanced Engineering Materials (3)** **Mills**  
Behavior of engineering materials as affected by combined stresses, repeated stress, rate of loading, duration of load, corrosion, and temperature. Fundamental and engineering aspects of flow and fracture of solid materials. Modern techniques in materials evaluation. Lecture and laboratory. Prerequisites, 340, graduate standing in mechanical engineering, or permission.
- 542 Topics in Engineering Materials (3)** **Mills**  
Selected topics of current importance in the engineering usage of materials, including new materials, new processes for shaping and treating materials, surface coatings, radioisotopes in engineering and residual stresses. Study and reports on individually assigned topics. Lecture, laboratory, and field trips. Prerequisite, 541 or permission.
- 544 Automatic Control (3)** **Balise**  
Theory and practice of industrial process control; effects of system parameters on difficulty of control; modes of control; analysis of pneumatic components; advantages and limitations of equipment. Lecture and laboratory. Prerequisite, graduate standing in engineering or permission.
- 545 Automations (3)** **Balise**  
Concepts in addition to feedback that are important in automatic production, including automatic data processing, computers, numerical control of machine tools, and integrated manufacturing systems. Prerequisite, 544.
- 546 Experimental Stress Analysis (3)** **Day**  
Studies of stress and strain relationships under static and dynamic loading. Analytical methods for determination of stress and strains in irregular members. Theory and practice of the photoelastic method. Brittle lacquer method for study of strain. Application of resistance wire strain gauges to measurement of dynamic and static strain. Interferometry as a tool in stress analysis. Principles and application of mechanical strain gauges. Lecture and laboratory. Prerequisite, graduate standing in engineering or permission.

- 547 Experimental Stress Analysis (3)** **Day**  
Study of structural similitude, dimensional analysis, and brittle models as they apply to experimental stress analysis. Use of nomographs with electric strain-rosettes, study of principles and application of instrumentation available for strain-sensitive pickups. Non-destructive methods of testing and inspecting structures and machine parts. Calibration of stress-analysis instruments. Prerequisite, 546.
- 548 Experimental Stress Analysis (3)** **Day**  
Seminar and individual research on special problems in experimental stress analysis. Prerequisite, 547 or permission.
- 551 Applied Elasticity (3)** **Day, Kobayashi**  
General equilibrium and stress-strain relations in homogeneous, isotropic, elastic materials. Elastic stress distributions in machine components; plane-stress and plane-strain problems; torsion and bending in machine members; problems in thermal stresses. Prerequisite, graduate standing in mechanical engineering or permission.
- 552 Applied Plasticity (3)** **Kobayashi**  
Elastic-plastic stress distributions in machine components; stress-strain relations in the plastic range; yield in thick-walled pressure vessels, rotating cylinders and disks; torsion and bending of machine members with plastic flow; thermal stresses in shells, rotating disks and plates. Prerequisite, 551 or permission.
- 564 Mechanical Engineering Analysis II (3)** **Balise**  
Application of complex variable theory and vector analysis to various fields in mechanical engineering; analogs in heat transfer, fluid flow, stress distribution, dynamics, and feedback control systems. Prerequisite, graduate standing or permission.
- 567 Advanced Dynamics of Machines (3)** **Kobayashi**  
Dynamics of particles and of rigid bodies, with emphasis upon applications involving machine parts and other engineering components. Generalized coordinates, Lagrange's equations, Hamilton's principle. Prerequisite, 469 or permission.
- 568 Vibrations of Machinery (3)** **Mills**  
Study of vibration phenomena, with emphasis on application to practical problems. Systems of one and two degrees of freedom, with and without damping, in translational and torsional vibration. Systems of many degrees of freedom in torsional vibration. Free and forced vibration. Prerequisite, permission.
- 571 Servomechanisms (3)** **Balise**  
Applications of feedback to meet accuracy and stability requirements of closed loop systems; transient and transfer-function methods of analysis; comparative study of mechanical, hydraulic, pneumatic, and electrical components; testing and design. Prerequisite, 564 or permission.
- 584 Gas Turbines (3)** **Guidon**  
Applications of the gas turbine; gas turbine cycles (theoretical Brayton, simple open, regenerative, reheat, intercooling, and closed cycles); axial-flow compressors; centrifugal compressors; turbines; combustion systems; gas turbine power plant materials; plant performance. Prerequisites, 330, graduate standing in engineering, or permission.
- 600 Research (2-5)** **Staff**
- 700 Thesis (\*)** **Staff**

## MINERAL ENGINEERING

**Director: DRURY A. PIFER, 328 Roberts Hall**

The School of Mineral Engineering, through the Divisions of Ceramic, Metallurgical, and Mining Engineering, offers courses leading to the degrees of Bachelor of Science in Mining Engineering (with options in mineral preparation engineering and geological engineering); Bachelor of Science in Metallurgical Engineering; Bachelor of Science in Ceramic Engineering; Master of Science in Engineering (see page 52), Master of Science in Mining, Coal Mining, Metallurgical, or Ceramic Engineering; and Master of Science in Ceramics or Metallurgy.

A one-quarter Prospector's Course which carries no academic credit is offered through the Division of Mining Engineering (see page 90).

## Ceramic Engineering

### BACHELOR OF SCIENCE IN CERAMIC ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 53), General Engineering 121 (Plane Surveying and Measurements) should be omitted in the third quarter and Chemistry 170 (Qualitative Analysis) substituted. Students who decide to transfer into ceramic engineering

may complete the chemistry requirements by rearranging the required curriculum in consultation with the Director of the School.

As part of their course, students should have ceramic industrial experience during the summer vacation following their sophomore and junior years and must participate in scheduled field excursions. Technical electives are courses in the College of Engineering and science courses in the College of Arts and Sciences.

### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Cer. Engr. 201 Introduction .....	2	Cer. Engr. 202 Raw Matls. ....	4	Cer. Engr. 208 Pyrometry .....	3
H.-S.S. 265 Tech. of Commun. ....	3	Econ. 211 General H.-S.S. 270 Engr. Report Writing .....	2	Civil Engr. 292 Mechanics of Matls. ....	3
Math. 252 Analytic Geom. & Calc. ....	5	Math. 253 Analytic Geom. & Calc. ....	3	H.-S.S. 302 Tech. Writing	3
Mech. Engr. 202 Welding .....	1	Physics 218 Engr. Phys. 4	4	Mech. Engr. 203 Metal Mach. ....	1
Physics 217 Engr. Physics 4	4	ROTC .....	2-3	Math. 321 Diff. Equations .....	3
ROTC .....	2-3		16-19	Physics. 219 Engr. Physics 4	4
	15-18			ROTC .....	2-3
					17-20

### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Cer. Engr. 306 Excursion..	1	Cer. Engr. 312 Structure & Reactions .....	5	Cer. Engr. 313 Colloids & Rheology ....	3
Chem. Engr. 384 Indust. Stoichiometry .....	3	Chem. Engr. 385 Thermodynamics .....	4	Cer. Engr. 314 Ceramic Equilibria I .....	3
Min. Engr. 361 Mineral Dressing: Preparation...	3	Elect. Engr. 303 Elements of Elect. Engr. ....	4	Cer. Engr. 315 Vitreous State .....	4
Chem. 355 Physical .....	4	Elect. Engr. 304 Elect. Engr. Lab. ....	1	Chem. Engr. 470 Trans. Process Principles ....	4
Physics 320 Intro. to Modern Physics .....	3	Chem. 356 Physical .....	3	Chem. 357 Physical .....	3
Tech. electives .....	3		17		17
	17				

### Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Cer. Engr. N307 Excursion .....	0	Cer. Engr. 402 Equip. and Plant Design .....	2-	Cer. Engr. 403 Equip. & Plant Design .....	2-
Cer. Engr. 401 Drying & Firing .....	4	Cer. Engr. 421 Lab. ....	3	Cer. Engr. 441 Seminar ..	1
Cer. Engr. 412J X-ray Anal. Tech. ....	3	Cer. Engr. 441 Seminar ..	1	Cer. Engr. 499 Special Projects .....	2
Cer. Engr. 441 Seminar ..	1	H.-S.S. 332 Hum.-Soc. St. 3	3	H.-S.S. 333 Hum. Soc. St. 3	3
Cer. Engr. 470 Refractories .....	3	Hum. Rel. 365 Indust. Rel. ....	3	Electives .....	8
Cer. Engr. 499 Special Projects .....	1	Tech. electives .....	3		16
H.-S.S. 331 Hum. Soc. St. 3	3		17		
Tech. electives .....	3				
	18				

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. No foreign language is required for these degrees.

**MASTER OF SCIENCE IN CERAMIC ENGINEERING.** Candidates for this degree select courses and research in accordance with their special interests and objectives. A study of advanced theory is usually part of the work. Courses may be selected in preparation for plant operation, production and management, sales engineering, or research and product development. Graduates of accredited ceramic engineering curricula and graduates of other accredited engineering curricula who complete the basic undergraduate courses in ceramic engineering may become candidates.

**MASTER OF SCIENCE IN CERAMICS.** Students with undergraduate majors in science, particularly chemistry or physics, may become candidates for this degree, after completing basic undergraduate courses in ceramics.

## COURSES FOR UNDERGRADUATES

- 201 Introduction to Ceramics (2)** **Campbell, Staff**  
Scope of ceramic materials and ceramic industries: use of ceramics as engineering materials; economic importance.
- 202 Ceramic Raw Materials (4)** **Campbell, Staff**  
Natural and synthetic materials used in ceramic products; their mineralogy, physical properties, compositions, and sources.
- 208 Pyrometry (3)** **Campbell**  
Theory, methods, and equipment for high temperature measurement and instrumentation. Prerequisite, Physics 219 or concurrently.
- 306 Ceramic Engineering Excursion (1)** **Staff**  
Plant inspection trip; junior year.
- N307 Ceramic Engineering Excursion (0)** **Staff**  
Plant inspection trip; senior year.
- 312 Physical Ceramics: Structure and Reactions (5)** **J. I. Mueller**  
Laws of chemistry and physics applied to ceramic research and production control; crystalline and glassy state; physical-chemical reactions of ceramic materials. Prerequisite, Chemistry 355 or permission.
- 313 Physical Ceramics: Colloids and Rheology (3)** **J. I. Mueller**  
Structural chemistry: colloidal and rheological phenomena and their effects on ceramic materials. Prerequisite, 312.
- 314 Physical Ceramics: Ceramic Equilibria I (3)** **J. I. Mueller**  
Equilibrium diagrams and their applications to ceramic research and control problems. Prerequisite, 312 or permission.
- 315 Vitreous State (4)** **Staff**  
Chemistry and physics of glass, glazes, and porcelain enamels; structure and properties of vitreous materials. Prerequisite, 312 or permission.
- 401 Process Ceramics: Drying and Firing (4)** **Staff**  
Drying: evaporation; fluid flow through particles; solid-liquid system structure; heat and humidity requirements; air circulation; time relationships; methods. Firing: time-temperature concepts; reaction rates and physical-chemical changes; type of reactions; firing techniques; heat requirements.
- 402-403 Equipment and Plant Design (2-2)** **Campbell**  
402:- application of the theory of drying and firing to the calculation and design of dryers and kilns. Studied on the basis of projects designed for specific performance. Prerequisite, 401. 403:- equipment selection, layout plans, and economics applied to specific problems.
- 410 Physical Ceramics: Ceramic Equilibria II (3)** **Staff**  
Derivation of phase equilibrium relations in ceramics; studies of crystalline solutions and analytical treatment of multicomponent phase equilibrium systems. Prerequisite, 314.
- 412J X-ray Analytical Techniques (3)** **J. I. Mueller**  
Introduction to the use of X-ray diffraction and spectroscopy as analytical methods. Offered jointly with the Division of Metallurgical Engineering. Prerequisite, Physics 320 or equivalent.
- 421 Ceramic Bodies Laboratory (3)** **Campbell**  
Quantitative determination of physical properties of ceramic bodies; study of the effects of variables in composition, forming, and firing. Prerequisite, 401.
- 422 Ceramic Petrography (2)** **Kelly**  
Polarizing microscope study of natural and artificial minerals peculiar to the ceramic industry. Prerequisite, Geology 423.
- 440 Glass Technology (3)** **Staff**  
Raw materials; chemistry and physics of glass; batches and calculations; melting and fabrication practices; physical properties; special glasses. Prerequisites, 315 or equivalent.
- 441 Undergraduate Seminar (1, maximum 3)** **Staff**
- 450 Pyroprocessing of Nonmetals (3)** **Bauer**  
Composition; reactions; plant control; grinding and burning; manufacture; chemistry and physics of processes. Prerequisites, junior standing and permission.
- 470 Refractories (3)** **Staff**  
Physical and chemical composition; properties under service conditions; testing; utilization.
- 499 Special Projects (\*, maximum 5)** **Staff**  
Problems in ceramics; laboratory investigations and bibliographic research. A total of 5 credits is required.



## COURSES FOR GRADUATES ONLY

- 500 Ceramic Vitreology (3)** **Staff**  
Composition and formation of glasses in ceramic bodies; their effect on such properties as mechanical and dielectric strength, porosity, hardness, chemical durability, refractoriness, and resistance to erosion.
- 501 Process Ceramics: Production Control (3)** **Campbell**  
Application of industrial management and production control methods in the ceramic industry; production characteristics and their effects on the product; explanation and analysis of standards for products and their effects on manufacturing methods in the ceramic industry.
- 502 Process Ceramics: Unit Process Control (3)** **Campbell**  
Principles of process control as applied to the ceramic industry; methods of measurement and evaluation of data for the control of partial size, viscosity, moisture content, fusion points, workability, humidity, temperature, drying rates, furnace atmospheres and pressures, time-temperature relationships, body and glaze textures, and imperfection causes; application of control data to plant production.
- 503 Process Ceramics: High Temperature Topics (3)** **Campbell**  
Application of the fundamentals of heat transfer, reaction rates, and heat sources to the design and use of high temperature kilns, furnaces, and allied equipment.
- 511 Theoretical Physical Ceramics (3)** **J. I. Mueller**  
Theory and application of colloidal phenomena to the use of ceramic raw materials; colloidal state; colloidal crystal structure; surface phenomena; electrokinetics; base exchange. Prerequisite, -312.
- 512 Theoretical Physical Ceramics (3)** **J. I. Mueller**  
Theory and measurement of physical properties of ceramics; reactions of ceramic materials; surface area determinations; zeta potentials; particle size measurement; thermal analysis; laboratory measurements. Prerequisite, 511.
- 513 Applied Physical Ceramics (3, maximum 6)** **J. I. Mueller, Staff**  
Application of physical ceramic principles to the control of ceramic production; instrumentation studies. Prerequisite, 512.
- 520 Seminar (1, maximum 6)** **Staff**  
Required for all graduate students.
- 522 Structure and Analysis of Ceramic Materials (3)** **J. I. Mueller**  
Theory and laboratory practice in use of X-ray diffraction for quantitative analysis; structure determinations. Prerequisite, 521 or equivalent.
- 523 Identification and Structure Problems (3, maximum 6)** **J. I. Mueller**  
Laboratory practice in X-ray diffraction techniques applied to ceramic research. Prerequisite, 522 or equivalent.
- 590 Industrial Minerals Research (\*)** **Staff**
- 600 Research (\*)** **Staff**  
Special problems investigated under staff direction; new products and processes; ceramic resources of the Pacific Northwest.
- 700 Thesis (\*)** **Staff**

## Metallurgical Engineering

### BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (page 53). General Engineering 121 (Plane Surveying and Measurements) should be omitted in the third quarter and Chemistry 170 (Qualitative Analysis) substituted. Students who transfer into metallurgical engineering may complete the chemistry requirement by rearranging the required curriculum in consultation with the Director of the School of Mineral Engineering.

As part of their instruction, students are encouraged to have experience in metallurgical or industrial plants during the summer vacation; they must also participate in field excursions scheduled as part of the course content.

In the fourth year, students may choose electives in physical metallurgy, chemical metallurgy, or mineral preparation and make their senior investigation in one of these fields. Electives in labor relations and economics are recommended for students interested in plant operation and administration. Accounting 150 (Fundamentals of Accounting) is recommended for those intending to study Industrial Engineering.

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Met. Engr. 201J Intro.		Met. Engr. 203 Chem.		Met. Engr. 204	
Mineral Industries . . . . .	1	Metallurgy: Intro. . . . .	2	Stoichiometry . . . . .	3
Mech. Engr. 201 Metal		Civil Engr. 291 Dynamics . . .	3	Geol. 223 Mineralogy . . . .	3
Casting . . . . .	1	Mech. Engr. 202 Welding . .	1	H.-S.S. 270 Engr. Report	
Chem. 221 Quant. Anal. . . .	5	H.-S.S. 265 Tech. of		Writing . . . . .	2
Math. 252 Analytic Geom.		Commun. . . . .	3	Math. 321 Diff. Equations . .	3
& Calc. . . . .	5	Math. 253 Analytic		Physics 219 Engr. Physics . .	4
Physics 217 Engr. Physics . .	4	Geo. & Calc. . . . .	3	ROTC . . . . .	2-3
ROTC . . . . .	2-3	Physics 218 Engr. Physics . .	4		
	16-19	ROTC . . . . .	2-3		15-18
			16-19		

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Met. Engr. 321 Chem.		Met. Engr. 324 Chem.		Met. Engr. 306 Excursion . .	1
Metallurgy: Principles . . .	3	Metallurgy: Lab. . . . .	1	Met. Engr. 322	
Met. Engr. 361 Physical . . .	4	Met. Engr. 362 Physical . . .	4	Thermodynamics . . . . .	3
Civil Engr. 292 Mechanics		Min. Engr. 362 Mineral		Met. Engr. 363 Physical . . .	4
of Mats. . . . .	3	Dressing: Concentration . .	4	Elec. Engr. 300 Elements	
H.-S.S. 331 Hum.-Soc. St. .	4	Chem. 356 Physical . . . . .	3	of Elect. Engr. . . . .	5
Chem. 355 Physical . . . . .	4	Physics 320 Modern		Chem. 357 Physical . . . . .	3
	17	Physics . . . . .	3		16
			15		

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Met. Engr. 421		Met. Engr. 481J Mineral		Met. Engr. 306 Excursion . .	1
Chemical Met. . . . .	4	Industry Economics . . . .	3	Met. Engr. 499	
Met. Engr. 424		Met. Engr. 412J X-ray		Special Projects . . . . .	1
Measurements . . . . .	1	Anal. Tech. . . . .	3	Elec. Engr. 400 Vac.	
Met. Engr. 461		Met. Engr. 499		Tubes & Electronics . . . .	5
Advanced Physical . . . . .	3	Special Projects . . . . .	2	H.-S.S. 333 Hum. Soc. St. .	3
Met. Engr. 499		H.-S.S. 491 Hum. Soc. St. .	2	Electives . . . . .	6
Special Projects . . . . .	2	Electives . . . . .	6		16
H.-S.S. 332 Hum.-Soc. St. .	3		16		
Electives . . . . .	3				
	16				

In the senior year students majoring in physical metallurgy must elect Metallurgical Engineering 460, 466, or equivalent, and three credits in a technical elective. Chemical metallurgy majors must elect Mining Engineering 464. (Mineral Dressing; Hydrometallurgy).

**MINERAL PREPARATION ENGINEERING OPTION.** Students electing this option will, in the third year, substitute Chemistry 231 (Organic Chemistry) and Mining 464 (Mineral Dressing; Hydrometallurgy) for Metallurgy 322 and 363.

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Min. Engr. 361 Mineral		Min. Engr. 465 Mineral		Min. Engr. 306 Excursion . .	1
Dressing: Preparation . . .	3	Dressing: Microscopy . . .	2	Min. Engr. 485 Indust.	
Min. Engr. 463 Mineral		Elect. Engr. 305		Minerals . . . . .	3
Dressing: Flotation . . . .	3	Elect. Mach. . . . .	5	Civil Engr. 342 Fluid	
Min. Engr. 476 Coal		H.-S.S. 332 Hum.-Soc. St. .	3	Mechanics . . . . .	5
Preparation . . . . .	2	Met. Engr. 499		H.-S.S. 333 Hum.-Soc. St. .	3
Geol. 423 Optical		Special Projects . . . . .	3	Met. Engr. 322	
Mineralogy . . . . .	5	Electives . . . . .	3	Thermodynamics . . . . .	3
Electives . . . . .	3		16	Met. Engr. 499	
	16			Special Projects . . . . .	2
					17

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. No foreign language is required for these degrees.

**MASTER OF SCIENCE IN METALLURGICAL ENGINEERING.** Candidates for this degree select courses in accordance with their particular interests in consultation with the graduate student adviser. Special fields of study include physical metallurgy,

chemical metallurgy, and mineral dressing. Graduates of metallurgical engineering curricula and graduates of other engineering curricula who complete the basic undergraduate courses in metallurgical engineering may become candidates.

**MASTER OF SCIENCE IN METALLURGY.** Students with undergraduate majors in science, particularly physics or chemistry, may become candidates for this degree after completing basic undergraduate courses in metallurgy.

## COURSES FOR UNDERGRADUATES

- 201J Introduction to the Mineral Industries (1)** **Pifer, Staff**  
A series of lectures by representatives from the various divisions of the mineral industries. Historical and economic background; brief survey of technical processes and engineering; organization of the industry. Field trips required. Offered jointly with the Division of Mining Engineering.
- 203 Chemical Metallurgy: Introduction (2)** **Morgan**  
Principles and unit processes in extractive metallurgy. Chemical reactions, description of equipment, and unique aspects of hydrometallurgy, pyrometallurgy, and electrometallurgy. Prerequisite, Chemistry 160.
- 204 Metallurgical Stoichiometry (3)** **Morgan**  
Principles of material and heat balances in metallurgical processes. Prerequisite, Chemistry 160.
- 300 Assaying (3)** **Morgan**  
Commercial and industrial methods of technical analysis of ores, metals, and furnace products. Rapid control methods are stressed. Introduction to fire assay for gold and silver. Prerequisite, Chemistry 221.
- 301 Fire Assaying (3)** **Staff**  
Quantitative determination of gold and silver in ores and mill products; testing of reagents; sampling methods; problems of slagging, fluxing, refractory reactions, and furnace conditions. Prerequisite, Chemistry 221.
- 306 Metallurgy Excursion (1, maximum 2)** **Staff**  
Plant inspection trip; junior and senior years.
- 321 Chemical Metallurgy: Principles (3)** **Morgan**  
Heat transfer; fluid flow; pyrometallurgical phase systems; refractories. Prerequisites, 204, Physics 217 and 219.
- 322 Metallurgical Thermodynamics (3)** **Morgan**  
Basic thermodynamics in chemical and physical metallurgy. Prerequisites, 321, 361, Chemistry 356 and Physics 350.
- 324 Chemical Metallurgy Laboratory (1)** **Morgan**  
Experimental methods in chemical metallurgy. Prerequisite, 321.
- 325 Chemical Metallurgy: Plant Practices (2)** **Morgan**
- 361 Physical Metallurgy (4)** **Roberts**  
An introduction to the fundamentals of physical metallurgy: classifications of metals and the periodic chart; atomic structure, interatomic relationships and crystallography of metals; alloys and alloying, binary equilibrium diagrams, solid solutions and intermetallic compounds. Laboratory practice in the preparation and examination of metallographic specimens, photomicrography, simple phase diagram determination, and studies of alloys. Prerequisite, Physics 219.
- 362 Physical Metallurgy (4)** **Roberts**  
The physical metallurgy of iron and steel: Preparation, atomic nature and allotropic change in iron; metastable binary phase diagrams, alloying behavior of iron, iron-graphite and iron-Fe<sub>3</sub>C phase diagrams; equilibrium relations in plain carbon steels, the metallurgy of cast iron, reaction kinetics of phase transformations in steels, the mechanism of formation of subcritical substances; alloy steels, hardenability. Laboratory work on the metallography of iron and steels, dilatometric studies of phase changes, transformation diagram determination, and tempering phenomena. Prerequisite, 361 or 441.
- 363 Physical Metallurgy (4)** **Roberts**  
Metallurgical phenomena of industrial importance; casting and solidification, hot and cold working, recovery and recrystallization, age hardening, surface treatment, failures in metals, joining of metals; ternary equilibrium diagrams. Laboratory investigations of industrial metallurgical problems such as casting and solidification, cold working and annealing, age hardening, stress corrosion cracking, creep. Prerequisite, 362.
- 412J X-ray Analytical Techniques (3)** **J. I. Mueller**  
Introduction to the use of X-ray diffraction and spectroscopy as analytical methods. Laboratory practice. Offered jointly with the Division of Ceramic Engineering. Prerequisite, Physics 219 or equivalent.
- 421 Chemical Metallurgy: Advanced (4)** **Morgan**  
Application of thermodynamics and kinetics to specific metallurgical reactions and processes. Detailed consideration of unit processes. Prerequisite, 322.

- 424 Metallurgical Measurements (1)** **Flanagan**  
Laboratory experiments illustrating precision measurements of physical property changes in metals and research techniques for developing and study unique metal structures. Prerequisite, 363.
- 441 Engineering Physical Metallurgy (3)** **Polonis, Flanagan**  
For mechanical, chemical, and civil engineers and other nonmajors. Solidification of metals and alloys; crystallography; binary equilibrium diagrams; precipitation hardening phenomena; metallurgy and heat treatment of steels and cast irons; the casting, forming, mechanical properties, the effects of working, and the corrosion of metals; effect of radioactive radiation on metal properties. For laboratory, register in 442. Prerequisite, Physics 219.
- 442 Engineering Physical Metallurgy Laboratory (1)** **Polonis, Flanagan**  
Laboratory work to accompany 441 may be taken concurrently. The preparation and examination of metallographic specimens; photomicrography; simple phase diagram determination; cold working and annealing; age hardening; heat treatment of steels.
- 450 Light Metals (3)** **Roberts**  
A detailed study of the metallurgy of aluminum, magnesium, titanium, and their alloys. Prerequisite, 361 or 441.
- 455 Iron and Steel (3)** **Morgan**  
Process and production metallurgy. Theory and practice in operation of iron blast furnace and steel plants. Raw materials; furnaces; melting practices; ingot production; rolling and forming practices. Prerequisites, 203 or 441, and 321.
- 460 Deformation of Metals (3)** **Polonis**  
Principles of mechanical metallurgy: Behavior of metals under conditions of combined stress; stress-strain relations; theories of strength; microscopic and atomistic mechanisms of plastic deformation including dislocation theory; effects of composition and temperature on mechanical properties; residual stresses. Prerequisites, 363 or 441, and Civil Engineering 292.
- 461 Advanced Physical Metallurgy (3)** **Roberts**  
Advanced ternary diagrams; corrosion and oxidation; intermetallic phases. Prerequisite, 363.
- 466 Theory of Metals (3)** **Roberts**  
Elementary study of the free electron theory and Brillouin zone theory; application of principles to conductivity, magnetic behavior, cohesion, alloy phases; theory of insulators and semi-conductors. Prerequisite, 363.
- 468 Undergraduate Seminar (1, maximum 3)** **Staff**
- 481J Mineral Industry Economics (3)** **Pifer**  
Mineral resources, distribution, utilization, and depletion; government policies, taxation, and tariffs; industrial organization, cartels, and international control; markets and prices; financial provisions in the mineral industry; elements of costs in production. Offered jointly with the Division of Mining Engineering. Prerequisite, upper-division standing or permission.
- 499 Special Projects (\*, maximum 5)** **Staff**  
Laboratory investigations of metallurgical problems and bibliographic research. Total of 5 credits required.

## COURSES FOR GRADUATES ONLY

- 520 Seminar (1, maximum 6)** **Staff**  
Review of research problems and recent literature. Required for all graduate students.
- 521 X-ray Metallography (3)** **J. I. Mueller**  
Theory and use of the diffraction X ray in the study of metals; physical properties; generation and diffraction of X rays; diffraction equipment; diffraction crystallography; single crystals and powders; interpretation and qualitative analysis. Prerequisite, Physics 355 or equivalent.
- 522 X-ray Metallography (3)** **J. I. Mueller**  
Precision diffraction methods and their application to simple crystal structure and parameter determinations; chemical composition; grain size and distortion measurement; single-crystal orientation; determination of preferred orientation and polycrystalline metals; stress measurements. Prerequisite, 521 or equivalent.
- 523 X-ray Metallography (3)** **Roberts, Polonis**  
Laboratory practice on specific problems; application technique studies; research methods. Prerequisite, 522.
- 531 Advanced Metallurgy (\*)** **Staff**  
Study of selected problems, with particular attention to recent publications and scientific applications in physical or extractive metallurgy.
- 541 Theoretical Structural Metallurgy (3)** **Polonis**  
Detailed study of structural imperfections in metal-crystals; vacant lattice sites; influence of foreign atoms; fundamentals of dislocation theory including geometry, motion, interactions, and stress fields of dislocations; correlation of theory with experimental evidence of dislocation. Prerequisite, 363.

- 542 Theoretical Structural Metallurgy (3)** **Polonis**  
Structure of liquid metals; thermodynamics and kinetics of vapor-solid and liquid-solid transformations; metal crystal growth from vapors and aqueous solutions; detailed consideration of solidification including single crystal growth, substructure, segregation phenomena, and zone melting; interface and internal boundaries. Prerequisite, 541.
- 543 Theoretical Structural Metallurgy (3)** **Polonis**  
The fundamental view of mechanical properties and deformation of metals; elasticity, anelasticity, and internal friction; anisotropy; plastic deformation of single crystals and polycrystalline aggregates; theories of plastic flow and work hardening involving applications of dislocation theory; effects of temperature and composition on deformation behavior of metals and alloys. Prerequisite, 541.
- 561 Phase Transformations in Solid Metals (3)** **Roberts**  
An advanced treatment of phase transformations from the standpoint of crystallography, and thermodynamics. Prerequisite, 363.
- 562 Phase Transformations in Solid Metals (3)** **Roberts**  
Kinetics of solid state reactions in metals. Basic equations and their derivation. Applications to specific metal and alloy transformations. Growth-controlled reactions and reactions dependent on both nucleation and growth. Prerequisite, 561.
- 563 Phase Transformations in Solid Metals (3)** **Roberts**  
Nucleation in solid state transformations. Theories of nucleation and grain growth. Transition lattices and other metastable phenomena. Prerequisite, 562.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## Mining Engineering

### BACHELOR OF SCIENCE IN MINING ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 53).

As part of their course, students have experience in mining, milling, or geology during the summer vacations and must participate in field excursions scheduled as part of specific courses.

In the third and fourth years, students may take the regular curriculum or may elect an option in either geological engineering or mineral preparation engineering. Courses in labor relations, business administration, and economics are recommended to students interested in mine administration.

#### Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 201J Intro.		Mining Engr. 221 Drilling, Blasting, & Tunnelling	2	Mining Engr. 330 Mine Surveying	3
Mineral Indust. .... 1		H.-S.S. 265 Tech. of Communication	3	H.-S.S. 270 Engr. Report Writing	2
Geol. 205 Rocks and Minerals	5	Geol. 221 Crystallography and Mineralogy	3	Chemistry 170 Qual. Anal.	3
Math. 252 Analytic Geom. and Calc.	5	Math. 253 Analytic Geom. and Calc.	3	Geol. 222 Mineralogy	3
Physics 217 Engr. Physics 4		Physics 218 Engr. Physics 4		Physics 219 Engr. Physics 4	4
ROTC	2-3	ROTC	2-3	ROTC	2-3
	15-18		15-18		15-18

#### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 322 Methods 4		Mining Engr. 325 Land Valuation	2	Mining Engr. 306 Excursion	1
Mining Engr. 361 Mineral Dressing: Preparation	3	Mining Engr. 331 Mapping	1	Civil Engr. 292 Mechanics of Matls.	3
Civil Engr. 291 Dynamics 3		Mining Engr. 362 Mineral Dressing: Concentration	4	Civil Engr. 342 Fluid Mechanics	5
H.-S.S. 331 Hum.-Soc. St. 3		Elect. Engr. 303 Elements of Elect. Engr.	4	Elect. Engr. 305 Elect. Mach.	5
Geology 423 Optical Mineralogy	5	Elect. Engr. 304 Lab.	1	Mech. Engr. 415 Statistical Qual. Control	3
	18	Geology 424 Petrog. and Petrol. of Igneous Rocks	5		17
			17		

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 425		Mining Engr. 481J		Mining Engr. 306	
Rock Mechanics . . . . .	2	Mineral Indus. Econ. . . . .	3	Excursion . . . . .	1
Mining Engr. 433		Mining Engr. 499		Mining Engr. 426	
Mine Ventilation . . . . .	3	Special Projects . . . . .	2	Exploration . . . . .	3
Mining Engr. 499		Geol. 427 Ore Deposits . . . . .	5	Mining Engr. 432 Mine	
Special Projects . . . . .	2	H.-S.S. 333 Hum.-Soc. St. . . . .	3	Engr. . . . .	5
H.-S.S. 332 Hum.-Soc. St. . . . .	3	Acctg. 150 Fundamentals . . . . .	4	Mining Engr. 499	
Hum. Rel. 365 Indust. Rel. . . . .	3		17	Special Projects . . . . .	1
Mech. Engr. 325				Electives . . . . .	6
Thermodynamics . . . . .	3				16
	16				

## GEOLOGICAL ENGINEERING OPTION

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 322		Mining Engr. 325 Land		Mining Engr. 306	
Methods . . . . .	4	Valuation . . . . .	2	Excursion . . . . .	1
Mining Engr. 361 Mineral		Mining Engr. 331		Civil Engr. 292 Mechanics	
Dressing: Preparation . . . . .	3	Mapping . . . . .	1	of Matls. . . . .	3
Civil Engr. 291		Mining Engr. 362 Mineral		H.-S.S. 332 Hum.-Soc. St. . . . .	3
Dynamics . . . . .	3	Dressing: Concentration . . . . .	4	Geol. 207 Historical . . . . .	5
H.-S.S. 331 Hum.-Soc. St. . . . .	3	Geol. 206 Physiography . . . . .	5	Geol. 425 Petrog. & Petrol.	
Geol. 423 Optical		Geol. 424 Petrog. & Petrol.		of Metamorphic Rocks . . . . .	5
Mineralogy . . . . .	5	of Igneous Rocks . . . . .	5		17
	18		17		

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 425 Rock		Mining Engr. 427		Mining Engr. 306	
Mechanics . . . . .	2	Exploration Geophysics . . . . .	2	Excursion . . . . .	1
Mining Engr. 499		Mining Engr. 481J Mineral		Mining Engr. 426	
Special Projects . . . . .	2	Industry Economics . . . . .	3	Exploration . . . . .	3
Civil Engr. 342 Fluid		Mining Engr. 499		Mining Engr. 499	
Mechanics . . . . .	5	Special Projects . . . . .	2	Special Projects . . . . .	1
H.-S.S. 333 Hum.-Soc. St. . . . .	3	Elect. Engr. 303 Elements		Mech. Engr. 415 Statistical	
Geol. 308 Structural . . . . .	5	of Elect. Engr. . . . .	4	Qual. Control . . . . .	3
	17	Elect. Engr. 304 Lab. . . . .	1	Electives . . . . .	8
		Geol. 427 Ore Deposits . . . . .	5		16
			17		

## MINERAL PROCESS ENGINEERING OPTION

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 322		Mining Engr. 362 Mineral		Mining Engr. 306	
Methods . . . . .	4	Dressing: Concentration . . . . .	4	Excursion . . . . .	1
Mining Engr. 361 Mineral		Civil Engr. 342 Fluid		Mining Engr. 464 Mineral	
Dressing: Preparation . . . . .	3	Mechanics . . . . .	5	Dressing: Hydro-	
Civil Engr. 291 Dynamics . . . . .	3	Met. Engr. 203 Chemical		metallurgy . . . . .	4
H.-S.S. 331 Hum.-Soc. St. . . . .	3	Metallurgy: Introduction . . . . .	2	Civil Engr. 292 Mechanics	
Geol. 423 Optical		Chem. 221 Quant.		of Matls. . . . .	3
Mineralogy . . . . .	5	Analysis . . . . .	5	Elect. Engr. 303 Elements	
	18		16	of Elect. Engr. . . . .	4
				Elect. Engr. 304 Lab. . . . .	1
				Chem. 231 Organic . . . . .	3
					16

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 463 Mineral		Mining Engr. 465 Mineral		Mining Engr. 306	
Dressing: Flotation . . . . .	3	Dressing: Microscopy . . . . .	2	Excursion . . . . .	1
Mining Engr. 476 Coal		Mining Engr. 481J Mineral		Mining Engr. Tech. . . . .	
Preparation . . . . .	2	Indust. Economics . . . . .	3	Electives . . . . .	4
Civil Engr. 342 Fluid		Mining Engr. 499		Elect. Engr. 305 Machinery . . . . .	5
Mechanics . . . . .	5	Special Projects . . . . .	3	H.-S.S. 333 Hum.-Soc. St. . . . .	3
H.-S.S. 331 Hum.-Soc. St. . . . .	4	H.-S.S. 332 Hum.-Soc. St. . . . .	3	Chem. 357 Physical . . . . .	3
Chem. 355 Physical . . . . .	4	Chem. 356 Physical . . . . .	3		16
	18	Electives . . . . .	3		
			17		

## ADVANCED DEGREES

Students who intend to work toward advanced degrees must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. No foreign language is required for these degrees.

**MASTER OF SCIENCE IN MINING ENGINEERING.** Candidates for this degree may elect work in mining or mineral dressing in accordance with their special interests. Special study in the fields of labor relations and management is available. The student may select courses in preparation for exploration and development, operation and management, engineering, or mining geology. Graduate studies in mineral dressing cover the fields of metallic and nonmetallic minerals and coal, with special work on advanced theory and practice. Graduates of accredited mining engineering curricula and graduates of other accredited engineering curricula who complete the basic undergraduate courses in mining engineering and geology may become candidates.

**MASTER OF SCIENCE IN COAL MINING ENGINEERING.** Candidates for this degree may undertake research in the laboratories of the United States Bureau of Mines Northwest Experiment Station in cooperation with the staff of the Bureau. Study is available in mine engineering, operation, labor relations, and management. Graduates of other accredited engineering curricula must complete basic undergraduate courses in mining engineering and fuels technology in order to become candidates.

## COURSES FOR UNDERGRADUATES

- 201J Introduction to the Mineral Industries (1)** **Pifer, Staff**  
A series of lectures by representatives of the various divisions of the mineral industries. Historical and economic background; brief survey of the technical processes and engineering; organization of the industry. Field trips required. Offered jointly with the Division of Metallurgical Engineering.
- 221 Drilling, Blasting, and Tunneling (2)** **Anderson**  
Principles of rock breaking and excavation. Drilling equipment selection and application; characteristics of explosives and their selection for specific uses; design of blast and explosive loading patterns; safe practices and elements of cost. Prerequisite, General Engineering 102.
- 306 Mine Excursion (1, maximum 2)** **Staff**  
Five-day trip to a neighboring mining region. Required in junior and senior years during Spring Vacation, or as scheduled.
- 322 Methods of Mining (4)** **Anderson**  
Working of placer, open pit, and underground mines. Prospecting and delineation of ore bodies; shafts and developments; level planning and underground stopping methods; support systems; surface mining of placer and ore deposits; introduction to transport, drainage, ventilation, hoisting, and mine organization. Prerequisite, 221 or permission.
- 325 Mineral Land Valuation (2)** **Anderson**  
Sampling methods in mines and placers; drill hole and coring methods; geologic aspects; estimation of mineral deposits and reserves; financial calculations; reports.
- 330 Mine Surveying (3)** **Anderson**  
Practice in underground methods, use of special instruments, stope measurements, underground curves, shaft surveying, solar observations, and carrying of meridian underground. Prerequisite, Civil Engineering 314.
- 331 Mine Mapping (1)** **Anderson**  
Plotting of underground field notes made in 430; production of working and geological maps and sections. Prerequisite, 430.
- 361 Mineral Dressing: Preparation (3)** **Brien**  
Principles of mineral dressing. Comminution, sizing, classification, thickening, dewatering, filtration, sampling, pulp transport, and related auxiliary processes. Laboratory experiments illustrating fundamental operations and theory; use of standard preparation equipment.
- 362 Mineral Dressing: Concentration (4)** **Brien**  
Fundamental physical and chemical theories in mineral concentration. Flotation, gravity, electromagnetic, electrostatic, sink and float and related methods of mineral separation; general concentrator arrangements and flow diagrams. Experiments in concentration using selected ores and small scale machines to demonstrate fundamental principles.
- 425 Rock Mechanics (2)** **Pifer**  
Physical properties of rocks; pressure burst and its control; stress around workings; fragmentation by induced forces; subsidence; extracting pillars and remnants. Prerequisites, 322 and Civil Engineering 292, or permission.

- 426 Exploration and Development of Mineral Deposits (3)** **Pifer**  
Procurement of data by geologic mapping and drilling; solution of mine structural and fault problems; physiographic, mineralogical and structural guides to ore applied to mine exploration; exploration and development programs; examination of prospects. Prerequisite, Geology 427.
- 427 Exploration Geophysics: Introduction (2)** **Anderson**  
Elementary principles of seismic, resistivity, electro-magnetic, magnetic, radiometric, and gravitational methods in exploration for ore; applications and limitations of methods. Prerequisite, junior standing.
- 432 Mine Engineering (5)** **Anderson**  
Principles and application; design of transport systems; air compression practice and distribution; pumping plant and mine water handling; electrical equipment and distribution systems in mines; plant design and construction. Studies at nearby mines and plants. Prerequisites, 322 and Electrical Engineering 305.
- 433 Mine Ventilation (3)** **Anderson**  
Principles and practices. Physical and chemical aspects of mine atmosphere, gases, and dusts; physiological considerations, and air flow and measurement; mechanical ventilation, equipment, and systems. Prerequisite, 322.
- 463 Mineral Dressing: Flotation (3)** **Brien**  
Flotation theory and practice. Applied surface chemistry, adsorption, surface tension, theory of flocculation and dispersion and related fundamentals. Laboratory problems designed to illustrate basic chemical and physical phenomena; practical testing and investigation of flotation variables. Prerequisites, 362 and Chemistry 221 or equivalent.
- 464 Mineral Dressing: Hydrometallurgy (4)** **Brien**  
Physical-chemical principles of solution processes; acid, carbonate, ammonia leaching, cyanidation and related processes. Fundamental theory applied to effects of pressure, temperature, diffusion rates, pyrometallurgical pretreatment, activities, oxidation and reducing conditions, impurities, contact time, interphase areas and associated variables. Principles of ion exchange and solvent extraction; their application to hydrometallurgical processes. Laboratory experiments illustrate application of basic principles and demonstrate testing techniques. Prerequisites, 361 and Chemistry 221.
- 465 Mineral Dressing: Microscopy (2)** **Brien**  
Elements of quantitative mineragraphy, microchemistry, and mineral association and liberation studies of polished ore sections and mounted mill products; grain-count studies of mineral dressing products. Prerequisites, 461 and Geology 323.
- 466 Mineral Dressing Practices (2)** **Brien**  
Study of plant operations. Methods of laboratory investigation; advanced quantitative mineragraphy and research. Prerequisites, 462 and 465.
- 467 Mineral Dressing Design (2)** **Brien**  
General arrangement planning and design calculations for beneficiation plants on a project basis. Prerequisite, 466.
- 476 Coal Preparation (2)** **Brien**  
Dry and wet cleaning processes; washability characteristics; control by float-and-sink methods; characteristics of coal and associated impurities; economics of preparation; market requirements. Prerequisite, 461.
- 478 Coal Preparation Machinery (2)** **Brien**  
Laboratory work in float-and-sink methods; screening, classification, tabling, jigging, and other cleaning methods. Prerequisites, 461, 476.
- 481J Mineral Industry Economics (3)** **Pifer**  
Mineral resources, distribution, utilization, and depletion; government policies, taxation, and tariffs; industrial organization, cartels, and international control; markets and prices; financial provisions; elements in cost of plant and production. Offered jointly with the Division of Metallurgical Engineering. Prerequisite, upper-division standing or permission.
- 483 Mining Laws (1)** **Pifer**  
Mineral land laws of the United States; federal, Washington State, and territorial laws. Oil and gas acts. Federal and state mine safety regulations. Canadian and other foreign laws of importance.
- 485 Industrial Minerals (3)** **Brien**  
Nonmetallic mineral industry; sources of raw materials; processing technology and product specifications; marketing; economics, and utilization. Prerequisite, 461 or equivalent.
- 499 Special Projects (\*, maximum 5)** **Staff**  
Problems in mining or mineral dressing; laboratory investigations and bibliographic research. Total of 5 credits required.

## COURSES FOR GRADUATES ONLY

- 520 Seminar (1, maximum 6)** **Staff**  
Lectures and discussions; review of research problems and recent literature. Required for all graduate students.
- 521 Metal Mining (\*)** **Anderson, Pifer**  
Production methods; mining control; support; applied efficiency methods; administration; equipment and machinery; deep-level mining; health and safety; special problems. Arranged in accordance with student's major interest.



- 522 Mine Shafts (3)** **Pifer**  
Location and design, surface plant, and collar preparation; sinking, support, stations and bottoms, and equipment and maintenance; safety and costs; rectangular, square, and circular shafts.
- 523 Coal Mining (\*)** **Pifer**  
Studies in coal mining, with particular reference to the Pacific Northwest. Prerequisite, graduate standing.
- 525 Rock Mechanics (3)** **Pifer**  
Physical characteristics and mechanics of response by rocks under stress; theories of stress distribution around underground structures; application of theory and practical application to mine design and operation sequence; rock fragmentation; methods of experimental investigation. Prerequisite, 425.
- 560 Mineral Dressing (\*)** **Brien**  
Special problems and research.
- 561 Advanced Mineral Dressing Preparation (\*)** **Brien**  
Unit process studies in comminution, sizing, classifying, and auxiliary processes.
- 562 Advanced Mineral Dressing Laboratory (\*)** **Brien**  
Experimental study of theoretical principles of preparation and concentration. Arranged concurrently with 561 and 563, or as required.
- 563 Advanced Mineral Dressing Theory (\*)** **Brien**  
Physics and chemistry of beneficiation.
- 564 Advanced Mineral Dressing Design (\*)** **Brien**  
Plant layout studies, economics, and equipment design.
- 571 Cooperative Research with United States Bureau of Mines (6)** **Staff**
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## PROSPECTOR'S COURSE

The Prospector's Course is open without examination to anyone past high school age. It is offered during the Winter Quarter. The fee for each quarter is \$10.00, payable upon registration. The G.I. Bill applies to this course. The course occupies full time Monday through Friday, with occasional Saturday trips to mines and plants. A certificate is given upon completion of each quarter. Further information about the Prospector's Course is available from the Director of the School of Mineral Engineering.

## MINING ENGINEERING

- 10 Prospecting and Mining (0)** **Anderson**  
Equipment for field work; prospecting methods; staking claims and mining law; sampling; mineral identification and mineralogy; map reading; blasting; timbering; prospect shafts and tunnels; mine gases and elementary ventilation. Four lectures and three laboratory periods per week.

## NUCLEAR ENGINEERING

Requests for information concerning the program in nuclear engineering should be addressed to Dr. R. W. Moulton, Executive Officer, Department of Chemical Engineering, University of Washington, Seattle 5, Washington.

A graduate program in Nuclear Engineering leading to the degree of Master of Science in Engineering is now offered by the College of Engineering. The degree is designated as Major: Nuclear Engineering. This program was instituted about three years ago in response to a growing demand from the nuclear engineering industries for engineers with training in this new field. This program is a cooperative undertaking of the Departments of Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Metallurgical Engineering. It is administered by a faculty committee composed of representatives from these departments under the chairmanship of Dr. R. W. Moulton, Executive Officer, Department of Chemical Engineering. This program has grown rapidly both in terms of number of students enrolled, facilities available, and in the number of participating faculty members. Approximately 25 graduate students are now enrolled in this program.

Students entering this program should have completed in their undergraduate

programs the following courses or their equivalents: Mathematics 321 (Differential Equations); Physics 320 (Introduction to Modern Physics), Physics 323 (Introduction to Nuclear Physics); Metallurgical Engineering 441, (Engineering Physical Metallurgy).

### REQUIREMENTS FOR THE MASTER OF SCIENCE IN ENGINEERING DEGREE (MAJOR: NUCLEAR ENGINEERING)

Nuclear Engineering .....	18 credits (minimum)
Advanced Mathematics .....	6 - 9
Physics .....	6 - 9
Technical Electives .....	6 - 0
Thesis .....	9
<b>Total .....</b>	<b>45 credits</b>

It is recommended that candidates for this degree include 484, 487, 500, 501, 502, 510, and 539 among their courses. Attendance at N521 will normally be required for three quarters. Minor electives in a student's program may be chosen in accordance with the candidate's field of specialty. Suggested fields of study might include such courses as: Control Systems and Servomechanisms; Electronics, Chemical Separations Processes; Diffusional Operations; Numerical Analysis; Power Plant Engineering; Physical Metallurgy; Sanitary Engineering.

### FACILITIES AND LABORATORIES

The following laboratories have been equipped for training and research in nuclear technology and engineering:

- Heat Transfer Laboratory
- Nuclear Instrumentation Laboratory
- Nuclear Metallurgy Laboratory
- Radioactive Tracer Laboratory
- Radioactive Waste Laboratory
- Radiochemistry Laboratory
- Reactor Theory Laboratory

At present a natural uranium-graphite subcritical reactor is used in the Reactor Theory Laboratory. An analog computer is also used here and in the Nuclear Instrumentation Laboratory to simulate the time behavior of nuclear reactor systems. In addition, an IBM 650 digital computer, in the same building as these laboratories, is used by students in conjunction with buckling, diffusion length, and effective size determinations for the subcritical reactor.

A nuclear engineering laboratory (Nuc. Engr. 502) will be added early in 1960 when it is expected that the 10-kw training reactor and supporting facilities will be installed. A heat transfer laboratory is equipped with a complete water loop and a liquid-metal loop and associated instruments.

Experimental programs and facilities are available from which students may select master's thesis projects for the investigation of two-phase flow, boiling heat transfer, ion exchange separations, solvent extraction in pulsed columns, engine wear problems, radiation dosimetry, waste disposal problems, metallurgy of reactor materials, reactor physics, lattice constants, effect of gamma radiation on chemical reactions and materials, and radiochemical separations.

### TRAINING REACTOR

The University has received a grant from the Atomic Energy Commission for the construction of a 10-kw training reactor of the Argonaut type. This reactor and supporting facilities will be housed in a new building. It is hoped that the reactor will be placed in operation sometime during the academic year 1959-60.

## CENTER FOR GRADUATE STUDY AT HANFORD

The University of Washington assumed the administration of the school formerly known as the General Electric School of Nuclear Engineering at Richland, Washington, on July 1, 1958. This facility is now operated as the University of Washington Center for Graduate Study at Hanford. This transfer of administration was made to enhance the opportunities for continuing graduate and upper-division study available to employees of the Atomic Energy Commission and other government agencies in the area near the General Electric Company plant at Richland. In addition to the above, this facility provides further opportunities for training and experience to graduate students enrolled on the Seattle campus who desire to take advantage of them.

## COURSES

- 444 Nuclear Metallurgy (3)** **Polonis**  
This course is an introduction to the metallurgy of nuclear materials and the behavior of metals in a reactor environment. It is assumed at the outset of this course that the student is familiar with the crystal structure of metals, concepts of mechanical deformation, crystal growth, and phase diagram interpretation. Furthermore, students should be somewhat familiar with the ideas underlying phase transformation in metals. A knowledge of metallographic laboratory principles is also highly desirable. Prerequisites, Physics 320 and Metallurgical Engineering 441 or 361.
- 445 Nuclear Metallurgy Laboratory (2)** **Polonis**  
This course comprises a series of experiments to supplement the lecture material of Metallurgical Engineering 444. The experiments are designed to illustrate fundamental behavior of metals important in nuclear engineering. The principles of melting, casting, and heat treatment are covered, together with the more basic aspects of structural changes and transformation kinetics. The course will require six hours of laboratory work per week. Prerequisites, 444 and Metallurgical Engineering 442, or permission.
- 484 Introduction to Nuclear Engineering (3)** **Babb**  
A survey course in nuclear engineering for seniors, graduate students, and practicing engineers. The course covers elements of reactor nuclear physics; elementary nuclear reactor theory; radiation shielding; materials of construction; chemical processes associated with nuclear reactors; heat transfer and fluid flow problems; mechanical accessories and controls; thermonuclear reactions. Prerequisites, Physics 320 and Mathematics 321.
- 485 Nuclear Instruments (3)** **Mar**  
A lecture and laboratory course devoted to the basic design and operation of the instruments used in nuclear engineering, such as badges, dosimeters, Geiger counters, proportional counters, survey meters, scalars, radiation monitors, scintillation spectrometers, etc. Experiments will demonstrate the characteristics of nuclear instruments and associated circuitry. Safety practices will be emphasized throughout the course. Prerequisite, 484 or permission.
- 486 Nuclear Power Plants (3)** **Waibler**  
Study of the design, construction, operation, and maintenance of different types of nuclear power plants. Characteristics of various kinds of reactors as related to the heat-power cycle. Heat transfer problems. Engineering management of nuclear power plants. Prerequisite, 484 or permission.
- 487 Tracer Techniques in Engineering Measurements (3)** **Firey**  
A combined lecture and laboratory course demonstrating the use of radioactive materials for various engineering measurements, including mechanical wear, fluid flow, and thickness. Particular laboratory experiments will measure engine wear, engine deposits, and engine oil consumption. Prerequisite, Physics 323.
- 500 Nuclear Reactor Theory (5)** **Mar**  
A lecture course in nuclear reactor physics covering nuclear reactions; production of neutrons; diffusion of neutrons, slowing down of neutrons; Fermi Age theory and applications; general theory of homogeneous multiplying systems and heterogeneous reactors. Prerequisites, Physics 323 or equivalent, and Mathematics 321 and 484, or permission. Equivalent of Mathematics 428 recommended.
- 501 Nuclear Reactor Theory Laboratory (3)** **Babb**  
A continuation of 500, covering time behavior of nuclear reactors; fundamentals of reactor control; elements of perturbation and transport theory. The laboratory work will center around the natural uranium-graphite reactor. Experiments will include measurements of the scattering and absorption of neutrons, flux distributions in the exponential pile, lattice parameters, and studies with a reactor simulator and reactor control circuits. Prerequisite, 500.
- 502 Nuclear Engineering Laboratory (5)** **Babb, Mar**  
An advanced laboratory course centered around a 10-kw training reactor of the Argonaut type. The first part of the laboratory course will be devoted to experiments utilizing the steady and unsteady state characteristics of the reactor, while the second part will be devoted to experiments utilizing the reactor as a source of radiation. Prerequisite, 501.

- 510 Nuclear Reactor Engineering (3)** **Babb**  
An advanced course in engineering analysis of nuclear reactor systems. The course covers core design methods; heat generation and distribution in nuclear reactor systems; the removal and utilization of heat for power production; fuel cycles and processing of irradiated reactor fuels; shielding of nuclear radiations. Prerequisite, 500. (Offered Winter Quarter.)
- N521, N522, 523 Graduate Seminar (0,0,1)** **Staff**  
(Offered Autumn, Winter, and Spring Quarters.)
- 539 Nuclear Reactor Design (3)** **McFeron**  
A design laboratory course involving the synthesis of reactor theory, engineering analysis, material specifications, and economics to meet the design specifications for a complete nuclear reactor facility. Emphasis upon cycle analysis, hazards, arrangements, and requirements peculiar to nuclear reactor plants. Prerequisite, 510.
- 559 Control of Radioactive Wastes (3)** **Bogan**  
Environmental problems resulting from utilization of nuclear reactions; radioactive waste disposal practice; decontamination of water supplies; reactor site location, and control of stream and atmospheric pollution. Prerequisite, Physics 320 or permission.

## MECHANICAL ENGINEERING

- 531 Heat Transfer (3)** **Childs, Waibler**  
Study of conduction, convection, and radiation, separately and in combination; steady and unsteady states; mathematical treatments; dimensional analyses; graphical solutions; change-of-phase problems. Prerequisite, 320 or equivalent.
- 534 Experimental Heat Transfer (3)** **McFeron, Waibler**  
Study of instrumentation and techniques used in heat transfer measurements; investigations of conduction, convection, and radiation phenomena. Liquid metal and water heat transfer loops will be used for experiments to determine heat flux, film coefficients, pressure drops for flow of boiling liquids, and other phenomena of current interest. Prerequisite, 531.

## COURSES INCLUDED IN NUCLEAR ENGINEERING PROGRAM

The following additional complementary courses are offered through the College of Arts and Sciences and the School of Medicine:

### CHEMISTRY

- 418 Radiochemistry (3)** **Fairhall**  
A study of natural radioactive substances; atomic nuclei, nuclear reactions; bombarding particles; quantitative treatment of radioactive processes; types of radioactive disintegration; interactions of radiation with matter; statistical considerations; radiation measurement; separation and identification of nuclides; tracer application of radioactivity. Prerequisites, Chemistry 355, 356, and 357, or equivalent.
- 419 Radiochemistry Laboratory (2)** **Fairhall**  
A laboratory course dealing with the handling of radioactive substances; preparation of radioactive standards; measurement and analysis of simple and complex decay curves; separation and purification of radioactive species; fission of uranium. Prerequisite, 418, or taken concurrently.

### MATHEMATICS

- 427, 428, 429 Topics in Applied Analysis (3,3,3)** **Staff**  
427: Elementary complex variable. Prerequisite, 324.  
428: Laplace transforms, boundary value problems, Fourier series, Bessel functions. Prerequisites, 321, 324.  
429: Legendre functions, curvilinear coordinates, calculus of variations. Prerequisite, 428.

### PHYSICS

- 461, 462, 463 Introduction to Atomic and Nuclear Physics (3,3,3)** **Staff**  
Foundations of modern atomic and nuclear physics; elementary quantum theory, elementary particles; high energy physics; solid state. Prerequisites, 327 and Mathematics 421.

### RADIOLOGY

- 485 Radiation Dosimetry (4)** **Roesch**  
The measurement of radiation energy loss relationships in gases and solids; detection; techniques and circuits; units; consideration of human exposure limits. Prerequisite, permission.

## FACULTY

- A. L. Babb, Associate Professor; Ph.D., Illinois**  
Nuclear chemical engineering; reactor analysis. Employed at Hanford, summer, 1955; ASEE-AEC Nuclear Energy Institute at Argonne National Laboratory, 1956; ASEE-AEC Argonaut Institute at Argonne National Laboratory, 1957.
- R. H. Bogan, Associate Professor; Sc.D., Massachusetts Institute of Technology**  
Radioactive waste treatment and disposal; environmental engineering control problems. Employed at Hanford, summer, 1956.

- M. E. Childs, *Associate Professor; Ph.D., Illinois*  
Heat transfer, gas dynamics, jet mixing. Employed at Hanford, summer, 1957.
- A. W. Fairhall, *Associate Professor; Ph.D., Massachusetts Institute of Technology*  
Nuclear and radiochemistry; fission; nuclear reactions; radiocarbon dating. Industrial research in uranium refining.
- J. C. Firey, *Associate Professor; M.S., Wisconsin*  
Engine wear studies; radioactive tracer applications. Employed at California Research Corporation, 1946-1954; Hanford, summer, 1956.
- B. W. Mar, *Assistant Professor; Ph.D., Washington*  
Nuclear chemical engineering; reactor physics. Attended ASEE-AEC Reactor Physics Institute at University of Michigan, 1958.
- D. E. McFeron, *Professor; Ph.D., Illinois*  
Boiling heat transfer; nuclear reactor design. Attended ASEE-AEC Nuclear Energy Institute at Argonne National Laboratory, 1956. Employed in Reactor Engineering Division of Argonne National Laboratory, 1957-1958.
- R. W. Moulton, *Professor; Ph.D., Washington*  
Two-phase fluid flow; heat transfer. Employed at Hanford during summers of 1956, 1957, 1958.
- D. H. Polonis, *Associate Professor; Ph.D., British Columbia*  
Nuclear metallurgy, metallurgy of reactive metals, phase transformations, kinetics of solid-state reactions. Attended ASEE-AEC Nuclear Metallurgy Institute at Iowa State College, 1958.
- W. C. Roesch, *Clinical Instructor; Ph.D., California Institute of Technology*  
Biological effects of radiation; radiation dosimetry. Currently employed at Hanford.
- P. J. Waibler, *Associate Professor; Ph.D., Illinois*  
Natural convection heat transfer. Attended ASEE-AEC Nuclear Energy Institute at Argonne National Laboratory, 1956.

## COURSES INCLUDED IN ENGINEERING PROGRAMS

### COLLEGE OF ARTS AND SCIENCES

#### CHEMISTRY

- 100 General Chemistry (4)** **Staff**  
Open only to students without high school chemistry credit. States of matter, atomic and molecular structure, covalence, reactions and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Qualifying Algebra Test.
- 110 General Chemistry (3)** **Staff**  
For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Placement Test.
- 150 General Chemistry (4)** **Staff**  
For students planning more than two quarters of chemistry. Stoichiometry, gases, aqueous solutions, kinetics, acid and base equilibria, electrochemistry, oxidation and reduction. Prerequisite 100 or 110; Mathematics 101 or 103, or passing score on Algebra Qualifying Test.
- 160 General Chemistry (3)** **Staff**  
Periodic System, phase equilibria, metals and nonmetals, metallurgy, and nuclear reactions. Prerequisite, 150.
- 170 Qualitative Analysis (3)** **Staff**  
Semi-microqualitative analysis for common cations and anions; separation and identification procedures. Prerequisite, 160, which may be taken concurrently.
- 221 Quantitative Analysis (5)** **Staff**  
Volumetric and gravimetric. Prerequisite, 170.
- 231 Organic Chemistry (3)** **Staff**  
For students planning only two quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of the main types of organic compounds. Prerequisite, 150.
- 232 Organic Chemistry (3)** **Staff**  
Continuation of 231. Prerequisite, 231.
- 241 Organic Chemistry Laboratory (2)** **Staff**  
Usually to accompany 231. Preparation of representative compounds. Prerequisite, 231, which may be taken concurrently.
- 242 Organic Chemistry Laboratory (2)** **Staff**  
Usually to accompany 232. Preparations and qualitative organic analysis. Prerequisites, 232 (which may be taken concurrently) and 241.
- 335 Organic Chemistry (3)** **Staff**  
For chemistry and chemical engineering majors and other qualified students planning three or more quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of organic compounds. Theory and mechanism of organic reactions. Prerequisite, 170, which may be taken concurrently.

- 336 Organic Chemistry (3)** **Staff**  
Continuation of 335. Prerequisite, 335.
- 337 Organic Chemistry (3)** **Staff**  
Continuation of 336. Prerequisite, 336.
- 345 Organic Chemistry Laboratory (1)** **Staff**  
Usually to accompany 335. Organic synthesis. Prerequisite, 335, which may be taken concurrently.
- 346 Organic Chemistry Laboratory (1)** **Staff**  
Continuation of 345. Usually to accompany 336. Prerequisites, 336 (which may be taken concurrently) and 345.
- 347 Organic Chemistry Laboratory (2)** **Staff**  
Continuation of 346. Usually to accompany 337. Prerequisites, 337 (which may be taken concurrently) and 346.
- 355 Physical Chemistry (4)** **Staff**  
Structural aspects of physical chemistry; atomic and molecular structure, gases, liquids, solids, solutions, surfaces, and colloid chemistry. Prerequisites, 160, Mathematics 153, and college physics.
- 356 Physical Chemistry (3)** **Staff**  
Solutions (electrolytes and non-electrolytes); thermodynamics; homogeneous and heterogeneous equilibria. Prerequisites, 355 and Mathematics 251.
- 357 Physical Chemistry (3)** **Staff**  
Electrochemistry and ionic equilibria; chemical kinetics and photochemistry. Prerequisite, 356.
- 358 Physical Chemistry Laboratory (4)** **Staff**  
Prerequisite, 357, or taken concurrently.
- 415 The Chemical Bond (3)** **Staff**  
The nature of the chemical bond, complex compounds. Prerequisite, 357.
- 416 Inorganic Chemistry (3)** **Staff**  
Study of the elements in relation to the periodic system. Prerequisite, 357.
- 550, 551, 552 Advanced Physical Chemistry (3,3,3)** **Staff**  
Thermodynamics and statistical mechanics, atomic and molecular structure, kinetic theory, and chemical kinetics. Prerequisite, 357 or permission.

**ECONOMICS**

- 211 General Economics (3)** **Gillingham**  
Condensed presentation on organization, operation, and control of the American economy; consideration of problems of inflation, unemployment, taxation, the public debt, monopoly, trade unions, and international trade. American capitalism compared with communism and socialism.

**GEOLOGY**

- 206 Elements of Physiography (5)** **Mackin**  
Processes and agencies affecting the earth's surface; relationship of topography to structure. Prerequisite, 101 or 205.
- 207 Historical Geology (5)** **Wheeler**  
Origin and evolution of the earth, with emphasis on the general geological history of North America. Prerequisites, 205 and 206, or permission.
- 221 Crystallography and Sulfide Mineralogy (3)** **Ellis**  
Study of crystal morphology and the relation of crystal form to the space lattice and introduction of mineralogy of the sulfides. Prerequisite, 205.
- 308 Structural Geology (5)** **Barksdale**  
Interpretation of rock structures and their genesis. Prerequisites, 205, 206, 207, and General Engineering 103.
- 310 Engineering Geology (5)** **Staff**  
Elements of geology for civil engineers. Prerequisite, civil engineering major or permission.
- 361 Stratigraphy (5)** **Wheeler**  
Systematic study of spatial relations of surface-accumulated rocks and their space-time implications. Prerequisites, 205, 206, 207, and 320.
- 423 Optical Mineralogy (5)** **Staff**  
Petrographic microscope and recognition of common minerals in thin section. Prerequisites, 205 and 221.
- 424 Petrography and Petrology of Igneous Rocks (5)** **Vance**  
Systematic study of rocks with the petrographic microscope. Prerequisite, 323.
- 425 Petrography and Petrology of Metamorphic Rocks (5)** **Vance**  
Systematic study of metamorphic rocks and their origin. Prerequisite, 424.
- 427 Ore Deposits (5)** **Ellis**  
Form, structure, mineralogy, petrology, and mode of origin. Prerequisites, 222 and 424.

## MATHEMATICS

- 103 Intermediate Algebra and Trigonometry (3)** **Staff**  
Meets five hours per week. First four weeks, review of intermediate algebra. After this review, students must pass qualifying test to continue in 103. Those failing the test will be reregistered in 101, for which they will receive no University credit. Last six weeks, plane trigonometry, equivalent to 104. Beginning Autumn Quarter, 1961, not open for credit to students who have taken trigonometry in high school. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, and one year of plane geometry.
- 104 Plane Trigonometry (3)** **Staff**  
Trigonometric functions, identities, graphs, logarithms, and solution of triangles. Mathematics 120 may be taken concurrently as a supplement to this course. Beginning Autumn Quarter, 1961, not open for credit to students who have taken trigonometry in high school. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, and one year of plane geometry.
- 105 College Algebra (5)** **Staff**  
Functions and graphs; linear and quadratic equations; progressions; complex numbers; theory of equations; determinants. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, or 103.
- 153 Analytic Geometry and Calculus (5)** **Staff**  
Equations of straight lines and simple curves. Differentiation of algebraic functions, applications, conic sections. Prerequisites, 103 or 104, and 105, or exemption by qualifying test.
- 251 Analytic Geometry and Calculus (5)** **Staff**  
Definite integrals, applications, formal integration, and differentiation of transcendental functions. Prerequisite, 153 or 163.
- 252 Analytic Geometry and Calculus (5)** **Staff**  
Parametric equations, polar coordinates, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251 or 261.
- 253 Analytic Geometry and Calculus (3)** **Staff**  
Solid analytic geometry, multiple integrals, partial derivatives. Prerequisite, 252.
- 261, 262 Analytic Geometry and Calculus (5,5)** **Staff**  
Honors sections of 251, 252 covering material equivalent to that in 251, 252, and 253. Prerequisites, 153 or 163 and permission for 261; 261 and permission for 262.
- 321, 322 Differential Equations (3,3)** **Staff**  
Elementary methods of solution, linear differential equations, systems of differential equations, series solutions. Prerequisites, 253 or 262 for 321; 321 for 322.
- 324 Advanced Calculus I (3)** **Staff**  
Calculus of functions of several variables, infinite series. Prerequisite, 253 or 262.
- 325 Advanced Calculus II (3)** **Staff**  
Vector analysis, theorems of Stokes, Gauss, and Green. (Formerly Mathematics 423.) Prerequisites 253 or 262 and 324 (desirable but not essential).
- 374 Principles of Digital Computers and Coding (5)** **Staff**  
High-speed digital computation, number systems, machine components, programming, operation. Three hours lecture and four hours laboratory per week with problems run on a high-speed machine. Prerequisite, 105. (Does not count toward a mathematics major.)
- 401 Linear Algebra (5)** **Staff**  
Matrices; determinants; groups of transformations; linear spaces; linear transformations and their invariants. Prerequisite, 253 or 262.
- 427, 428, 429 Topics in Applied Analysis (3,3,3)** **Staff**  
427: Elementary complex variable. Prerequisite, 324 or 325.  
428: Laplace transforms, boundary value problems, Fourier series, Bessel functions. Prerequisites, 324 or 325, and 321.  
429: Legendre functions, curvilinear coordinates, calculus of variations. Prerequisite, 428.
- 464 Numerical Analysis I (3)** **Staff**  
Basic principles of numerical analysis, classical interpolation and approximation formulas, finite differences and difference equations. Laboratory work on desk calculators. Prerequisite or corequisite, 321.
- 465 Numerical Analysis II (5)** **Staff**  
Numerical methods in algebra. Systems of linear equations, matrix inversion, successive approximations, iterative and relaxation methods. Three hours lecture and four hours laboratory per week on a high-speed machine. Prerequisites, 374, 401, 464.
- 466 Numerical Analysis III (5)** **Staff**  
Numerical differentiation and integration. Solution of differential equations and systems of such equations. Three hours lecture and four hours laboratory per week on a high-speed machine. Prerequisites, 374, 464.

## PHYSICAL AND HEALTH EDUCATION

## Health Education

- 110 Health Education (Women) (2)** **Gunn, Horne, Waters**  
Health problems of freshman women. Required of all freshman women; exemption without credit by examination. See page 42.

**175 Personal Health (Men) (2)****Mills, Reeves, Staff**

Health information that affords a basis for intelligent guidance in the formation of health habits and attitudes. Required of all freshman men; exemption without credit by examination. See page 42.

**Physical Education Activities****101 through 255 Physical Education Activities (Men) (1 each)****Staff**

101, adapted activities; 106, handball; 107, basketball; 108, tennis; 109, softball; 110, golf (fee, \$1.50 per quarter); 111, track; 112, crew (class); prerequisite, swimming; 114, boxing; 115, gymnastics; 117, wrestling; 118, volleyball; 119, swimming; 121, touch football; 122, badminton; 123, archery; 125, skiing (fee); 126, speedball; 127, bowling (fee); 128, weight training; 129, sailing; 131, beginning, 134, intermediate folk and square dancing; 151, modern dance; 154, social dance; 157, canoeing (fee, \$2.50 per quarter); 141, freshman, 241, varsity basketball; 142, freshman, 242, varsity crew, prerequisite, swimming; 143, freshman, 243, varsity football; 144, freshman, 244, varsity track; 145, freshman, 245, varsity swimming; 146, freshman; 246, varsity baseball; 147, freshman, 247, varsity tennis; 148, freshman, 248, varsity golf; 149, freshman, 249, varsity skiing; 150, freshman, 250, varsity volleyball; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.

**111 through 170; 211 through 270 Physical Education Activities (Women) (1 each)****Staff**

111, adapted activities; 112, basic activities (general); 113-114, basic activities (applied); 115, archery; 118, badminton; 119, body conditioning; 121, bowling (fee); 124, fencing; 126, golf (fee, \$1.50 per quarter); 128, riding (fee); 129, sailing; 131, ski conditioning; 132, elementary skiing (fee); 133, stunts and tumbling; 135, tennis; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, folk and square dance; 149, international folk dance; 151, modern dance; 154, social dance; 155, tap dance; 157, canoeing (fee, \$2.50 per quarter); 160, adapted swimming; 161, beginning swimming; 162, elementary swimming; 215, intermediate archery; 218, intermediate badminton; 221, intermediate bowling (fee); 222, advanced bowling (fee); 224, intermediate fencing; 228, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dance; 251, intermediate modern dance; 252, advanced modern dance; 257, intermediate canoeing (fee, \$2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, rhythmic swimming; 266, diving; 267, lifesaving.

**PHYSICS****217, 218, 219 Physics for Engineers (4,4,4)****Lord**

217: mechanics. Principles of statics are assumed. Dynamics of both point masses and rigid bodies is developed by calculus methods. Elasticity and simple harmonic motion. Elementary hydrodynamics. Many illustrative problems are used. Prerequisites, high school physics, General Engineering, 112, introductory calculus, and a concurrent calculus course. 218: electricity and magnetism. Alternating currents. Prerequisites, 217 and a concurrent calculus course. 219: heat, sound, and light. Geometrical and physical optics. Prerequisites, 217 and calculus.

**320 Introduction to Modern Physics (3)****Staff**

Emphasis is placed upon discoveries in modern physics which are particularly basic to engineering and physics, including the electrical nature of matter, elementary particles, interaction of radiation with matter, nuclear disintegrations. Solid state, semiconductors, and nuclear reactors are especially treated. Prerequisites, 123, 219, or permission.

**323 Introduction to Nuclear Physics (3)****Staff**

A study of nuclear reactions, including fission, particle accelerators, and nuclear instrumentation; cosmic rays; astrophysics; applications of nuclear phenomena in atomic energy; use of tracers, etc. Prerequisite, 320 or permission.

**350 Heat and Introduction to Thermodynamics and Kinetic Theory (3)****Sanderman**

Concepts of heat and energy changes; experimental laws of heat and thermal reactions; ideas of reversibility, entropy, etc.; application of general principles to specific cases. Prerequisite, 103 or 123.

**473 Laboratory in Atomic and Nuclear Physics (3)****Staff**

Techniques in nuclear research: beta- and gamma-ray spectroscopy; charged particle reactions in intermediate energies, using cyclotron; nuclear emulsion techniques in high-energy physics; neutron physics, using nuclear reactor. Prerequisite, 323, or concurrent registration in 463, or permission.

**SPEECH****327 Extempore Speaking (3)****Franzko**

A course in public speaking primarily for students in engineering and industrial design. Audience analysis, choice and organization of material, oral style, and delivery. Frequent speeches before the class, followed by conferences with instructor.

**COLLEGE OF BUSINESS ADMINISTRATION****ACCOUNTING****150 Fundamentals of Accounting (4)**

Basic principles and procedures, including recording of business transactions and preparation of financial statements.

**151 Fundamentals of Accounting (3)**

Elements of manufacturing, partnership, and corporation accounting. Prerequisite, 150.



**310 Intermediate Accounting (5)**

Concepts and principles underlying accounting processes. Theory and problems of financial accounting, including financial statement analysis. Prerequisite, 255.

**330 Cost Accounting (5)**

Theory of cost accounting: accumulation and allocation of cost; managerial control through cost data. Prerequisite, 310 or permission.

**BUSINESS LAW****307 Business Law (3)**

For engineering students and others unable to take more than 3 credits in business law. Introduction to law, its origin and development; formation and performance of contracts; fraud, mistake, duress, and undue influence; rights of third parties and remedies available at law and in equity; the law of agency as affecting the rights and duties of the principal, the agent, and the third parties. Prerequisite, permission.

**FINANCE****201 Banking and Business (5)**

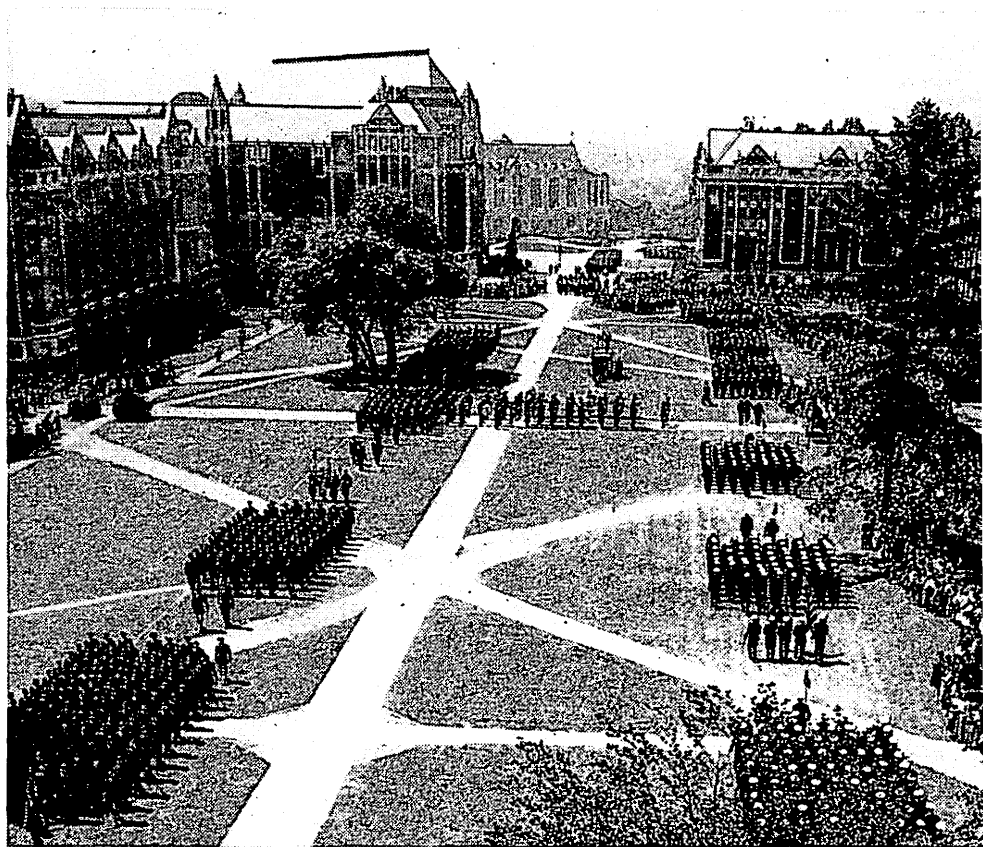
Functions of the important financial institutions, including commercial banks and the banking system of the United States; investment banking, security markets, savings institutions, consumer credit agencies, governmental credit agencies, and international financial relationships. The role each institution plays in meeting the short-, intermediate-, and long-term credit needs of business and individuals is emphasized. Prerequisites, Accounting 151 and Economics 201.

**301 Financial Management (5)**

Problems dealing with the sources, uses, and control of funds in business enterprises. Major emphasis is devoted to sources of long- and short-term funds, policies relating to working capital, income management, and the financing of growth and expansion. Prerequisite, 201 and Accounting 255.

**HUMAN RELATIONS IN BUSINESS AND INDUSTRY****365 Industrial Relations for Engineers (3)**

Cases are used to develop useful ways of dealing with human situations, making administrative decisions, supervising people, and building effective industrial and personnel relations. Not open to business administration students.



## RESERVE OFFICERS TRAINING PROGRAMS

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# RESERVE OFFICERS TRAINING PROGRAMS

**T**HE DEPARTMENTS of Air Science, Military Science and Tactics, and Naval Science were established under the provisions of the National Defense Act of June 4, 1920, and function under directives from the United States Department of Defense. The Secretaries of the services are responsible for the operation of the ROTC programs. At the University, the programs are coordinated by the office of the Dean of the College of Engineering.

The Departments of Air Science and Military Science and Tactics provide two years of basic military training for male students and an additional two years of advanced training for a selected group of male students. The advanced programs prepare students to receive regular or reserve commissions in the United States Army and Air Force. The Department of Naval Science offers a four-year program which prepares selected male students for regular or reserve commissions in the United States Navy or Marine Corps. Students who take advanced training in the Air Force or Army ROTC program, and students in the Naval ROTC program, must agree in writing to accept a commission, if offered, to serve on active duty, subject to the call of the Secretary of their service, for such period of time as is required by regulations at the time of their commissions, and to serve with the reserve forces for the period thereafter, which is required by law.

ROTC courses are included in the freshman and sophomore curricula of all male students (page 40). The first six quarters of study in either of the three departments satisfy the military training requirements of the University, but students who attain junior or senior standing in the Naval ROTC program, and those who enter the advanced Air Force or Army ROTC program, must complete the program as a condition of graduation unless excused or released by authority of the commander of the service concerned.

## AIR SCIENCE

**Professor of Air Science: Col. WILLIE O. JACKSON, JR., Air Science Building**

Eligibility to enroll in the Basic Course, Air Force Reserve Officers Training Corps, is limited to students who are citizens of the United States and have not yet reached their twenty-third birthday at the time of initial enrollment. Students enrolled in the Air Force ROTC may be deferred from the draft subject to the approval of the Professor of Air Science.

First-year Air Force ROTC students are given an introductory course in Foundations of Air Power, a general survey of air power, designed to provide the student with an understanding of the elements of air power and basic aeronautical science. This sequence of courses requires classroom attendance two hours each week. First-year cadets are also introduced to the principles of leadership and command through practice of basic elements of drill one hour each week. In the second year of the basic program, a year-long survey of the development of aerial warfare, with emphasis on principles of war, concepts of employment of forces, and changing weapon systems is given. Practice in leadership, drill, and exercise of command extends throughout the two years of the basic program and continues two additional years for students in the advanced program.

After completing the basic program, students may apply for entrance to the Advanced Air Force ROTC, which is designed to select and train college men as future Air Force officers. A limited number of outstanding students, including veterans, are selected for the advanced program, and each student selected must:

1. Successfully complete the two-year Basic Air Force ROTC program or, if a veteran, complete as much of the basic program as determined by the Professor of Air Science.
2. Execute a written agreement with the government to complete the advanced program, contingent upon remaining in the University, and to attend a summer training camp at the time specified.
3. Request immediate discharge from any reserve or National Guard organization other than the Air Force Reserve (according to law, discharge from any reserve unit must be granted).
4. Agree to complete all requirements for appointment as a second lieutenant before his twenty-eighth birthday. This age requirement is reduced to twenty-six and one-half years for flying personnel.
5. Successfully complete general survey and screening tests as prescribed.
6. Be selected by the Professor of Air Science and the President of the University.
7. Complete the advanced program as a prerequisite for graduation from the University.

The two-year advanced course requires classroom attendance four hours a week, plus one hour of practice in the leadership laboratory. In the first year of the advanced course, cadets study knowledge and skills required of a junior officer in the Air Force with special emphasis on staff duties and leadership. This includes Air Force leadership doctrine, staff organization and functions, communicating, instructing, problem solving techniques, leadership principles and practices, and the military justice system. Between the junior and senior years, advanced-course cadets are required to attend a four-week summer camp. During the senior year, cadets participate in a study of global relations of special concern to the Air Force officer with attention to such aspects as weather navigation, geography, international relations, and their service as commissioned officers.

Advanced Air Force ROTC students are paid subsistence allowances of approximately \$27.00 a month. While attending summer camp they are paid at the rate of \$75.00 a month and are furnished travel to and from the camp, subsistence, housing, uniforms, and medical services.

Students in the basic program are furnished complete uniforms of the type worn by Air Force personnel. Students in the advanced program are furnished officers' uniforms which provide their personal property when commissioned. They are normally required to wear the uniform on drill days; wearing it to ROTC classes other than drill is optional. The Air Force furnishes all textbooks used in air science courses. At the time of registration each student must make a \$25.00 deposit, which, except for a \$2.50 laundry and cleaning charge to students in the basic program, is refunded when the uniform and textbooks are returned undamaged.

Inquiries about enrollment or other information should be addressed to the Professor of Air Science, Air Science Hall, on the campus.

**COURSES FOR UNDERGRADUATES****FOUNDATIONS OF AIRPOWER****131, 132, 133 Air Science 1—Basic (2,2,2)****Staff**

A general survey of air power designed to provide the student with an understanding of the elements and potentials of air power. It includes fundamentals of air power; military air powers of the world; military research and development; air vehicle industries; airlines and airways; leadership laboratory; a general survey of aeronautical science; general aviation; elements of an aircraft; aerodynamics; guidance, control, navigation, propulsion systems; leadership laboratory; a general survey of space flight; military instruments of national security; professional opportunities in the United States Air Force; leadership laboratory.

**231, 232, 233 Air Science 2—Basic (2,2,2)****Staff**

A survey of the development of aerial warfare with emphasis on principles of war, concepts of employment of forces, changing weapon systems. Treatment of aerial warfare is undertaken to include targets, weapons, aircraft missiles; bases and facilities, aerial operations. Cadet noncommissioned officer training.

**AIR FORCE OFFICER DEVELOPMENT****301, 302, 303 Air Science 3—Advanced (3,3,3)****Staff**

Military staff and command organization and functions; communicating and instructing in the Air Force; problem solving techniques as applied to Air Force staff and command functions; basic principles of leadership psychology; problems in leadership and management; military justice; and cadet junior officer training.

**304 Air Science 3—Advanced Camp (3)****Staff**

Four weeks training at an Air Force base; familiarization with the duties and problems encountered by the Air Force junior officer.

**491, 492, 493 Air Science 4—Advanced (3,3,3)****Staff**

Military application of weather and aerial navigation; military aspect of the geography of climate, political geography, and international relations; flying training for pilot candidates; preparation for commissioned service; and cadet senior officer training.

**MILITARY SCIENCE AND TACTICS**

**Professor of Military Science and Tactics: Col. CORSTON A. GREENE,**  
**Army ROTC Building**

The Army Reserve Officers Training Corps is established by agreement between the University and the United States government in conformity with the provisions of Title 10, United States Code, Section 4382. Its purpose is to procure and train college students for qualification, upon graduation, as commissioned officers in the Army of the United States.

By taking the two-year basic course, students satisfy the University ROTC requirement. The advanced course is elective, and is taken in the third and fourth years under contract with the United States Army.

The basic course requires classroom attendance two hours each week and drill one hour each week. The advanced course requires classroom attendance four hours each week, drill one hour each week, and a summer camp of six weeks in the Summer Quarter following the junior year. In addition to the regular courses of instruction, light aircraft flight instruction is offered to a limited number of senior cadets.

When a cadet completes the advanced course, and is graduated from the University, he receives a commission as second lieutenant in the United States Army Reserve. A cadet graduating with a high academic rating and an outstanding ROTC record may be designated a Distinguished Military Graduate and may, thereby, be qualified for commissioning in the Regular Army.

Cadets for the advanced course are selected from applicants who show special aptitude during the basic course. In certain cases previous active service in the Army may be substituted for the basic course in qualifying for enrollment in the advanced course. To enroll in the advanced course a cadet must meet requirements as to scholarship, physical fitness, and leadership potential, and must be of such an age that he may qualify for graduation and completion of ROTC training before his twenty-eighth birthday. Advanced ROTC cadets receive subsistence allowances of approximately \$27.00 per month throughout the two years in which

they are under contract and are paid approximately \$106.00 for summer camp training.

Cadets of all classes are issued the regulation U.S. Army uniform, with distinctive ROTC insignia, and are required to wear it on drill day each week. Upon registration, a deposit of \$25.00 is required for the uniform and other government equipment issued. Upon return of the uniform and other equipment a refund is made. The Army furnishes the textbooks and equipment needed for military science instruction.

Inquiries about the ROTC should be addressed to the Professor of Military Science and Tactics.

## COURSES FOR UNDERGRADUATES

- |                      |  |              |
|----------------------|--|--------------|
| <b>101, 102, 103</b> | <b>Military Science I—Basic (2,2,2)</b>  | <b>Staff</b> |
|                      | Organization of the Army and ROTC; American military history; individual weapons and marksmanship; school of the soldier and exercise of command.  |              |
| <b>201, 202, 203</b> | <b>Military Science II—Basic (2,2,2)</b>   | <b>Staff</b> |
|                      | Crew-served weapons and gunnery; map and aerial photograph reading; school of the soldier and exercise of command.   |              |
| <b>301, 302, 303</b> | <b>Military Science III—Advanced (3,3,3)</b>   | <b>Staff</b> |
|                      | Small unit tactics and communications; organization, function, and mission of the arms and services; military teaching methods; leadership; school of the soldier and exercise of command.   |              |
| <b>360</b>           | <b>Military Science III—Advanced Camp (3)</b>  | <b>Staff</b> |
|                      | Six-weeks training at an army installation. Emphasis is placed on field training and the practical application of subjects taught during the academic year. (Offered Summer Quarter only.)   |              |
| <b>401, 402, 403</b> | <b>Military Science IV—Advanced (3,3,3)</b>  | <b>Staff</b> |
|                      | Supply and evacuation; troop movements; motor transportation; command and staff; estimate of the situation and combat orders; military intelligence; the military team; training management; military administration; military justice; the role of the United States in world affairs and the present situation; leadership; officer indoctrination; school of the soldier and exercise of command. |              |

## NAVAL SCIENCE

**Professor of Naval Science: Col. T. J. COLLEY, USMC, 309 Clark Hall**

The Department of Naval Science offers to selected students a four-year program, taken concurrently with their work toward a baccalaureate or higher degree, which prepares them for commissions in the regular or reserve components of the United States Navy or Marine Corps.

### NAVAL ROTC STUDENTS (CONTRACT PROGRAM)

At the beginning of Autumn Quarter each year the Professor of Naval Science selects approximately fifty students to enter the Naval ROTC contract program. These students must have the following general qualifications:

1. Be eligible for admission to the University.
2. Be male citizens of the United States between the ages of seventeen and twenty-one on July 1 of the year of entrance.
3. Meet physical requirements, which include vision of 20/20, no cavities in teeth, and height between 64 and 78 inches.
4. Be unmarried and agree to remain unmarried until commissioned.

In addition, with the consent of their parents, they must agree to complete the four-year course unless released by the Secretary of the Navy, and to make one summer cruise of approximately three weeks. This cruise is normally scheduled during the summer between the junior and senior years.

Students who attain junior or senior standing in the Naval ROTC must complete the program as a condition of graduation from the University unless excused or dismissed from this requirement by authority of the Secretary of the Navy.

Entrance to the Naval ROTC program entitles students to deferment from the draft under the Selective Service Act of 1948 as amended. The Naval ROTC student, upon completion of program requirements, is required to accept a commission in the United States Naval Reserve or Marine Corps Reserve, if offered. Active duty of reserve officers commissioned from the Naval ROTC contract program is contingent upon the needs of the service at the time of graduation.

Naval ROTC students have the status of civilians entering into a mutual agreement with the Navy, and are in training for commissions in the Naval Reserve or Marine Corps Reserve. They pay their own college expenses but receive a subsistence allowance of 90 cents a day during their junior and senior years, including the intervening summer. The Navy furnishes the uniforms and books used in naval science courses.

Students in the Naval ROTC program may enter any University curriculum that can normally be completed in four years. Students working toward a bachelor's degree in certain fields which may require more than four years for completion, such as engineering, architecture, and education, are eligible for entrance to the program. The Navy Class A swimming test must be passed and mathematics through trigonometry satisfactorily completed (unless previously completed in high school) by the end of the second year.

All Naval ROTC students take the same naval science courses for the first two years. Students who plan to be commissioned in the Marine Corps or Marine Corps Reserve take Marine Corps subjects during their third year and the first two quarters of their fourth year; those who plan to be commissioned in the Supply Corps of the Navy or the Naval Reserve take Supply Corps subjects during this period.

High school graduates interested in entering the Naval ROTC program should write to the Professor of Naval Science during the summer before University entrance.

## MIDSHIPMEN, USNR (REGULAR PROGRAM)

Each year, at the beginning of Autumn Quarter, the Navy assigns a limited number of students to the Naval ROTC Unit, University of Washington, for appointment as midshipmen in the Naval Reserve. Qualifications are, in general, the same as those listed above for contract students. Midshipmen are appointed after a nation-wide competitive examination held in December of each year and selection by state selection committees. They are deferred from induction until graduation and receive tuition, all textbooks, uniforms, and \$50.00 per month for four years. Application to take the annual examination must reach the Naval Examining Section, Science Research Associates, 104 Pearl Street, McHenry, Illinois, before a deadline date set in November of each year for entrance to college the following year.

Further information about the regular program may be obtained from the University Naval ROTC headquarters.

## COURSES FOR UNDERGRADUATES

- |  |              |
|--|--------------|
| <b>111, 112, 113 Naval Orientation (3,3,3)</b>   | <b>Staff</b> |
| Naval courtesy and customs; leadership; naval history; naval regulations; ship construction and characteristics; standard ship organization; orientation in underseas, amphibious, logistics, communications, security, intelligence, seamanship, and rules-of-the-road phases of the naval service. |              |
| <b>211 Naval Weapons (3)</b>   | <b>Staff</b> |
| Gun ammunition; principles of gun construction; semi-automatic and rapid fire guns; introduction to fire control; theory and operation of fire control systems; general concept of anti-submarine warfare.   |              |
| <b>213 Naval Weapons (3)</b>   | <b>Staff</b> |
| Guided missiles; nuclear weapons; concept and organization of the attack carrier striking force; mine warfare; concept and organization of amphibious warfare; space technology.   |              |
| <b>214 Weapons Laboratory (1)</b>  | <b>Staff</b> |
| Practical work on naval weapons and fire control.  |              |

## LINE

- 311 Naval Engineering (3)** **Staff**  
Principles of ship propulsion, marine steam power plants and auxiliary systems; elements of stability and damage control.
- 312 Naval Engineering and Navigation (3)** **Staff**  
Engineering department organization and administration plus marine internal combustion and nuclear power plants; terrestrial navigation including dead reckoning, piloting and electronic developments.
- 313 Navigation (3)** **Staff**  
Celestial navigation; theory and practical work required in the daily work of the navigator at sea.
- 411 Naval Operations (3)** **Staff**  
Tactical communications; rules of the nautical road; maneuvering board; screening instructions.
- 412 Naval Operations and Administration (3)** **Staff**  
Combination of fleet communications, weather, and management.
- 413 Naval Administration (3)** **Staff**  
Leadership, management, and the naval judicial system.

## MARINE CORPS

- 321 Evolution of the Art of War (3)** **Staff**  
Introduction to the art of war; broad resumé of the evolution and history of warfare from the earliest recorded battles through the Mexican War. (Formerly 311M)
- 322 Evolution of the Art of War (3)** **Staff**  
A continuation of the resumé of the history of warfare with emphasis on the Civil War; brief coverage of the Spanish American War, World War I and World War II. (Formerly 312M)
- 323 The Study of Modern Basic Strategy and Tactics (3)** **Staff**  
An introduction to the theoretical principles of modern strategy and tactics; brief resumé of U.S. foreign and military policy; extensive discussion of marine division organization. (Formerly 313M)
- 421 Amphibious Warfare (3)** **Staff**  
Introduction to the development of amphibious warfare; detailed study of the amphibious campaigns of World War II; resumé of the Korean conflict. (Formerly 411M)
- 422 Amphibious Warfare (3)** **Staff**  
A study of the detailed planning for an amphibious operation including Marine Corps Staff organizations, command relationship and task organizations. (Formerly 412M)
- 423 Military Justice and Leadership (3)** **Staff**  
Introduction to the basic principles of the Uniform Code of Military Justice; a study of the principles of military leadership. (Formerly 413M)

## SUPPLY CORPS

- 331 Organization and Logistics Navy Accounting and Finance (3)** **Staff**  
Introduction to supply corps; national security organization; Navy Bureau system; supply demand control point concepts; naval finance, appropriation, property, and cost accounting. (Formerly 311S.)
- 332 Advanced Navy Accounting and Basic Supply Afloat (3)** **Staff**  
Navy accounting, balance sheet reconciliation; reports and returns; organization and administration of supply afloat; afloat requirements determination and stock control. (Formerly 312S.)
- 333 Advanced Supply Afloat (3)** **Staff**  
Afloat custody and stowage and security of material; surveys, issues, transfers, and financial management of afloat inventories; special supply system. (Formerly 313S.)
- 431 Ship's Store Afloat; Clothing and Small Stores (3)** **Staff**  
Operating procedure, records, reports, and returns for ship's store afloat; operating procedures, records, reports, and returns for clothing and small stores afloat. (Formerly 411S.)



BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF FISHERIES

1960 - 1962

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; Summer Quarter Bulletin; the bulletin of the Center for Graduate Study at Hanford; and bulletins of the Division of Correspondence Study and the Division of Evening Classes.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Addressograph Service.

#### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS

INTRODUCTION TO THE UNIVERSITY

UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

#### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF DENTISTRY

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FISHERIES

COLLEGE OF FORESTRY

GRADUATE SCHOOL

SCHOOL OF LAW

SCHOOL OF MEDICINE

SCHOOL OF NURSING

COLLEGE OF PHARMACY

SCHOOL OF SOCIAL WORK

#### *Other Bulletins*

SUMMER QUARTER

CENTER FOR GRADUATE STUDY AT HANFORD

CORRESPONDENCE STUDY

EVENING CLASSES

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UNIVERSITY OF WASHINGTON  
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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	13
Board of Regents	
Officers of Administration	
Faculty of the College of Fisheries	
GENERAL INFORMATION . . . . .	17
College Facilities	
Admission to the University	
Admissions Procedure	
Registration	
Qualifications for Graduation	
Tuition and Fees	
Student Activities and Services	
THE COLLEGE PROGRAMS . . . . .	37
Bachelor's Degrees	
Advanced Degrees	
Courses	

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## CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules and calendar regulating admission and registration, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*

## CALENDAR

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in the following Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

### AUTUMN QUARTER, 1960

#### REGISTRATION PERIOD

MAY 2-27	Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 6-23	In-Person Registration for students in residence Spring Quarter, 1960, who did not complete Autumn Quarter, 1960, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 6-23	In-Person Registration for former students not in residence Spring Quarter, 1960. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 13.</i>
AUG. 15	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 8-23	In-Person Registration for ALL new students.
SEPT. 23	Last day to register for Autumn Quarter, 1960. Note application deadlines above.
SEPT. 26-30	Change of Registration by appointment only.

#### ACADEMIC PERIOD

SEPT. 26—MONDAY	Instruction begins for all students
SEPT. 30—FRIDAY	Last day to add a course
NOV. 1—TUESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office.
NOV. 10—THURSDAY	Last day to submit applications for advanced credit examinations
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 3—SATURDAY	Advanced credit examinations
DEC. 8-13	Final examinations (4 o'clock classes, Wednesday, Dec. 7, 4-6 p.m.)
DEC. 13—TUESDAY	Quarter ends

**WINTER QUARTER, 1961****REGISTRATION PERIOD**

- OCT. 24-Nov. 18 Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- DEC. 27-29 In-Person Registration for students in residence Autumn Quarter, 1960, who did not complete Winter Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
- DEC. 27-29 In-Person Registration for former students not in residence Autumn Quarter, 1960. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Appointments or Permits is December 9.*
- DEC. 2 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- DEC. 20 Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
- DEC. 27-29 In-Person Registration for ALL new students.
- DEC. 29 Last day to register for Winter Quarter, 1961. Note application deadlines above.
- JAN. 3-9 Change of registration by appointment only.

**ACADEMIC PERIOD**

- JAN. 3—TUESDAY Instruction begins for all students
- JAN. 9—MONDAY Last day to add a course
- FEB. 17—FRIDAY Last day to submit applications for advanced credit examinations
- FEB. 22—WEDNESDAY Washington's Birthday and Founder's Day holiday
- MAR. 4—SATURDAY Advanced credit examinations
- MAR. 13-16 Final examinations (4 o'clock classes, Friday, March 10, 4-6 p.m.)
- MAR. 16—THURSDAY Quarter ends

**SPRING QUARTER, 1961****REGISTRATION PERIOD**

- JAN. 23-FEB. 17 Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- MAR. 21-23 In-Person Registration for students in residence Winter Quarter, 1961, who did not complete Spring Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.

MAR. 21-23	In-Person Registration for former students not in residence Winter Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is March 10.</i>
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
MAR. 21-23	In-Person Registration for ALL New students.
MAR. 23	Last day to register for Spring Quarter, 1961. Note application deadlines above.
MAR. 27-31	Change of registration by appointment only.

#### ACADEMIC PERIOD

MAR. 27—MONDAY	Instruction begins for all students
MAR. 31—FRIDAY	Last day to add a course
MAY 12—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 27—SATURDAY	Advanced credit examinations
MAY 30—TUESDAY	Memorial Day holiday
JUNE 4—SUNDAY	Baccalaureate Sunday
JUNE 5-8	Final examinations (4 o'clock classes, Friday, June 2, 4-6 p.m.)
JUNE 8—THURSDAY	Quarter ends
JUNE 10—SATURDAY	Commencement

#### SUMMER QUARTER, 1961

##### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 1, 2, 5

June 12-16

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hospital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....	Monday, April 17, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 18, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 19, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 20, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter 1961, may obtain an Application for Appointment or Permit by writing to, or calling in person, at the Registrar's Office, Room 109, Administration Building, or telephoning LAkeview 4-6000, Extension 2551, beginning April 17 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed. New (entering) Students will receive Registration Appointments with their Official Notice of Admission.*

#### ACADEMIC PERIOD

JUNE 19—MONDAY	Instruction begins
JUNE 20—TUESDAY	Last day to add a course for the first term
JUNE 23—FRIDAY	Last day to add a course for the full quarter
JUNE 30—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—TUESDAY	Independence Day holiday
JULY 15—SATURDAY	Advanced credit examinations
JULY 19—WEDNESDAY	Final examinations and first term end
JULY 20—THURSDAY	Second term begins
JULY 21—FRIDAY	Last day to add a course for the second term
JULY 28—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 12—SATURDAY	Advanced credit examinations
AUG. 18—FRIDAY	Final examinations and second term end

#### AUTUMN QUARTER, 1961

##### REGISTRATION PERIOD

MAY 1-26	Advance Registration only for students in residence Spring Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 5-22	In-Person Registration for students in residence Spring Quarter, 1961, who did not complete Autumn Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 5-22	In-Person Registration for former students not in residence Spring Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 15.</i>
AUG. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

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*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in the following Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 7-22	In-Person Registration for ALL new students.
SEPT. 22	Last day to register for Autumn Quarter, 1961. Note application deadlines above.
SEPT. 25-29	Change of registration by appointment only.

#### ACADEMIC PERIOD

SEPT. 25—MONDAY	Instruction begins for all students
SEPT. 29—FRIDAY	Last day to add a course
NOV. 1—WEDNESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1962, due at Registrar's Office.
NOV. 11—SATURDAY	State Admission Day holiday
NOV. 17—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 22-27	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 2—SATURDAY	Advanced credit examinations
DEC. 7-12	Final examinations (4 o'clock classes, Wednesday, Dec. 6, 4-6 p.m.)
DEC. 12—TUESDAY	Quarter ends

### WINTER QUARTER, 1962

#### REGISTRATION PERIOD

OCT. 23-Nov. 17	Advance Registration only for students in residence Autumn Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 26-28	In-Person Registration for students in residence Autumn Quarter, 1961, who did not complete Winter Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
DEC. 26-28	In-Person Registration for former students not in residence Autumn Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 8.</i>
DEC. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
DEC. 26-28	In-Person Registration for ALL new students.
DEC. 28	Last day to register for Winter Quarter, 1962. Note application deadlines above.
JAN. 2-8	Change of registration by appointment only.



**ACADEMIC PERIOD**

JAN. 2—TUESDAY	Instruction begins for all students
JAN. 8—MONDAY	Last day to add a course
FEB. 16—FRIDAY	Last day to submit applications for advanced credit examinations
FEB. 22—THURSDAY	Washington's Birthday and Founder's Day holiday
MAR. 3—SATURDAY	Advanced credit examinations
MAR. 12-15	Final examinations (4 o'clock classes, Friday, Mar. 9, 4-6 p.m.)
MAR. 15—THURSDAY	Quarter ends

**SPRING QUARTER, 1962****REGISTRATION PERIOD**

JAN. 22-FEB. 16	Advance Registration only for students in residence Winter Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 20-22	In-Person Registration for students in residence Winter Quarter, 1962, who did not complete Spring Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
MAR. 20-22	In-Person Registration for former students not in residence Winter Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is March 9.</i>
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
MAR. 20-22	In-Person Registration for ALL new students.
MAR. 22	Last day to register for Spring Quarter, 1962. Note application deadlines above.
MAR. 26-30	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 26—MONDAY	Instruction begins for all students
MAR. 30—FRIDAY	Last day to add a course
MAY 11—FRIDAY	Last day to submit applications for advanced credit examinations

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*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in the following Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

MAY 26—SATURDAY	Advanced credit examinations
MAY 30—WEDNESDAY	Memorial Day holiday
JUNE 3—SUNDAY	Baccalaureate Sunday
JUNE 4-7	Final examinations (4 o'clock classes, Friday, June 1, 4-6 p.m.)
JUNE 7—THURSDAY	Quarter ends
JUNE 9—SATURDAY	Commencement

## SUMMER QUARTER, 1962

### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

May 31-June 2, 4

June 11-15

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hospital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

#### *Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....	Monday, April 16, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 17, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 18, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 19, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1962*, may obtain an Application for Appointment or Permit by writing to, or calling in person at the Registrar's Office, Room 109, Administration Building, or telephoning LAkeview 4-6000, Extension 2551, beginning April 17 and preferably *no later than May 15*. Application for Registration Appointment must be received before registration materials can be processed. *New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

### ACADEMIC PERIOD

JUNE 18—MONDAY	Instruction begins for all students
JUNE 19—TUESDAY	Last day to add a course for the first term
JUNE 22—FRIDAY	Last day to add a course for the full quarter
JUNE 29—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—WEDNESDAY	Independence Day holiday
JULY 14—SATURDAY	Advanced credit examinations
JULY 18—WEDNESDAY	Final examinations and first term end
JULY 19—THURSDAY	Second term begins
JULY 20—FRIDAY	Last day to add a course for the second term
JULY 27—FRIDAY	Last day to submit applications for advanced credit examinations for second term

AUG. 11—SATURDAY	Advanced credit examinations
AUG. 17—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1962****REGISTRATION PERIOD**

APR. 30—MAY 25	Advance Registration only for students in residence Spring Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-28	In-Person Registration for students in residence Spring Quarter, 1962, who did not complete Autumn Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 10-28	In-Person Registration for former students not in residence Spring Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 12.</i>
AUG. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointments will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 12-28	In-Person Registration for ALL new students.
SEPT. 28	Last day to register for Autumn Quarter, 1962. Note application deadlines above.
OCT. 1-5	Change of registration by appointment only.

**ACADEMIC PERIOD**

OCT. 1—MONDAY	Instruction begins
OCT. 5—FRIDAY	Last day to add a course
NOV. 1—THURSDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1963, due at Registrar's Office
NOV. 12—MONDAY	State Admission Day holiday
NOV. 21—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 21-26	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 8—SATURDAY	Advanced credit examinations
DEC. 13-18	Final examinations (4 o'clock classes, Wednesday, Dec. 12, 4-6 p.m.)
DEC. 18—TUESDAY	Quarter ends

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in the following Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

**WINTER QUARTER, 1963****REGISTRATION PERIOD**

OCT. 29-Nov. 27	Advance Registration only for students in residence Autumn Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
JAN. 2-4	In-Person Registration for students in residence Autumn Quarter, 1962, who did not complete Winter Quarter, 1963, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
JAN. 2-4	In-Person Registration for former students not in residence Autumn Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 10.</i>
DEC. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
JAN. 2-4	In-Person Registration for ALL new students.
JAN. 4	Last day to register for Winter Quarter, 1963. Note application deadlines above.
JAN. 7-11	Change of registration by appointment only.

**ACADEMIC PERIOD**

JAN. 7—MONDAY	Instruction begins for all students
JAN. 11—FRIDAY	Last day to add a course
FEB. 21—THURSDAY	Last day to submit applications for advanced credit examinations
FEB. 22—FRIDAY	Washington's Birthday and Founder's Day holiday
MAR. 9—SATURDAY	Advanced credit examinations
MAR. 18-21	Final examinations (4 o'clock classes, Friday, March 15, 4-6 p.m.)
MAR. 21—THURSDAY	Quarter ends

*For further information concerning subsequent quarters inquire at the Registrar's Office.*

## ADMINISTRATION

### BOARD OF REGENTS

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FREDERICK P. THIEME, Ph.D.	<i>Provost of the University</i>
GLENN H. LEGGETT, Ph.D.	<i>Vice-Provost of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
HAROLD A. ADAMS, M.S.	<i>Director of Admissions</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
RICHARD VAN CLEVE, Ph.D.	<i>Dean of the College of Fisheries</i>

### FACULTY OF THE COLLEGE OF FISHERIES

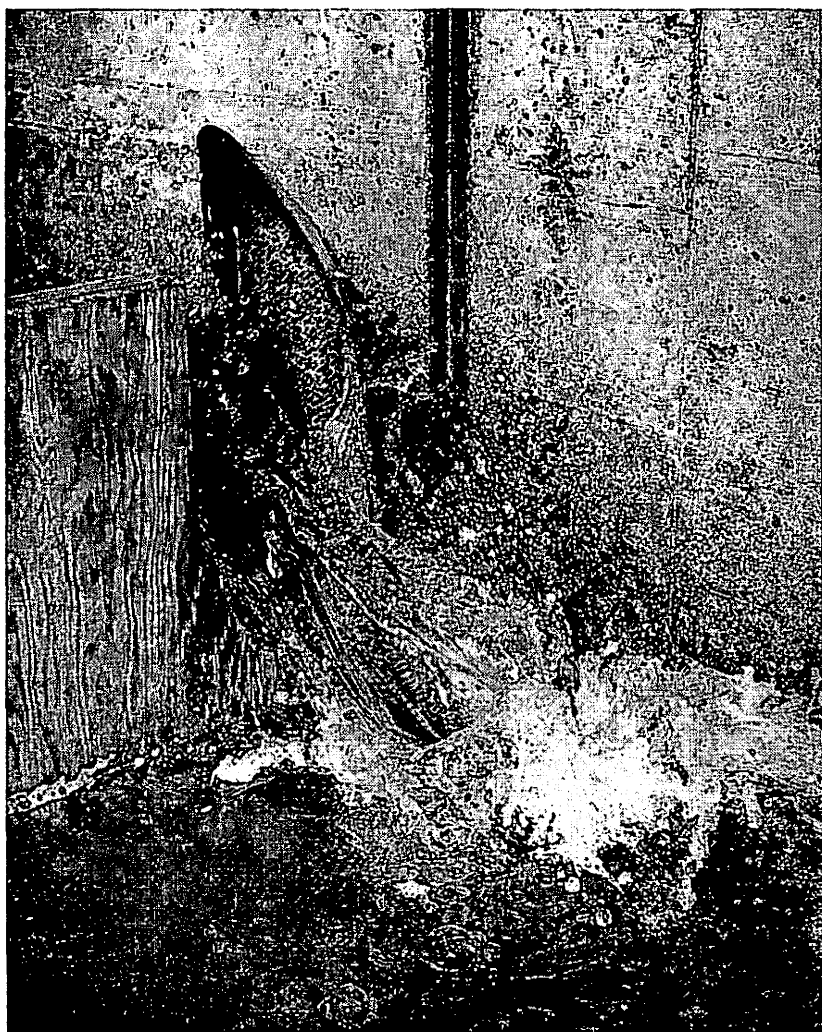
The first date following a name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

- Bell, Frederick Heward, 1931, *Lecturer in Fisheries*  
B.A., 1924, British Columbia
- Bell, Mildred Carsner, 1953 (1957), *Associate Professor of Fisheries*  
B.S., 1930, Washington
- DeLacy, Allan Clark, 1946 (1958), *Professor of Fisheries*  
B.S., 1932, M.S., 1933, Ph.D., 1941, Washington
- Dollar, Alexander Melville, 1959, *Assistant Professor of Fisheries*  
B.S., 1948, M.S., 1949, California; Ph.D., 1958, Reading
- Donaldson, Lauren Russell, 1935 (1948), *Professor of Fisheries; Director of the Laboratory of Radiation Biology*  
A.B., 1926, Intermountain Union College (Montana); M.S., 1931, Ph.D., 1939, Washington
- Fields, Paul Eldon, 1953 (1955), *Professor of Comparative Psychology*  
A.B., 1926, A.M., 1927, Ohio Wesleyan; Ph.D., 1930, Ohio State
- Liston, John, 1957 (1960), *Associate Professor of Fisheries*  
B.S., 1952, University of Edinburgh (Scotland); Ph.D., 1955, University of Aberdeen (Scotland)
- Lynch, James Eric, 1931 (1958), *Professor Emeritus of Fisheries*  
B.A., 1917, M.A., 1921, Nebraska; Ph.D., 1929, California
- Royce, William Francis, 1958, *Professor of Fisheries; Director of the Fisheries Research Institute*  
B.S., 1937, Ph.D., 1943, Cornell University
- Sparks, Albert Kirk, 1958, *Associate Professor of Fisheries*  
B.S., 1947, M.S., 1949, Ph.D., 1957, Agricultural and Mechanical College of Texas

- Thompson, William Francis, 1930 (1958). *Professor Emeritus of Fisheries*  
B.A., 1911, Ph.D., 1930, Stanford
- Van Cleve, Richard, 1948 (1958), *Professor of Fisheries; Dean of the College of Fisheries*  
B.S., 1927, Ph.D., 1936, Washington
- Welander, Arthur Donovan, 1937, (1958), *Professor of Fisheries; Professor in Laboratory of Radiation Biology*  
B.S., 1934, M.S., 1940, Ph.D., 1946, Washington

## FISHERIES RESEARCH INSTITUTE

- Ahnell, Warren, *Assistant Fisheries Biologist*  
B.S., 1957, Iowa State College
- Bevan, Donald Edward, *Research Assistant Professor*  
B.S., 1948, Ph.D., 1959, Washington
- Burgner, Robert Louis, *Assistant Director, Research Associate Professor*  
B.S., 1942, Ph.D., 1958, Washington
- Dell, Michael B., *Assistant Fisheries Biologist*  
B.S., 1959, Washington
- Gregory, Richard, *Research Assistant*  
B.S., 1958, Colorado State University
- Hartt, Allan Charles, *Senior Fisheries Biologist*  
B.S., 1949, Washington
- Hirota, Takao, *Engineer*  
B.S., 1954, Tokyo; M.S., 1956, Tokyo; M.S., 1958, Washington
- Jones, Benjamin F., *Senior Fisheries Biologist*  
B.S., 1954, M.S., 1955, Oregon State College
- Junge, Charles O., Jr., *Research Assistant Professor*  
B.S., 1937, University of Pittsburgh
- Kent, Joseph, *Assistant Professor*  
B.S. in C.E., 1945, British Columbia; M.S. in C.E., 1948, Stanford; Ph.D., 1952, California
- Kerns, Orra E., Jr., *Senior Fisheries Biologist*  
B.S., 1953, M.S., 1955, Oregon State College
- Koo, Swei-yen, *Research Associate Professor*  
B.S., 1934, Amoy (China); M.S., 1937, Lingnan Univ. (China); Ph.D., 1955, Washington
- Mathisen, Ole Alfred, *Research Associate Professor*  
Candidatum Realium, 1945, Oslo (Norway); Ph.D., 1955, Washington
- McNeil, William, *Research Associate*  
B.S., 1952, M.S., 1956, Oregon State College
- Narver, David W., *Research Assistant*  
B.S., 1956, Oregon State College
- Nelson, Martin O., *Research Assistant*  
B.A., 1958, University of Maine
- Palmer, Albert W., *Fisheries Biologist*  
B.S., 1954, Washington
- Pellett, Warren C., *Senior Fisheries Aide*  
B.S., 1951, Washington
- Pozzi, Charles W., *Research Assistant*  
B.S., 1960, Lynchburg College, Lynchburg, Virginia
- Rogers, Donald E., *Assistant Fisheries Biologist*  
B.S., 1958, California State Polytechnic College
- Royce, William Francis, *Director, Professor*  
B.S., 1937, Ph.D., 1943, Cornell University
- Smith, Howard Wilfred D., *Senior Fisheries Biologist*  
B.S., 1950, M.S., 1960, Washington
- Snyder, George, *Research Associate*  
B.S., 1958, M.S., 1960, Colorado State University
- Tyler, Richard W., *Fisheries Biologist*  
B.S., 1953, Washington



## GENERAL INFORMATION

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# GENERAL INFORMATION

**I**N THE SPRING of 1861 three forward-looking Seattle citizens, Arthur A. Denny, Judge Edward Lander, and Charles C. Terry, deeded ten acres of land for the establishment of a new University in what was then Washington territory. Several months later, on November 4, 1861, the University of Washington opened the door of a new frame building where the twenty-two-year-old "principal," Asa S. Mercer, began the instruction of thirty-one students, many of them young men recruited from nearby logging camps.

By 1889, when Washington was admitted to the Union, the University had achieved a consistent program and an enrollment of more than one hundred students. But it was clear that the original building would soon be inadequate and that the University would need more room for development. In 1891 the new University site, the present 600 acre campus between Lake Washington and Lake Union, was selected. The first of the new buildings, Denny Hall, was completed in 1894 and occupied for the first time in September, 1895, when the University's enrollment was 425 students. (The original campus is now in the center of downtown Seattle. The Olympic Hotel stands on the ground occupied by the first University of Washington building).

By 1960, the University of Washington had developed into one of the nation's largest educational institutions with an enrollment of approximately 18,000 students and approximately 1400 full-time faculty members.

Throughout its history the University has taken an active and earnest interest in the natural resources of the Northwest. This interest is evidenced by the establishment of a curriculum in mining engineering in 1893, the College of Forestry in 1907, and the College of Fisheries in 1919. In January of 1958, the Board of Regents of the University reaffirmed this interest and recognized the importance of fisheries to the economy of the area by incorporating the two fisheries groups on the campus, the School of Fisheries and the Fisheries Research Institute, into the re-established College of Fisheries. Food Science was established as a college curriculum in 1960.



## COLLEGE FACILITIES

The College of Fisheries offers students an ideal balance of laboratory, classroom, and practical experience. The Fisheries Center houses the library, classrooms, laboratories, and general facilities as well as several research organizations. The building, constructed in 1949, is situated on the Lake Washington Ship Canal which connects Lake Washington, a large fresh-water lake, with the salt water of Puget Sound.

The College library contains material covering the subjects embraced by the fields of fisheries and oceanography, and is available for the use of students for class work and research. This library is supplemented by collections of the International Pacific Halibut Commission and of the Fisheries Research Institute. Excellent general and departmental library facilities are maintained at other locations on the campus.

To assist in research and for teaching purposes, the College maintains a collection of about 250,000 preserved specimens, covering approximately 2000 species of fish from northern and southern oceans. As part of the practical experience and research program, the College has concrete fish ponds, connected to the Lake Washington Ship Canal by a fish ladder. Inside the Fisheries Center, an experimental fish hatchery and salt water aquaria provide facilities for students to study the entire life cycle of the Pacific salmon as well as those other fresh-water and salt-water fish. The Fish Behavior and Physiology Laboratory houses facilities for studying the behavior and swimming ability of fish.

In addition to the biological laboratories, there are complete laboratory facilities for both teaching and research in food science in the Fisheries Center. These include biochemical, microbiological and analytical laboratories, and a processing laboratory equipped with canning, freezing, smoking, and other food processing equipment.

A 67-foot, diesel-powered boat, with cabin laboratory, is operated by the College. The vessel, the "Commando," is used for instruction and research in Lake Washington, Puget Sound, and the North Pacific Ocean. It is equipped with fishing gear for trawling, and for most other types of fishing used in the North Pacific.

Within two miles of the campus is located the headquarters of one of the Pacific Coast's largest fishing fleets. Puget Sound, in addition to its world-famous salmon and halibut fisheries, has extensive bottom fish, commercial oyster, clam, crab, and shrimp operations. Sports fishing, particularly for trout, is available in the Northwest's many lakes and streams. Full advantage is taken of the proximity of these natural resources in research and teaching.

The Friday Harbor Laboratories, on San Juan Island, about 80 miles north of Seattle, provide unique opportunities for teaching and research in the marine sciences. During the summer, courses in algology, marine zoology, fisheries, oceanography, and meteorology, are offered for advanced undergraduate and graduate students.

## THE FISHERIES RESEARCH INSTITUTE

The Fisheries Research Institute was established by the University of Washington in 1947 to continue research, initiated in 1945 under sponsorship of the salmon industry, on red salmon in Alaska. In January of 1958 the Institute became the research branch of the College of Fisheries, responsible to its Dean.

It has conducted research in Bristol Bay, Southeastern Alaska, Kodiak Island, the Alaska Peninsula, and in Prince William Sound under various contracts, and, on behalf of the U.S. Department of Interior, has carried out salmon tagging programs in the Mid-Pacific in connection with the International North Pacific Fisheries Treaty between the United States, Canada, and Japan. Other research projects have included studies on sea lions, the effects of logging on salmon streams, and salmon migrations in Cook Inlet.

Research is facilitated by a large inventory of field and laboratory equipment. There is a large collection of special literature and records such as maps, biological data on punched cards, statistical data on microfilm, and material on work in progress, all under the care and supervision of a librarian.

Besides its headquarters on the University campus, the Institute maintains five research stations in Alaska: two are in permanent shore buildings on Lakes Nerka and Aleknagik; one on floating barges at Igiugig in western Alaska, and two in Southeastern Alaska.

#### RELATED ACTIVITIES

Offices are maintained in the Fisheries Center by the Washington State Department of Fisheries and the Washington State Department of Game. Members of the U.S. Fish and Wildlife Service are doing research on fish diseases, using Fisheries Center laboratories. The Laboratory of Radiation Biology, a national center for research in aquatic radiobiology supported by the Atomic Energy Commission, also has its quarters in the Fisheries Center.

In the city of Seattle are offices and laboratories of the U.S. Fish and Wildlife Service, and the headquarters of the International Pacific Halibut Commission is located on the campus.

### ADMISSION TO THE UNIVERSITY

#### PRELIMINARY STATEMENTS

The Board of Admissions, which is appointed by the President, is responsible for the interpretation and administration of the regulations governing admission to the University.

The University recognizes high school diplomas, college credits presented for advanced standing, and college degrees earned in the following institutions: (1) high schools accredited by the Washington State Department of Public Instruction; (2) out-of-state high schools accredited by their state university and state department of public instruction, or by the regional accrediting association of the area; (3) colleges and universities accredited by their regional accrediting association.

**Resident.** Defined for purposes of admission and/or assessment of fees as an individual who has been domiciled in the state of Washington for one year immediately prior to his registration. The domicile of a minor is that of his parents or his legal guardian.

**Nonresident.** An applicant whose credentials are received from a school or college located outside the state of Washington. An applicant who believes himself eligible for resident status may apply for reclassification through the Office of Residence Classification which has final authority in determining such status.

**Qualified Student.** One whose scholastic standing and preparation meet the standards for admission to the University.

**Regular Student.** One who fulfills the following requirements: (1) has been granted regular admission to a college or school of the University; (2) whose current schedule for credit is satisfactory to the dean of his college or school; (3) has completed all of the required steps for registration, including the payment of tuition and fees, the filing of class cards, and the depositing of registration materials at Sections.

**Grade-point averages.** These are based on a four-point system in which A = 4, B = 3, C = 2, D = 1, E = 0. An adjustment to this system is made as necessary in the computation of grade-point averages earned at other institutions.

#### ELIGIBILITY FOR ADMISSION WITH FRESHMAN STANDING

(Applicable to Residents of the State of Washington)

Undergraduate programs offered by the University lead to the baccalaureate degree; students, therefore, are admitted when, in the judgment of the University,

they appear qualified to pursue a degree program with a reasonable probability of success. In making this judgment, the University's Board of Admissions considers the applicant's total record, including such factors as scholastic achievement in a college preparatory program, recommendations of the high school principal or counselor, rank in class, and scores on any nationally administered tests associated with college entrance.

Scholastic achievement is measured largely in terms of the criteria listed below. All students entering the University are expected to meet these criteria. Non-residents and students who enter with advanced standing will find additional admission criteria in subsequent sections.

#### SCHOLASTIC CRITERIA

1. Graduation with diploma from an accredited high school.
2. Achievement of an over-all high school grade-point average of at least 2.50 in courses completed after September, 1960, and a grade-point average of at least 2.00 in courses completed prior to September, 1960.
3. Completion of a college preparatory program of at least 16 units to include the following:
 

a. English	at least 3 units
b. One foreign language	at least 2 units
c. College preparatory mathematics	at least 2 units
d. One laboratory science	at least 1 unit
e. Social science	at least 2 units
f. Electives	at least 2 units

from the above subjects

Additional electives may be chosen from any subjects  
acceptable for high school graduation.

Intermediate algebra and trigonometry are prerequisites for the first courses in mathematics included in all College of Fisheries curricula. Students who plan to enter this college can, and preferably should, complete these courses in addition to the elementary algebra and plane geometry which normally are the two units of college preparatory mathematics. Without this additional preparation, students will probably find it necessary to spend an extra quarter at the University in completing work for the baccalaureate degree. It is recommended also that students study chemistry, physics, and if possible, biology while in high school.

Because an appropriate choice of high school electives serves to strengthen a student's preparation, the University will give this part of a student's record the same careful attention it gives to other aspects of his qualifications.

#### ELIGIBILITY FOR ADMISSION WITH ADVANCED STANDING

(Applicable to Residents of the State of Washington)

A qualified student in good standing at an accredited institution may apply for admission with advanced standing. Such an applicant is expected to have the same high school preparation as the student who enters as a freshman, and to have a college grade-point average which meets the standards herein specified.

With fewer than 45 acceptable credits, an applicant must present a grade-point average of 2.50 in high school work completed after September, 1960; a 2.00 grade-point average in such work completed prior to this date; and a 2.00 cumulative average in all college work.

With 45 or more acceptable credits an applicant is expected to present a cumulative and last-term grade-point average of at least 2.00. See also section on transfer of advanced credit, page 22.

#### ADMISSION OF NONRESIDENTS TO UNDERGRADUATE STANDING

Applications from nonresidents will be considered, but first preference is given legal residents of the state of Washington, and sons and daughters of University of Washington alumni residing outside the state.

Nonresident applicants are selected on the basis of their preparation and scholastic standing. In general, a freshman applicant must be eligible to enter the university of his own state, and satisfy the foregoing scholastic criteria with a 3.00 (B) grade-point average or place in the upper 25 per cent of his graduating class.

An applicant for admission with advanced standing with fewer than 45 college credits must have a cumulative grade-point average of at least 3.00 in standard college courses as well as a high school grade-point average of at least 3.00 or have been in the upper fourth of his class. An applicant presenting more than 45 credits for advanced standing must present a 2.70 grade-point average in standard college courses.

Sons and daughters of University of Washington alumni are admitted according to resident standards but are required to pay the regular nonresident tuition fees. Applicants for admission to curricula in which the University serves on a regional basis will be accorded special consideration by the Board of Admissions.

#### **ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Non-high school graduates who are 21 or older and legal residents of Washington may apply to the Board of Admissions for admission with special standing. With their application they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the dean of the college permits, but may not participate in student activities or receive degrees. By fulfilling conditions specified by the Board of Admissions, special students may change their status to that of regular students and may receive degrees.

Persons 21 or older may register as auditors in nonlaboratory courses or the lecture sessions of laboratory courses by obtaining the consent of the dean of the college and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter.

#### **ADMISSION OF FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD**

Applicants for admission with graduate or advanced undergraduate standing are expected to meet the same general requirements as nonresidents of Washington educated in American schools and demonstrate a satisfactory command of the English language.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in University attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students must meet the scholarship requirements for nonresident students. See page 20.

#### **ADMISSION OF VETERANS**

Veterans and children of deceased veterans should meet the general admission criteria and follow the general procedures outlined for all applicants. Applications for and questions about government aid should be addressed to the Veterans Division Regional Office. See page 24.

#### **ADMISSION OF UNDERGRADUATE STUDENTS WHO DO NOT MEET THE ADMISSIONS STANDARDS**

An applicant whose preparation and previous scholarship does not clearly qualify him for admission may submit additional evidence in support of his application. This may include scores on nationally recognized tests of scholastic aptitude or achievement; letters from school administrators, teachers or counselors; and other information which may assist the Board of Admissions in evaluating his probability of success in the University.

Students admitted by special action of the Board of Admissions will be expected to achieve and maintain a satisfactory scholastic average in their University work and to fulfill any conditions specified by the Board at the time of their admission.

A student thus admitted on probation may continue attendance at the discretion of the dean of his college, but may not (1) be pledged or initiated into a fraternity or sorority, or engage in those other student activities in which his right to participate is restricted by the regulations of the Committee on Student Welfare; (2) engage in those athletic activities in which his right to participate is restricted by regulations of the University Intercollegiate Athletics Committee. Such a student shall be removed from probation when he has earned a minimum of 12 credits, exclusive of those in physical education activity and lower-division military training, with a 2.00 grade-point average. Provided, that if such a student carries less than 12 credits in one quarter he may not be removed from probation unless he has earned a minimum 2.00 grade-point average for the current quarter, as well as a minimum cumulative average of 2.00 for his total quarters in attendance. A student removed from probation under these provisions shall henceforth be subject to the regular scholarship rules.

#### **ADMISSION TO THE GRADUATE SCHOOL**

Basic requirements for admission to the Graduate School are a bachelor's degree from an institution of recognized standing, a grade-point average of 3.00 in the senior year of college work, approval of the Graduate School, and approval of the department in which the work is to be taken. For complete information, see the *Graduate School Bulletin*.

#### **TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS**

The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted.

1. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined before the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or senior standing. Transfer credit will not be allowed in the senior year.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution.

3. Transfer credits from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training schools credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the senior year.

6. A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of the credits can apply in the senior year. Extension and correspondence credits from schools that are not members of the National University Extension Association are accepted only after examination.

7. Credits earned in evening and extension classes or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and/or correspondence credits is acceptable; the 90 credits may include the 45 extension and/or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Division of Evening Classes or Division of Correspondence Study. All credits earned in advanced-credit examinations and all acceptable Armed Forces training schools credits must be counted in the 90 extension credit maximum. Up to ten

evening class or correspondence course credits from this University can apply toward the work of the senior year.

8. For work done in unaccredited institutions, extended secondary programs in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advanced-credit examinations must be filed during the first quarter in residence.

9. No credit will be granted for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

## ADMISSIONS PROCEDURE

Requests for Application for Admission forms and correspondence regarding admission to any college or school of the University should be addressed to the Office of Admissions, University of Washington, Seattle 5, Washington. Graduates of high schools in the state of Washington may obtain this form from their principals.

Applications and required transcripts must be filed with the Office of Admissions prior to the following dates in order to be assured of consideration for admission to the quarter for which application is being made: August 1 for Autumn Quarter, December 1 for Winter Quarter, March 1 for Spring Quarter, May 15 for Summer Quarter.

All records become a part of the official file and can neither be returned nor duplicated for any purpose. Failure to submit complete credentials will be considered a serious breach of honor, and may result in permanent dismissal from the University.

A leaflet giving general information and instructions for registration is mailed with the Notice of Admission. In the event of a discrepancy, instructions in the leaflet supersede those found in earlier publications. *The University assumes no responsibility for applicants who come to the campus before they have been officially notified of their admission.*

*The admissions credentials of applicants who do not register for the quarter to which they have been admitted are normally retained in the Office of Admissions for a period of one year from the date of application. At the end of this period, credentials on file are discarded unless the applicant has notified the Office of his continued interest in attending the University. Should a student wish to renew his application after the one-year lapse, he must submit new credentials in advance of the date given above for the quarter desired.*

## FOR FRESHMAN STANDING

An application form, obtained from the University's Office of Admissions or from a Washington high school, should be completed according to instructions appearing on the form and returned to the Office of Admissions. Pages two and three of the same form should be given to the applicant's high school principal with the request that the scholastic record be entered and forwarded to the University's Office of Admissions as soon as possible.

Students may apply through their high schools on completion of the first semester of the senior year. Those who are qualified will be issued notices of early or conditional admission which become valid on graduation with a grade-point average of no less than 2.50 for the final semester. Others also will be notified of their admission status.

Scores on a nationally administered college aptitude test are not required. However, they may be helpful in evaluating a borderline student's probability of success.

**FOR ADVANCED UNDERGRADUATE STANDING**

An application form, obtained from the University's Office of Admissions or from a Washington junior college should be completed according to instructions appearing on the form and sent to the Office of Admissions. In addition, the applicant should request the principal of his high school and the registrar of each college he has attended to forward an official transcript of his record to the University's Office of Admissions. When these credentials have been evaluated, the applicant will be notified of his admission status.

**FOR GRADUATE STANDING**

An application form, obtained from the University's Office of Admissions, should be completed according to instructions appearing on the form and returned to the Office of Admissions. In addition an applicant should request the registrar of each college or university in which he has been enrolled as an undergraduate or graduate student to forward *two* official transcripts to the University's Office of Admissions. When these credentials have been evaluated, the applicant will be notified of his admission status. The student will find it convenient to have an additional copy of the record for reference.

**WORLD WAR I OR II VETERANS**

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges. See page 31.

**KOREAN VETERANS**

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. If the veteran has any questions regarding application for a certificate, he should consult the Veterans Division, Safety Division Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

**Korean Certificate**

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented, along with his Program of Studies, to the Veterans Division, Safety Division Building as soon as registration is completed. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

**Quarter Credit Requirements (Public Law 550)**

14 credits .....	Full subsistence
10 to 13 credits .....	Three-fourths subsistence
7 to 9 credits .....	One-half subsistence
6 credits or less .....	Established tuition and fees
	or credits $\div 14 \times \$110.00$ , whichever is the lesser.

**Graduate Credit Requirements (Public Law 550) 500-level Courses or Above**

9 credits .....	Full subsistence
7 to 8 credits .....	Three-fourths subsistence
5 to 6 credits .....	One-half subsistence
4 credits or less .....	Established tuition and fees
	or credits $\div 14 \times \$110.00$ , whichever is the lesser.

*If a graduate is combining 400-level courses with 500-level courses, he should consult with the Veterans Division, Safety Division Building, to determine the scale of pay.*

**Termination of Training**

A veteran *eligible* under Public Law 550 must complete his training by *eight years* after his release from active service, or by January 31, 1965, whichever is earlier.

**DISABLED VETERANS**

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

**CHILDREN OF DECEASED VETERANS**

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, Safety Division Building, on the date of registration.

**REQUIRED TESTS AND EXAMINATIONS****Washington Pre-College Differential Guidance Test**

This grade prediction test is required of all entering freshmen, including those transferring to the University with fewer than 45 credits. It is also required of transfer students who have not completed courses which are equivalent to English 101 (English composition) or Humanistics-Social Studies 265 (Techniques of Communication). High school seniors are advised to arrange through their high schools to take this test in the spring when it is offered throughout the state of Washington. Nonresidents of Washington may take the test at the time of their registration according to instructions mailed with the notice of admission. Sample copies are not available. Special, foreign, blind students, and auditors are exempted.

The several parts of this test have been selected because of their proven value for the prediction of grades most likely to be earned by a student. The result of the test are used by departmental advisers as an aid in assigning students to appropriate sections in English composition and other subjects.

**Mathematics Placement Tests**

One section of the Pre-College Differential Guidance Test evaluates a student's mastery of intermediate algebra and plane geometry. A satisfactory score on this section qualifies a student to enroll in Mathematics 104 (trigonometry) or Mathematics 105 (college algebra). Those who fail to qualify and wish to proceed to the study of more advanced mathematics courses may choose one of the following alternative plans:

1. Pass Mathematics 101 and then take 104, or 105 or both. Mathematics 101 is given only through the Division of Evening classes or the Department of Correspondence Study. No credit is given for Mathematics 101 to students who have completed the third semester of high school algebra.
2. Pass Mathematics 103, in which the first four weeks are devoted to a review of intermediate algebra and the last six weeks to the study of plane trigonometry equivalent to Mathematics 104. The satisfactory completion of this course qualifies the student to enroll in Mathematics 105 (college algebra).

Students who have studied trigonometry, fourth semester algebra, mathematical analysis, or similar subjects in high school, will be placed in the next appropriate course at the University according to their scores in additional placement tests given by the Department of Mathematics. It is advisable to review before taking these examinations. This generally applies to students entering such fields as engineering, architecture and urban planning, fisheries, forestry, pharmacy, mathematics, and the physical and marine sciences.



### MEDICAL EXAMINATION

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the Student Health Service (Hall Health Center) a form containing his health history and a report of a physical examination, foreign students must take the required physical examination at the Student Admissions, and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the Student Health Service without charge.

With the exception of Canadian students, who will follow the above instruction by a physician. The form will be sent to new students by the Office of Health Service when they arrive on the campus.

### MISCELLANEOUS INFORMATION

**Junior High School Courses.** The University recognizes college preparatory courses given in the junior high school and assigns them the same value as equivalent courses offered by the high school. Students who elect these subjects in the junior high may subsequently achieve a superior degree of competence in related subject areas in high school.

**Accelerated, Honors, and Advanced Placement Courses.** The University encourages qualified students to extend themselves academically by taking advantage of advanced, accelerated and honors courses offered by their schools. The degree of achievement attained by students in selected areas may be measured by their performance in College Entrance Examination Board Advanced Placement Examinations and by other means which are described briefly in the following paragraphs.

The University of Washington endorses the Advanced Placement Program of the College Entrance Examination Board and grants placement and/or credit at the discretion of the University department concerned on the basis of scores earned in College Entrance Examination Board Advanced Placement Examinations. Successful participation in such challenging opportunities assures superior academic preparation and serves to identify those students more likely to profit from University-level honors courses.

### REGISTRATION

#### PROCEDURE

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration procedures, dates, and deadlines which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to, calling at, or telephoning the Registrar's Office at the time specified in the Calendar, but in no case later than the stated deadline (see pages 4-12).

#### ADVISING

After notification of admission, and before registration, new students should visit or write to the College for help in planning their course programs. Academic and other counseling of fisheries students is given by faculty advisers in the College.

**REGISTERED CREDITS ALLOWED EACH QUARTER**

Except with the consent of his dean, no student may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent) or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no case may a student be registered for, or receive credit for more than 20 credits (or the equivalent) of work, exclusive of physical education activity courses, and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove entrance deficiencies, or concurrently in evening classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

**CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the Dean of the College. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean and the instructor whose class the student wishes to enter.

**WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

**WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the Dean of the College the Request for Withdrawal From the University form. The same system of grading applies as that described under Withdrawal from a Course.

**QUALIFICATIONS FOR GRADUATION****MINIMUM SUBJECT REQUIREMENTS**

The University credit requirement for graduation is 180 academic credits (including Health Education 110 or 175) and the required quarters of military training and physical education activity. The College of Fisheries requires that 9 credits or the equivalent in English 101, 102, and 103 (English Composition) be included in the total. At least 60 of the 180 credits must be in upper-division courses, those numbered 300 and above. Advanced ROTC courses do not count as upper-division credit, and no more than 18 credits in advanced ROTC courses may be counted toward graduation.

Students who transfer from other institutions are normally required to earn at least 10 credits in their major subject in this College.

### SCHOLARSHIP

Grade points per credit are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; D, 1 point. The grade of E or EW signifies failure and the grade point is 0. The quarterly and cumulative grade-point averages are computed by multiplying the grade point received in a course by the total number of credits the course carries, totaling these values, and dividing by the total number of credits the student attempted. Courses for which any of the following symbols are recorded are not considered in determining the grade-point average: I, N, S, W, PW, X. Grade-point averages are calculated on the basis of all grades received in courses which carry academic credit, including courses repeated. Grades received in repeated courses do not cancel or replace any other grades. Only University of Washington residence credits will be used in these computations.

Any undergraduate student who has completed three or more quarters in the University and whose cumulative grade-point average is below 2.00 shall be placed on academic probation. Any undergraduate student who has completed not more than two quarters at the University shall be placed on probation when his cumulative grade-point average is below 1.80. The dean of the school or college in which the student is enrolled shall notify the student as soon as possible that he is on probation. Such action will be noted permanently on the student's official academic record.

Academic probation is essentially a warning to the student that he must show improvement if he is to remain in the University. University regulations regarding scholastic eligibility for participation in intercollegiate athletics and other student activities shall be recommended to the Senate by the Faculty Committee on Intercollegiate Athletics and the Faculty Committee on Student Welfare respectively.

An undergraduate student on academic probation will be removed from probation at the end of any quarter in which his cumulative grade-point average reaches 2.00 or better.

Any undergraduate student on academic probation will be dropped: (1) if he fails to attain at least a 2.00 for the following quarter's work; or (2) if he fails to attain a 2.00 cumulative average at the end of the two subsequent quarters. Any student dropped under this rule will be notified in writing of this action by the dean of the school or college in which he is enrolled.

Only under exceptional circumstances will a student dropped under low scholarship rules be readmitted to the University. Such a student will be readmitted only at the discretion of the dean of the school or college to which he seeks admission. A student readmitted after being dropped under these rules will enter on academic probation. Such a student will be dropped: (1) if he fails to attain a 2.00 for the following quarter's work; or (2) if he fails to attain a 2.00 cumulative average at the end of two quarters. He will be removed from probation at the end of the quarter in which his cumulative grade-point average reaches 2.00 or better.

A senior who has completed the required number of credits for graduation but whose work in what would normally be his final quarter places him on probation will not receive a degree until he has been removed from probation. A senior who has completed the required number of credits for graduation but whose work in his last quarter results in his being dropped for low scholarship shall not receive a degree until he has been readmitted and removed from probation.

### SENIOR-YEAR RESIDENCE

Senior standing is attained when 135 credits, plus the required quarters of ROTC and physical education, have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in three quarters of residence.

The remaining 10 credits may be earned either in residence or in this University's evening classes or correspondence courses.

### MILITARY TRAINING

The Departments of Air Science, Military Science, and Naval Science conduct the ROTC programs under agreements between the University and the United States Air Force, Army, and Navy. At the University, these programs are coordinated by the Dean of the College of Engineering.

The University requires male students who enter the University as freshmen or sophomores to complete six quarters of military training. (For exemptions, see below). The two-year basic programs offered by the Departments of Air Science and Military Science and the four-year program offered by the Department of Naval Science, satisfy this requirement. For a complete list of courses offered by these Departments, see the *Yearly Time Schedule*. In addition to the basic programs, the Department of Air Science and the Department of Military Science each offers for selected students an advanced program which leads to commissioning in the Air Force or the Army. The four-year program of the Department of Naval Science, also for selected students, leads to commissioning in the Navy or Marine Corps.

Students enrolling in Naval ROTC, and those who take the advanced program of Air Force or Army ROTC must agree in writing to complete the course of training and accept a commission in the service for which they are trained. *The honoring of this commitment is a condition of graduation from the University.*

The basic program of the Department of Air Science consists of three quarters of military classroom instruction on the Foundations of Air Power. These are offered in the spring quarter of the first year and the autumn and winter quarters of the second year. During each of the other three quarters, the student must substitute an approved University course in lieu of Air Science. Leadership Laboratory is required each of the six quarters of the basic program and is conducted one hour each week.

The basic program (freshmen and sophomores) of the Department of Military Science requires drill one hour each week. Classroom military studies for freshmen require two hours per week in the first quarter, one hour per week in the second quarter, and none in the third quarter. As a substitute for classroom military studies in the third freshman quarter, registration is required in a selected three-credit or five-credit course in another department. The list of courses from which this substitute course may be selected is printed in the *Yearly Time Schedule*. Classroom military studies for sophomores require two hours per week throughout the academic year.

Information concerning the Naval Science ROTC program can be found in the bulletins of the College of Arts and Sciences, the College of Business Administration, and the College of Engineering.

Exemptions from the military requirement are granted to:

1. Students who are twenty-three or over at the time of original entry into the University.
2. Students who enter as juniors or seniors.
3. Special students.
4. Students registered for 6 credits or less.
5. Students who are not citizens of the United States.
6. Students who, because of physical condition, are exempted by the University Health Officer.
7. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.

8. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.

9. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.

10. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.

11. Students who seek exemptions on grounds other than specified above, and whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the Dean of the College after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 5 or 11 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

### PHYSICAL AND HEALTH EDUCATION

**ACTIVITY COURSES.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

*Men* students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

*Women* students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

The following students are exempt from the requirement of activity courses:

1. Students who have attained the age of twenty-five. A student who attains the age of twenty-five during a quarter in which he is registered for a required physical education activity course shall be held for the completion of that course. This rule shall not be retroactive in its application to students who entered prior to Spring Quarter, 1951, and were exempted from required physical education courses under previous rules.

2. Students who enter as sophomores, juniors, or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who because of physical condition are exempted by the Graduation Committee upon the recommendation of the Dean of the College. Such action will be taken only when the Dean has received a joint recommendation for exemption from the University Health Officer and the Executive Officer of the Department of Physical Education for Men or for Women, whichever is appropriate. All other students who are reported by the University Health Officer as physically unfit to join regular classes will be assigned by the Executive Officer of the Department of Physical Education for Men or for Women to special programs adapted to their needs.

6. Students who are veterans of military service. Complete exemption is granted for one year or more of active duty. This exemption does not grant credit. Veterans with less than one year of service receive no exemption.

7. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**Health Courses.** All men students who enter the University as freshmen are

required to take Health Education 175, a course in personal health, within the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption does not grant credit.

Women students who enter the University as freshmen are required to take Health Education 110 within the first three quarters of residence. Women entering the University for the first time may satisfy this requirement by passing a health-knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 110.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Bulletin*.

### Tuition

Resident students, per quarter \$35.00

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter 105.00

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter 12.00

### Veterans of World Wars I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges; or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits; or (3) are United States citizens who served in the armed forces of governments associated with the United States during World Wars I or II and received honorable discharges. Nonresident students who meet one of these requirements pay one-half of the nonresident tuition. This exemption is not granted to Summer Quarter students.

Proof of eligibility should be met as follows:

- (1) World War I veterans should present copy of discharge papers to Comptroller's Office, 203 Administration Building.
- (2) World War II veterans with Korean service or who have suffered disability should present a letter from the Veterans Administration Regional Office to the Veterans Division, Safety Division Building, stating they are no longer eligible for any federal educational benefits. (Excepted are those veterans who have had both World War II benefits and Korean benefits and have expired those benefits at the University of Washington.)
- (3) World War II veterans who have not suffered any disability or served in the Korean Conflict should present an 8½-inch x 11-inch photostat of discharge papers to the Veterans Division, Safety Division Building.

*Exemption must be cleared prior to student's appointment day for registration in order to prevent personal payment.*

### Incidental Fee, per quarter

Full-time resident students 27.50

Part-time resident students (registered for 6 credits or less,  
exclusive of ROTC) 10.00

Full-time nonresident students 52.50

Part-time nonresident students (registered for 6 credits or less,  
exclusive of ROTC) 35.00

Auditors do not pay an incidental fee; there are no other exemptions.

**ASUW Fees**

Membership, per quarter	8.50
Optional for auditors and part-time students.	
Athletic admission ticket (optional for ASUW members)	3.50-6.50
Autumn, Winter, and Spring Quarters, \$6.50; Winter and Spring Quarters, \$3.50;	
Spring Quarter, \$3.50.	
<b>Military Uniform Deposit</b>	25.00
Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.	
<b>Breakage Ticket Deposit</b>	3.00
Required in some laboratory courses; ticket is returnable for full or partial refund.	
<b>Locker Fee, per quarter</b>	1.50
Required of men students taking physical education activities.	
<b>Grade Sheet Fee</b>	.50
One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.	
<b>Transcript Fee</b>	1.00
One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.	
<b>Graduation Fee</b>	10.00

**SPECIAL FEES**

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Appointments or Permits to register by In-Person Registration by action of the Registration Appeal Board. A late registration fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters by action of the Registration Appeal Board. A fee of \$5.00 is charged for a late medical examination; and \$1.00 for a late X ray. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. The fee for a special examination is \$1.00 and for removal of an incomplete, \$2.00. A fee of \$5.00 is charged each student entering with less than 45 credits who has not previously taken the Washington Pre-College Differential Guidance (Grade Prediction) Test.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter are: bowling, \$5.00; canoeing, \$2.50; golf instruction, \$1.50 per quarter.

**REFUND OF FEES**

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

**ESTIMATE OF YEARLY EXPENSES**

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

**Tuition, Incidental, and ASUW Membership Fees**

Full-time resident student	\$213.00
Full-time nonresident student	498.00
Athletic Admission Ticket (optional)	6.50

<i>Health and Accident Insurance</i> (optional)	16.50
<i>Special Fees and Deposits</i>	38.50
Military uniform deposit, breakage ticket, and locker fees.	
<i>Books and Supplies</i>	90.00
<i>Board and Room</i>	
Room and meals in Men's Residence Halls	675.00
Room and meals in Women's Residence Halls	615.00-720.00
Room and meals in fraternity or sorority house	670.00-760.00
(Including dues and social fees.)	
Initial cost of joining not included; this information may be obtained from the Interfraternity or Panhellenic Councils.	
<i>Personal Expenses</i>	300.00

## STUDENT ACTIVITIES AND SERVICES

### ASSOCIATED STUDENTS

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

### FISHERIES CLUB

The students of the College of Fisheries formed the Fisheries Club in 1922. Since its beginning, the Club has been the center of extracurricular social and educational activities for the College students.

Meetings are held monthly usually with prominent speakers from the various fields of the fishing industry. Frequently motion pictures are shown which deal with fisheries all over the world. In the past years the students have organized the Open House of the College of Fisheries. In addition the Club has its annual salmon bake and other social gatherings.

The Club has aided in procuring summer employment for many Fisheries students.

### SCHOLARSHIPS AND LOANS

The University offers a number of awards for outstanding academic achievement. Some are given by the University, and many others are available through the generosity of friends and alumni. A handbook listing the current awards may be obtained from the Office of the Dean of Students.

Several scholarships and awards are available for students in the College of Fisheries. These are:

**WALT SIMONSEN MEMORIAL SCHOLARSHIP**, \$150. Awarded by the Washington State Sportsmen's Council to an outstanding senior student in fisheries, forestry, or game management.

**THE NORTHERN COMMERCIAL COMPANY SCHOLARSHIP**, \$500. Awarded to a senior or graduate student in fisheries technology.

**ASSOCIATION OF PACIFIC FISHERIES SCHOLARSHIP**, \$250. Awarded to an entering freshman in fisheries.

**WILLIAM FRANCIS THOMPSON SCHOLARSHIP**, \$250. Awarded to an undergraduate or graduate student in Fisheries.

**CROWN ZELLERBACH FOUNDATION SCHOLARSHIP**, \$500. Awarded to an undergraduate or graduate student in Fisheries.

**PACIFIC FISHERIES BIOLOGIST SCHOLARSHIP**, \$100 (every third year). Awarded to an undergraduate or graduate student in Fisheries.



University Comptroller loans, National Defense Education Act loans, and emergency loans are administered by the Office of the Dean of Students.

The University of Washington awards 100 tuition scholarships each academic year to worthy students from other countries. There are no scholarships available for the Summer Quarter. These awards are made on the basis of the academic record of the student, recommendations from his professors, his need for such assistance, and the availability of such openings in his department at the University. These scholarships cover tuition only and are administered by the Foreign Exchange Scholarship Committee, Foreign Students Office, University of Washington, Seattle 5, Washington, U.S.A. Application for these scholarships must be made by March 1 for the following year.

#### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. The Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and similar problems. The Dean of Students Office also has current information on Selective Service Regulations.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, and employment should be referred to this Adviser. Students who are interested in study abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

#### COUNSELING CENTER

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors and psychologists, works closely with other student services and supplements the academic advisory program.

#### HOUSING

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time sub-faculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have

children. Prospective students are eligible to apply when they have been accepted for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

#### HEALTH SERVICES

The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week, a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

Health and Accident Insurance for students is available at the time of registration.

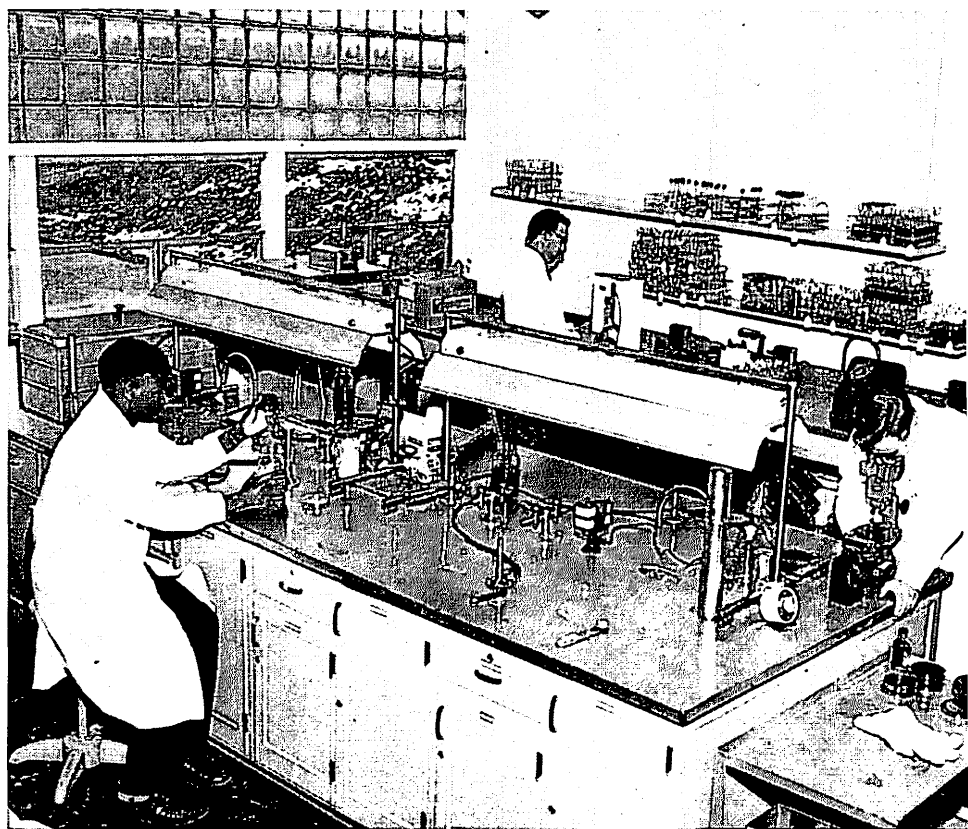
#### EMPLOYMENT

Part- and full-time work off campus may be obtained through the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Because job listings change rapidly, application must be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Department and the ASUW Personnel Office.

The College of Fisheries assists students in fisheries to obtain summer employment while in the University and also to obtain permanent employment when they graduate. Some Research Assistantships furnishing part-time employment for students are available in the College. Both summer and part-time employment during the scholastic year are frequently available with the research organizations which are associated with the College of Fisheries on or near the campus and elsewhere in the Northwest. The Fisheries Research Institute normally hires students for summer work in the field and usually has several part-time positions available during the school year. Similar work is available in the Washington State Department of Game, Washington State Department of Fisheries, the U.S. Fish and Wildlife Service, the International Pacific Halibut Commission, Laboratory of Radiation Biology, Oregon Fish Commission, the International Pacific Salmon Fisheries Commission, and the Alaska Department of Fisheries. These jobs may be located within the state of Washington but frequently take the students to Alaska or elsewhere in the United States. These agencies normally interview students at the College of Fisheries during the Winter Quarter for the purpose of choosing both permanent employees and employees for temporary summer work. Fisheries students are encouraged to seek summer work in the field to gain valuable experience in both fisheries biology and fisheries or food technology.

Graduate students in the College of Fisheries are in a very favorable position to pursue an active research program leading to advanced degrees. Members of the instructional staff of the College are engaged in research programs that keep them abreast of the rapidly developing special fields of fisheries and food research. The fine physical facilities of the College provide many special laboratories where research may be conducted on thesis problems.

In addition to the opportunities for graduate work at the College of Fisheries, the federal government, International Fisheries Commissions, and State Fisheries Departments have research staffs working in laboratories on or near the campus. Many of the senior research members of the cooperating fisheries research laboratories and in industry are lecturers in the College. Graduate students, besides finding financial support in such laboratories, may, under special arrangements, carry out research which upon approval may be used to satisfy the thesis requirements for the advanced degree.



## THE COLLEGE PROGRAMS

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# THE COLLEGE PROGRAMS

**T**HE COLLEGE OF FISHERIES offers courses leading to the degrees of Bachelor of Science, Bachelor of Science in Fisheries, Bachelor of Science with a major in Food Science, Master of Science, and Doctor of Philosophy.

The College programs are designed to provide both the scientific training and the professional skills necessary for graduates to satisfy the various needs of their chosen fields. Four areas of undergraduate study are offered by the College: marine fisheries biology, freshwater fisheries biology, invertebrate fisheries, and food science. Further specialization within these areas may be undertaken in graduate studies as preparation for careers in teaching and research.

## BACHELOR'S DEGREES

Students working toward bachelor's degrees must qualify for admission to the University and the College. Course requirements for each degree are described below. General requirements for all degrees include military training, physical education, scholarship and minimum credits, and senior-year residence.

Students should apply for bachelor's degrees during the first quarter of the senior year. If not more than ten years have elapsed since the date of a student's entry into the school or college in which he is to graduate, he may choose to graduate under the requirements set out in either the bulletin published by the appropriate school or college most recently prior to the date of his entry, or that published most recently prior to his anticipated date of graduation; provided, that when, in the opinion of the faculty of the school or college or a departmental executive officer or a dean acting for such faculty, substantial changes have been made in the curriculum since the student's entry, the student's choice shall be subject to the approval of the appropriate faculty, executive officer, or dean. Disapproval of the student's choice shall be faculty action and subject to the procedures of the Faculty Code. All responsibility for fulfilling graduation requirements shall rest with the student concerned. No student whose standing is in any way provisional can have an application for degree accepted.

A prescribed curriculum and an elective curriculum are offered in each of the fisheries options. For bachelor's degrees the following courses are required and will normally be taken during the first two years: Chemistry 100 or 110, 150, 160 (General), 170 (Qualitative Analysis), 221 (Quantitative Analysis); English 101, 102, 103 (Composition); Mathematics 104 (Plane Trigonometry), 105 (College Algebra); Health Education 110 or 175; Humanities or Social Sciences to equal 10 quarter credits.

## FISHERIES

### BACHELOR OF SCIENCE IN FISHERIES

For the prescribed curriculum, in addition to the courses required in all options, a student in marine fisheries biology, in freshwater fisheries biology or in invertebrate fisheries must take all the courses specifically required in his chosen option and must earn a minimum of 30 credits from the courses recommended for his option. At least 20 of these credits must be in subjects other than fisheries.

### BACHELOR OF SCIENCE WITH A MAJOR IN FISHERIES

In the elective curriculum students desiring a Bachelor of Science with a major in Fisheries must complete all required courses and sufficient electives to meet University graduation requirements. The choice of electives is subject to approval by the College.

#### OPTION A. MARINE FISHERIES BIOLOGY.

##### *Required Courses:*

Fisheries 101, 301, 303, 402, 405 or 406, 425, 426, 427, 495 (6 credits); Mathematics 153 (Analytic Geometry and Calculus), 281 (Elements of Statistical Method); Oceanography 203 (Introduction to Oceanography) or 390 (General Oceanography); Zoology 111, 112 (General), 453-454 (Comparative Anatomy of Chordates) or Zoology 456 (Vertebrate Embryology).

##### *Recommended Courses:*

Biology 451 (Genetics), 473 (Limnology); Botany 112 (Elementary Botany); Chemistry 231, 232 (Organic Chemistry), 241, 242 (Organic Chemistry Laboratory); Fisheries 302, 405 or 406, 454, 480, 481; Foreign Language—10 credits; Mathematics 251, 252, 253 (Analytic Geometry and Calculus), 382, 383 (Statistical Inference in Applied Research); Oceanography 431 (Biological Oceanography of the Plankton), 433 (Plankton Ecology); Physics 101, 102, 103 (General Physics), 107, 108, 109 (General Physics Laboratory); Zoology 330 (Natural History of Marine Invertebrates), 381 (Microtechnique), 400 (General Physiology), 433, 434 (Invertebrate Zoology), 458 (Vertebrate Physiology).

#### OPTION B. FRESHWATER FISHERIES BIOLOGY.

##### *Required Courses:*

Biology 473 (Limnology); Fisheries 101, 301, 302, 303, 402, 451, 452, 453, 460 or 461, 495 (6 credits); Mathematics 281 (Elements of Statistical Method); Zoology 111, 112 (General), 453-454 (Comparative Anatomy of Chordates) or Zoology 456 (Vertebrate Embryology).

##### *Recommended Courses:*

Biochemistry 361 (Biochemistry) and 363 (Biochemistry Laboratory), or 481 (Biochemistry) and 484 (Biochemistry Laboratory); Biology 451 (Genetics), 472 (Principles of Ecology); Botany 112 (Elementary Botany); Chemistry 231, 232 (Organic Chemistry), 241, 242 (Organic Chemistry Laboratory); Fisheries 405, 406, 454; Foreign Language to equal 10 credits; Forestry 350 (Wildlife Management); Geology 101 (Survey of Geology) or 205 (Rocks and Minerals); Mathematics 153 (Analytic Geometry and Calculus), 382, 383 (Statistical Inference in Applied Research); Physics 101, 102, 103 (General Physics), 107, 108, 109 (General Physics Laboratory); Zoology 381 (Microtechnique), 400 (General Physiology), 433, 434 (Invertebrate Zoology), 458 (Vertebrate Physiology).

#### OPTION C. INVERTEBRATE FISHERIES.

##### *Required Courses:*

Biology 472 (Principles of Ecology); Fisheries 101, 301, 302, 303, 405, 406, 427, 454, 480, 495 (6 credits); Mathematics 153 (Analytic Geometry and Calculus),

281 (Elements of Statistical Method); Oceanography 203 (Introduction to Oceanography) or 390 (General Oceanography), 403 (Biological Oceanography), 431 (Biological Oceanography of the Plankton); Zoology 111, 112 (General), 330 (Natural History of Marine Invertebrates), 433, 434 (Invertebrate Zoology).

### *Recommended Courses:*

Biology 451 (Genetics), 473 (Limnology); Botany 112 (Elementary Botany); Chemistry 231, 232 (Organic Chemistry), 241, 242 (Organic Chemistry Laboratory); Foreign Language—10 credits; Mathematics 251, 252, 253 (Analytic Geometry and Calculus), 382, 383 (Statistical Inference in Applied Research); Oceanography 433 (Plankton Ecology); Physics 101, 102, 103 (General Physics), 107, 108, 109 (General Physics Laboratory); Zoology 381 (Microtechnique), 400 (General Physiology), 456 (Vertebrate Embryology).

## FOOD SCIENCE

### BACHELOR OF SCIENCE WITH A MAJOR IN FOOD SCIENCE

The food science program provides a curriculum leading to a Bachelor of Science degree with a major in Food Science. It is recommended that the entering student will have completed mathematics to include advanced algebra and trigonometry, and laboratory science to include chemistry and physics.

The student should follow the program listed below including at least 10 credits in humanities or social sciences and sufficient approved electives to meet University graduation requirements.

#### First Year

AUTUMN		WINTER		SPRING	
Chem. 110	3	Chem. 150	4	Chem. 160	3
Engl. 101	3	Engl. 102	3	Chem. 170	3
Math. 105	5	Math. 153	5	Engl. 103	3
Phys. Educ. Activity	1	Health Ed. 110 or 175	2	Math. 281	5
Electives	4	Phys. Educ. Activity	1	Phys. Educ. Activity	1
ROTC	2-3	ROTC	2-3	ROTC	2-3
	16-19		15-18		15-18

#### Second Year

Chem. 231	3	Chem. 232	3	Chem. 221	5
Chem. 241	2	Chem. 242	2	Physics 103	4
Physics 101	4	Physics 102	4	Physics 109	1
Physics 107	1	Physics 108	1	ROTC	2-3
Zool. 111 or Botany 111	5	ROTC	2-3	Electives	5
ROTC	2-3	Electives	5		15-18
	15-18		15-18		

#### Third Year

Biochem. 481	3	Biochem. 482	3	Food Sci. 481	5
Chem. 355	4	Biochem. 484	3	Biochem. 483	3
Micro. 300	6	Mech. Engr. 200	3	Electives	7
Home Ec. 300	2	Electives	6		15
	15		15		

#### Fourth Year

Food Sci. 482	3	Food Sci. 483	3	Food Sci. 486	5
Food Sci. 484	5	Food Sci. 485	5	Food Sci. 487	3
Fish. 495	2	Fish. 495	2	Fish. 495	2
Fish. 498	2	Fish. 498	2	Fish. 498	2
Electives	3	Electives	3	Electives	3
	15		15		15

### *Recommended Courses:*

Fisheries 301, 303, 402, 406, 480, and 498; Chemistry 356, 357 (Physical Chemistry), 358 (Physical Chemistry Laboratory), and 426 (Instrumental Analysis); Botany 461 (Yeast and Molds); General Engineering 111 (Engineering Problems); Accounting 150 (Fundamentals of Accounting); Production 301 (Principles of Production); Marketing 301 (Principles of Marketing); Microbiology 430 (Industrial Microbiology).

## ADVANCED DEGREES

Students who intend to work toward a Master of Science or Doctor of Philosophy degree must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. Graduate students must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded. For graduate study, the approval of both the College of Fisheries and the Graduate School is necessary.

Graduate students majoring in each option of the College of Fisheries are required to take a minor or a minimum number of supporting courses in other selected departments of the University. The nature and number of such courses are determined by the student's supervisory committee. All graduate students must complete 6 credits (three quarters) in Fisheries 520.

**MASTER OF SCIENCE.** Candidates must have the degree of Bachelor of Science in Fisheries or its equivalent. At least one year of approved study, with the completion of a research project, leads to the master's degree.

A total of not less than 36 credits in course work and thesis must be presented.

The candidate must present a certificate of proficiency in one foreign language.

**DOCTOR OF PHILOSOPHY.** Candidates must complete at least two years of graduate study in addition to the work done for the master's degree, as well as a research problem that yields comprehensive results and is a definite contribution to knowledge. The credits earned for the master's degree may be applied toward the doctor's degree.

The candidate must present a proficiency in two foreign languages (one in addition to the Master of Science requirement).

## COURSE-NUMBERING SYSTEM

Courses numbered from 100 through 299 are lower-division courses, for freshmen and sophomores; those numbered from 300 through 499 are upper-division, for juniors and seniors.

Courses numbered 500 and above are intended for and restricted to graduate students. Some courses numbered in the 300's and 400's are open both to graduates and to upper-division undergraduates. Such courses, when acceptable to the major department and the Graduate School, may be part of the graduate program. The Graduate School accepts credit in approved 300-level courses for the minor or supporting fields only; approved 400-level courses are accepted as part of the major. For a listing of approved 300- and 400-numbered courses, consult the *Graduate School Bulletin*.

Undergraduate students of senior standing who wish to register for a 500-level course must obtain permission from both the instructor of the class and the Dean of the Graduate School.

The number in parentheses following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed.

Courses to which the letter J is appended are joint courses in two or more departments and as such grant credit in one of the departments.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## COURSES FOR UNDERGRADUATES IN FISHERIES

### 101 Development of Fisheries Science (5)

Identification, distribution, and life histories of selected fish and shellfish; commercial and recreational fishing; utilization of fisheries products; problems faced in fisheries conservation and management. Recommended for nonmajors.

Staff

- 109 Fundamental Principles of Fisheries Science (2)** **M. C. Boll**  
Basic techniques of field observation and methods of solution of typical problems in fisheries.
- 301 Anatomy of Fishes (5)** **Welander**  
Survey of morphology and bodily functions of fishes. Prerequisite, Zoology 112.
- 302 Microbiology of Fisheries (5)** **Liston**  
Bacteria, yeasts, mold, and protozoans associated with fish; their characteristics and importance in the fisheries. Prerequisite, Zoology 111.
- 303 Introduction to Invertebrate Fisheries (5)** **Sparks**  
Taxonomy, morphology, and phylogeny of the invertebrate groups of importance to fisheries. Prerequisite, permission.
- 402 Economically Important Fishes (5)** **Welander**  
Survey of the system of fish classification; distribution of fishes. Prerequisite, 301.
- 405 Economically Important Mollusca (5)** **Sparks**  
Classification, life histories, distribution, methods of cultivation, and economic importance of oysters, clams, scallops, abalones, cephalopods, and other mollusca. Prerequisite, Zoology 112.
- 406 Economically Important Crustacea (5)** **Sparks**  
Classifications, life histories, distribution, methods of capture, and economic importance of crabs, shrimps, lobsters, crayfish, and the smaller crustacea, which are fished commercially or are important as food for fishes and other vertebrates. Prerequisite, Zoology 112.
- 425 Migrations and Races of Fishes (5)** **De Lacy**  
Marking and other methods of determining migrations of fishes and homogeneity of fish populations; implications of these factors in the management of both freshwater and marine fisheries. Prerequisite, 402.
- 426 Early Life History of Marine Fishes (5)** **De Lacy**  
Reproduction and larval and post-larval life of economically important marine fishes; dispersion and survival rates; implications of these factors in the management of food fisheries; research methods in this field. Prerequisite, 402.
- 427 Ecology of Marine Fishes (5)** **De Lacy**  
Effect of variations in hydrographic conditions, availability of food, geographic location, and other environmental conditions on distribution of fishes; their variation in abundance and availability to the fisheries; research techniques in this field. Prerequisite, 402.
- 451 Propagation of Salmonoid Fishes (5)** **Donaldson**  
Natural propagation; methods of hatching and rearing; collection and incubation of salmon eggs; design, structure, and maintenance of hatcheries, pond systems, and aquaria. Prerequisites, 402 and 10 credits in chemistry.
- 452 Nutrition of Fishes (5)** **Donaldson**  
Feeding and efficiency of diets; food costs and supplies; basic nutritional requirements of fish; nutritional diseases of fish. Prerequisites, 402 and 10 credits in chemistry.
- 453 Freshwater Fisheries Management: Biological (5)** **Donaldson**  
Creel census methods; stocking policies, lake poisoning, pond fish propagation; determination of the productive capacities of streams, lakes, and ponds and their suitability for particular kinds of fishes. Prerequisites, 402 and 10 credits in chemistry.
- 454 Communicable Diseases of Fishes (5)** **Sparks**  
Organisms causing diseases in fishes; prevention and known treatments of fish diseases. Prerequisites, 402 and Microbiology 301.
- 450 Water Management and Fish Resources (5)** **M. C. Boll**  
Stream flows and mechanics of freshwater environment, and other problems such as natural propagation; water flow measurement in streams and pipes; use of weirs; hatchery water requirements; screening of water diversions for protection of downstream migrants; nomenclature, water rights, and protective laws. (Offered Spring Quarter only.) Prerequisites, 402, Mathematics 105, and physics, or permission.
- 461 Water Management and Fish Resources (5)** **M. C. Boll**  
Design of fish protective facilities and actual use of hydraulic turbines and spillways at dams; calibration of nets, etc. (Offered Autumn Quarter only.) Prerequisite, 460 or permission.
- 465 Problems in Fisheries Biology (6)** **Staff**  
Taxonomy, ecology, and life history of the fishes of the San Juan Islands and Northeast Pacific. (Offered at Friday Harbor Summer Quarter only.) Prerequisite, permission.
- 480 Introduction to Commercial Fishing Industry (4)** **F. H. Boll**  
Lectures, demonstrations, and trips conducted by qualified persons from the industry. Commercial fishing operations, marketing, processing, reduction, organization, and labor relations are discussed and observed. Prerequisite, 15 credits in chemistry.
- 495 Introduction to Fisheries and Food Science Literature (2, maximum 6)** **Staff**  
Directed training in searching bibliographic sources. Prerequisite, 15 credits in fisheries.
- 498 Undergraduate Thesis (2, maximum 6)** **Staff**  
Prerequisite, permission.
- 499 Undergraduate Research (1-3, maximum 9)** **Staff**  
Individual research within the College of Fisheries or on-the-job training in governmental or industrial fisheries organizations. Prerequisite, permission.

## COURSES FOR UNDERGRADUATES IN FOOD SCIENCE

- 481 Introduction to Food Technology (5)** **Liston**  
Chemical and biological properties of foods; principles of processing, storage, distribution, and spoilage. Prerequisite, permission.



- 482 Food Analysis 1 (3)** **Dollar**  
Proximate analysis of foods by physical and chemical methods. Prerequisites, Biochemistry 483 or permission.
- 483 Food Analysis 2 (3)** **Dollar**  
Analysis of foods for vitamins, fatty acids, other biological substances and additives by physical, chemical, and microbiological methods. Prerequisite, 482.
- 484 Principles of Food Processing 1 (5)** **Dollar, Liston**  
Unprocessed foods, their composition, nutritional availability, associated microorganisms, storage, and distribution. Prerequisite, 481 or permission.
- 485 Principles of Food Processing 2 (5)** **Dollar, Liston**  
Principles of food preservation by thermal processes, low temperature methods, chemical methods, irradiation, and other modern processes. Prerequisites, 482, 486 or permission.
- 486 Deteriorative Processes in Foods (5)** **Dollar, Liston**  
Biochemical, microbiological, physical, and chemical changes occurring in foods. Prerequisites, 483, 485 or permission.
- 487 Food Analysis 3 (3)** **Dollar, Liston**  
Quality assessment of foods including spoilage methods, rancidity methods, organoleptic and microbiological methods. Prerequisite, 483.

## COURSES FOR GRADUATES ONLY

- 501 On-the-Job Training (1-3, maximum 9)** **Staff**  
Guided on-the-job training in governmental or industrial fisheries organizations. Prerequisite, permission.
- 503 Systematic Ichthyology (5)** **Welander**  
Principles and procedures of ichthyological taxonomy demonstrated by current problems and research. Prerequisites, 402 and permission.
- 504 Principles of Technological Research in Fisheries (3)** **Dollar, Liston**  
A lecture and laboratory course designed to familiarize graduate students in fisheries with the methods used in technological research. Prerequisite, permission.
- 505 Research Techniques in Shellfish Biology (5)** **Sparks**  
A field and laboratory course dealing with research methods in the reproduction, growth, and mortality of oysters and clams.
- 510 Fish Behavior (3)** **Fields**  
Behavior related to sensory-motor equipment. Design of experiments emphasized for studies ranging from naturalistic observation to controlled laboratory and field experiments. Prerequisite, permission.
- 520 Graduate Seminar (2, maximum 6)** **Staff**  
Training in methods of searching fisheries literature.
- 556 Age and Growth of Fishes (5)** **Van Cleve**  
Principles of growth; methods of determining age and rates of growth in fresh-water and marine fishes. Prerequisite, 402, and Mathematics 383, or permission.
- 557 Population Enumeration (5)** **Van Cleve**  
Methods of enumerating animal populations; availability; dominant age groups; gear selectivity. Prerequisite, 556 or permission.
- 558 Population Dynamics (5)** **Van Cleve**  
Influence of natural and artificial factors on variation in abundance and yield from animal populations. Prerequisite, 557 or permission.
- 604 Research (\*, maximum 3 for M.S., 10 for Ph.D.)** **Staff**
- 700 Thesis (\*)** **Staff**

## OTHER COURSES FOR FISHERIES AND FOOD SCIENCE STUDENTS

### BIOCHEMISTRY

- 361 Biochemistry (3)** **Staff**  
Lectures covering the basic principles of biochemistry, including the structure and metabolism of biologically important compounds. For dental students; recommended for home economics, forestry, and fisheries students. Prerequisite, Chemistry 120 or 232.
- 363 Biochemistry Laboratory (2)** **Staff**  
Laboratory exercises in general biochemistry for home economics students and others. Prerequisite, 361, which may be taken concurrently.
- 481, 482, 483 Biochemistry (3,3,3)** **Staff**  
Structure, metabolism, and function of substances pertinent to animal and plant life. A basic course for graduate or advanced undergraduate students of chemistry, biochemistry, and various biological sciences. Biochemistry 483 is recommended as a concurrent course with 482. Prerequisites, Chemistry 337 for 481; 481 or permission for 482; 482 or permission for 483; introductory physical chemistry is recommended.
- 484 Biochemistry Laboratory (3)** **Staff**  
Laboratory exercises and conferences. For students of biochemistry, chemistry, and various biological sciences. Prerequisite, 481.

### BIOLOGY

- 451 Genetics (3 or 5)** **Roman**  
The principles underlying inheritance in animals and plants. Prerequisite, 10 credits in biological science.

**472 Principles of Ecology (3)****Edmondson**

Population biology, competition, predation, symbiosis, sociality, and relationship of community to environment. Prerequisites, Zoology 112 or Botany 112, or permission, and upper-division standing.

**473 Limnology (5)****Edmondson**

Biological, physical, and chemical features of lakes and other inland waters. Prerequisites Zoology 112 or Botany 112, one year of college chemistry, and upper-division standing.

**BOTANY****111 Elementary Botany (5)****Meeuse, Walker**

Structure, physiology, and reproduction of plants, with emphasis on seed producing groups. Open to those who have had 105 only by permission of instructor.

**112 Elementary Botany (5)****Blaser**

Structure and relationships of the major plant groups. Prerequisites, 111, one year of high school botany, Biology 101J-102J, or Zoology 111 and 112.

**461 Yeasts and Molds (5)****Stuntz**

Classification, recognition, cultivation, and relationship to industries and man. Prerequisite, 15 credits in botany, microbiology, or zoology.

**BUSINESS ADMINISTRATION****General Business****101 Introduction to Business (5)****Staff**

The nature of business problems; various types of ownership; physical factors in location of business; personnel aspects; market problems, devices for long- and short-term financing; managerial controls, such as accounting, statistics, and budgets; and the relation of business to government.

**150 Fundamentals of Accounting (4)**

Basic principles and procedures, including recording of business transactions and preparation of financial statements.

**Marketing****301 Principles of Marketing (5)****Staff**

Analytical survey of institutions, functions, problems, and policies in the distribution of goods from producer to consumer; pricing, costs, and governmental regulations.

**Production****301 Principles of Production (5)****Staff**

Principles and procedures of managing a manufacturing enterprise; organization and administration; product development; plant location, layout, and equipment; planning and control of production, materials, quality, personnel, and wages; methods analysis and time standards; industrial budget control; the background of scientific management.

**CHEMISTRY****100 General Chemistry (4)****Staff**

Open only to students without high school chemistry credit. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.

**110 General Chemistry (3)****Staff**

For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test.

**150 General Chemistry (4)****Staff**

For students planning more than two quarters of chemistry. Stoichiometry, gases, aqueous solutions, kinetics, acid and base equilibria, electrochemistry, oxidation and reduction. Prerequisite, 100 or 110, Mathematics 101 or 103, or passing score on Algebra Qualifying Test.

**160 General Chemistry (3)****Staff**

Periodic System, phase equilibria, metals and nonmetals, metallurgy, and nuclear reactions. Prerequisite, 150.

**170 Qualitative Analysis (3)****Staff**

Semi-microqualitative analysis for common cations and anions; separation and identification procedures. Prerequisites, 160, which may be taken concurrently.

**221 Quantitative Analysis (5)****Staff**

Volumetric and gravimetric. No credit if 325 has been taken. Prerequisite, 170.

**231 Organic Chemistry (3)****Staff**

For students planning only two quarters of organic chemistry. Structure, nomenclature, reactions and synthesis of the main types of organic compounds. Prerequisite, 150.

**232 Organic Chemistry (3)****Staff**

Continuation of 231. Prerequisite, 231.

**241 Organic Chemistry Laboratory (2)****Staff**

Usually to accompany 231. Preparation of representative compounds. Prerequisite, 231, which may be taken concurrently.

**242 Organic Chemistry Laboratory (2)****Staff**

Usually to accompany 232. Preparations and qualitative organic analysis. Prerequisites, 231, 232 (which may be taken concurrently), and 241.

**335 Organic Chemistry (3)****Staff**

For chemistry and chemical engineering majors and other qualified students planning three or more quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis

**PHYSICAL AND HEALTH EDUCATION****Health Education**

- 110 Health Education (Women) (2)** **Gunn, Horne, Waters**  
Health problems of freshman women. Required of all freshman women; exemption without credit by examination.
- 175 Personal Health (Men) (2)** **Mills, Reeves, Staff**  
Health information that affords a basis for intelligent guidance in the formation of health habits and attitudes. Required of all freshman men; exemption without credit by examination.

**PHYSICS**

- 101, 102, 103 General Physics (4,4,4)** **Kenworthy**  
101: mechanics and sound. Concurrent registration in 107 recommended and may be required by individual departments. Prerequisites, plane geometry, trigonometry, and one year of high school physics. 102: electricity and magnetism. No credit in 102 if 112 has been taken. Prerequisite, 101; concurrent registration in 108 recommended and may be required by individual departments. 103: heat, light and modern physics. No credit in 103 if 113 has been taken. Prerequisites, 101, 102; concurrent registration in 109 recommended and may be required by individual departments.
- 107, 108, 109 General Physics Laboratory (1,1,1)** **Sanderman**  
107: mechanics and sound laboratory. Concurrent registration in 101 recommended. 108: electricity and magnetism laboratory. Concurrent registration in 102 recommended. 109: heat and light laboratory. Concurrent registration in 103 recommended.

**ROMANCE LANGUAGES AND LITERATURE****French**

- 101-102, 103 Elementary (5,5,5)** **Staff**  
No credit will be granted for 101- until -102 (or a more advanced course as approved by the Department) has been completed satisfactorily. Oral practice in the language laboratory is required of all students in these courses. Prerequisites, for -102, 101- or second high school semester with grade of C or D; for 103, -102 or second high school semester with grade of A or B, or third high school semester or equivalent.

**Spanish**

- 110-111, 112 First-Year Reading Spanish (5-5,5)** **Staff**  
A beginning course for nonmajors, in which the acquisition of a reading knowledge is stressed. Prerequisite for 112, -111 or grade of A or B in second high school semester, or any passing grade in third high school semester, or equivalent.
- 121- Basic Grammar Review (5-)** **Staff**  
Refresher course; should be taken instead of 103 by students who received a grade of D in -102, or C or D in the second high school semester. No student may receive credit for both 103 and 121-; nor will credit be granted for 121- until 201 or equivalent has been completed.

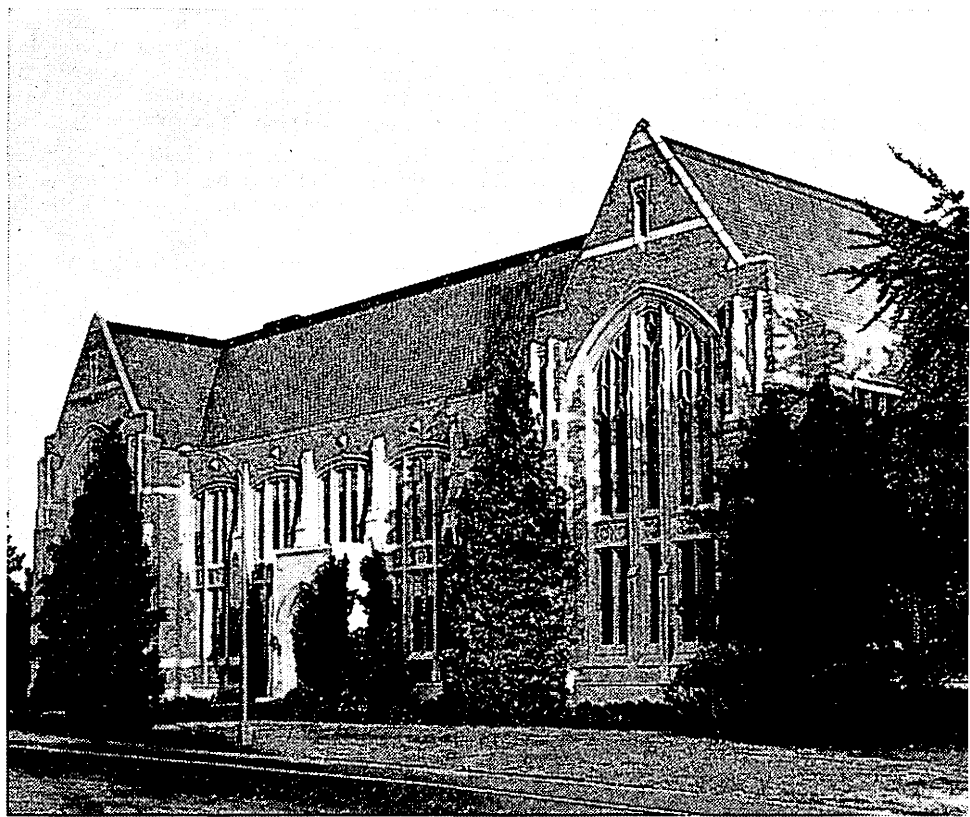
**SCANDINAVIAN LANGUAGES AND LITERATURE****Norwegian**

- 101-102, 103 Elementary Norwegian (3-3,3)** **Arestad**  
Fundamentals of oral and written Norwegian.
- 104-105, 106 Norwegian Reading (2-2,2)** **Staff**  
Should accompany 101-102, 103.

**ZOOLOGY**

- 111, 112 General Zoology (5,5)** **Staff**  
Physical basis of life, structure, function, development, inheritance, evolution, and ecology of animals. 111: invertebrate phyla through molluscs. 112: annelids through chordates; 111 prerequisite for 112.
- 330 Natural History of Marine Invertebrates (5)** **Illg, Ray**  
A field and laboratory course emphasizing the habits, habitats, identification, and inter-relationships of marine animals. Prerequisites, 112 or 10 credits in biological sciences, and permission.
- 381 Microtechnique (4)** **Hsu**  
Critical evaluation of each step in microslide preparation. Prerequisites, 112 and permission.
- 400 General Physiology (5)** **Floroy**  
Cell environment, metabolism and growth, irritability, general phenomena of organ function. Prerequisites, Chemistry 232, Physics 103 and 109 (or high school physics) and 10 credits in biological sciences.
- 433, 434 Invertebrate Zoology (5,5)** **Illg, Ray**  
Morphology and phylogeny of invertebrates exclusive of terrestrial arthropods. Not open to students who have had 432. Prerequisites, 111 and 112.
- 453-454 Comparative Anatomy of Chordates (5-5)** **Snyder**  
Phylogeny of the chordates and evolution of their organ systems. Structural modifications are correlated with function. Prerequisites, 111, 112, and 456, or permission.
- 456 Vertebrate Embryology (5)** **Staff**  
A descriptive and comparative study of development of chordates. Prerequisite, 112.
- 458 Vertebrate Physiology (6)** **Martin**  
Introductory course in vertebrate physiology for majors in biological sciences. Prerequisites, 112 or Biology -102J, and high school or college chemistry.

**BULLETIN • UNIVERSITY OF WASHINGTON**



**COLLEGE OF FORESTRY**

**1959-1961**

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Division of Adult Education and Extension Services, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Registrar.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS

INTRODUCTION TO THE UNIVERSITY

UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF DENTISTRY

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FISHERIES

COLLEGE OF FORESTRY

GRADUATE SCHOOL

SCHOOL OF LAW

SCHOOL OF MEDICINE

SCHOOL OF NURSING

COLLEGE OF PHARMACY

SCHOOL OF SOCIAL WORK

### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT

SUMMER QUARTER ANNOUNCEMENT

CENTER FOR GRADUATE STUDY AT HANFORD

CORRESPONDENCE STUDY

EVENING CLASSES

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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	11
Board of Regents	
Officers of Administration	
College of Forestry Faculty	
GENERAL INFORMATION . . . . .	15
College Facilities	
Admission	
Veterans	
Required Tests and Examinations	
Registration	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE PROGRAMS IN FORESTRY . . . . .	35
Bachelor of Science in Forestry	
Advanced Degrees	
Curricula	
Courses	

# CALENDAR

AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS  
(Winter Quarter, 1959, through Winter Quarter, 1961)

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

## WINTER QUARTER, 1959

### REGISTRATION PERIOD

- OCT. 27-Nov. 21 Advance Registration only for students in residence Autumn Quarter, 1958. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- DEC. 29-31 In-Person Registration for former students not in residence Autumn Quarter, 1958, and those attending Autumn Quarter, 1958, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than December 12*. Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between *November 24 and December 12*. Deadline for applying for Registration Appointment or Permit is *December 12*.
- DEC. 5 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- DEC. 29-31 In-Person Registration for ALL new students.
- DEC. 31 Last day to register for Winter Quarter, 1959.
- JAN. 6-9 Change of registration by appointment only.

### ACADEMIC PERIOD

- JAN. 5—MONDAY Instruction begins
- JAN. 9—FRIDAY Last day to add a course
- FEB. 23—MONDAY Washington's Birthday and Founder's Day holiday
- FEB. 27—FRIDAY Last day to submit applications for advanced credit examinations
- MAR. 14—SATURDAY Advanced credit examinations
- MAR. 16-20 Final examinations
- MAR. 20—FRIDAY Quarter ends

## SPRING QUARTER, 1959

### REGISTRATION PERIOD

- JAN. 26-FEB. 20 Advance Registration only for students in residence Winter Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

- MAR. 24-26** In-Person Registration for former students not in residence Winter Quarter, 1959, and those attending Winter Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 13*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between *February 24* and *March 13*. Deadline for applying for Registration Appointment or Permit is *March 13*.
- FEB. 27** Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- MAR. 24-26** In-Person Registration for ALL new students.
- MAR. 26** Last day to register for Spring Quarter, 1959.
- MAR. 31-APR. 3** Change of registration by appointment only.

**ACADEMIC PERIOD**

- MAR. 30—MONDAY** Instruction begins
- APR. 3—FRIDAY** Last day to add a course
- MAY 8—FRIDAY** Last day to submit applications for advanced credit examinations
- MAY 22—FRIDAY** Governor's Day
- MAY 23—SATURDAY** Advanced credit examinations
- MAY 30—SATURDAY** Memorial Day holiday
- JUNE 7—SUNDAY** Baccalaureate Sunday
- JUNE 8-12** Final examinations
- JUNE 12—FRIDAY** Quarter ends
- JUNE 13—SATURDAY** Commencement

**SUMMER QUARTER, 1959****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

June 3-5  
June 15-19

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

**Students in residence Spring Quarter, 1959:**

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....Monday, April 20, 8 a.m. to 5 p.m.  
Juniors .....Tuesday, April 21, 8 a.m. to 5 p.m.  
Sophomores .....Wednesday, April 22, 8 a.m. to 5 p.m.  
Freshmen .....Thursday, April 23, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1959, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 20 and preferably no later than*



May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

#### ACADEMIC PERIOD

JUNE 22—MONDAY	Instruction begins
JUNE 23—TUESDAY	Last day to add a course for the first term
JUNE 26—FRIDAY	Last day to add a course for the full quarter
JULY 3—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—SATURDAY	Independence Day holiday
JULY 18—SATURDAY	Advanced credit examinations
JULY 22—WEDNESDAY	Final examinations and first term end
JULY 23—THURSDAY	Second term begins
JULY 24—FRIDAY	Last day to add a course for the second term
JULY 31—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 15—SATURDAY	Advanced credit examinations
AUG. 21—FRIDAY	Final examinations and second term end

#### AUTUMN QUARTER, 1959

##### REGISTRATION PERIOD

MAY 4-29	Advance Registration only for students in residence Spring Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-29	In-Person Registration for former students not in residence Spring Quarter, 1959, and those attending Spring Quarter, 1959, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 8. Deadline for applying for Registration Appointment or Permit is <i>September 15</i> .
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 14-25	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 14-29	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 29	Last day to register for Autumn Quarter, 1959.
OCT. 1-6	Change of registration by appointment only.

##### ACADEMIC PERIOD

SEPT. 28—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 30—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 6—TUESDAY	Last day to add a course

NOV. 2—MONDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1960, due at Registrar's Office
NOV. 11—WEDNESDAY	State Admission Day holiday
NOV. 25—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 25-30	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 12—SATURDAY	Advanced credit examinations
DEC. 14-18	Final examinations
DEC. 18—FRIDAY	Quarter ends

**WINTER QUARTER, 1960****REGISTRATION PERIOD**

OCT. 26-Nov. 20	Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 28-30	In-Person Registration for former students not in residence Autumn Quarter, 1959, and those attending Autumn Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than December 11</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between <i>November 23</i> and <i>December 11</i> . Deadline for applying for Registration Appointment or Permit is <i>December 11</i> .
DEC. 4	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 28-30	In-Person Registration for ALL new students.
DEC. 30	Last day to register for Winter Quarter, 1960.
JAN. 5-8	Change of registration by appointment only.

**ACADEMIC PERIOD**

JAN. 4—MONDAY	Instruction begins
JAN. 8—FRIDAY	Last day to add a course
FEB. 22—MONDAY	Washington's Birthday and Founder's Day holiday
FEB. 26—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 12—SATURDAY	Advanced credit examinations
MAR. 14-18	Final examinations
MAR. 18—FRIDAY	Quarter ends

**SPRING QUARTER, 1960****REGISTRATION PERIOD**

JAN. 25-FEB. 19	Advance Registration only for students in residence Winter Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
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MAR. 22-24

In-Person Registration for former students not in residence Winter Quarter, 1960, and those attending Winter Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 11*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between *February 23* and *March 11*. Deadline for applying for Registration Appointment or Permit is *March 11*.

FEB. 26

Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

MAR. 22-24

In-Person Registration for ALL new students.

MAR. 24

Last day to register for Spring Quarter, 1960.

MAR. 29-APR. 1

Change of registration by appointment only.

#### ACADEMIC PERIOD

MAR. 28—MONDAY

Instruction begins

APR. 1—FRIDAY

Last day to add a course

MAY 6—FRIDAY

Last day to submit applications for advanced credit examinations

MAY 20—FRIDAY

Governor's Day

MAY 21—SATURDAY

Advanced credit examinations

MAY 30—MONDAY

Memorial Day holiday

JUNE 5—SUNDAY

Baccalaureate Sunday

JUNE 6-10

Final examinations

JUNE 10—FRIDAY

Quarter ends

JUNE 11—SATURDAY

Commencement

#### SUMMER QUARTER, 1960

##### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 1-3

June 13-17

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1960:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....Monday, April 18, 8 a.m. to 5 p.m.

Juniors .....Tuesday, April 19, 8 a.m. to 5 p.m.

Sophomores .....Wednesday, April 20, 8 a.m. to 5 p.m.

Freshmen .....Thursday, April 21, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1960, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 19 and preferably no later than*

May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

#### ACADEMIC PERIOD

JUNE 20—MONDAY	Instruction begins
JUNE 21—TUESDAY	Last day to add a course for the first term
JUNE 24—FRIDAY	Last day to add a course for the full quarter
JULY 1—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—MONDAY	Independence Day holiday
JULY 16—SATURDAY	Advanced credit examinations
JULY 20—WEDNESDAY	Final examinations and first term end
JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
JULY 29—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 13—SATURDAY	Advanced credit examinations
AUG. 19—FRIDAY	Final examinations and second term end

#### AUTUMN QUARTER, 1960

##### REGISTRATION PERIOD

MAY 2-27	Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 8-27	In-Person Registration for former students not in residence Spring Quarter, 1960, and those attending Spring Quarter, 1960, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 6. Deadline for applying for Registration Appointment or Permit is <i>September 13</i> .
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 12-23	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 12-27	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 27	Last day to register for Autumn Quarter, 1960.
SEPT. 29-OCT. 4	Change of registration by appointment only.

#### ACADEMIC PERIOD

SEPT. 26—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 4—TUESDAY	Last day to add a course

Nov. 1—TUESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office
Nov. 11—FRIDAY	State Admission Day holiday
Nov. 18—FRIDAY	Last day to submit applications for advanced credit examinations
Nov. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 10—SATURDAY	Advanced credit examinations
DEC. 12-16	Final examinations
DEC. 16—FRIDAY	Quarter ends

## WINTER QUARTER, 1961

### REGISTRATION PERIOD

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960, and those attending Autumn Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing or calling at the Registrar's Office <i>no later than December 9</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to Register between <i>November 22 and December 9</i> . Deadline for applying for <i>Registration Appointment</i> or <i>Permit</i> is <i>December 9</i> .
DEC. 2	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 27-29	In-Person Registration for ALL new students.
DEC. 29	Last day to register for Winter Quarter, 1961.
JAN. 4-9	Change of registration by appointment only.

### ACADEMIC PERIOD

JAN. 3—TUESDAY	Instruction begins
JAN. 9—MONDAY	Last day to add a course
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
FEB. 24—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 11—SATURDAY	Advanced credit examinations
MAR. 13-17	Final examinations
MAR. 17—FRIDAY	Quarter ends

*For further information concerning subsequent quarters inquire at the Registrar's Office.*

**ADMINISTRATION****BOARD OF REGENTS**

HAROLD S. SHEFELMAN, <i>President</i>	Seattle
JOHN L. KING, <i>Vice-President</i>	Seattle
THOMAS BALMER	Seattle
MRS. A. SCOTT BULLITT	Seattle
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HELEN E. HOAGLAND, <i>Secretary</i>	
NELSON A. WAHLSTROM, <i>Treasurer</i>	

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CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Provost of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Treasurer</i>
ERNEST M. CONRAD, B.B.A.	<i>Business Manager</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
GORDON D. MARCKWORTH, M.F.	<i>Dean of the College of Forestry</i>

**COLLEGE OF FORESTRY FACULTY**

(AS OF NOVEMBER, 1958)

The first date following a name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

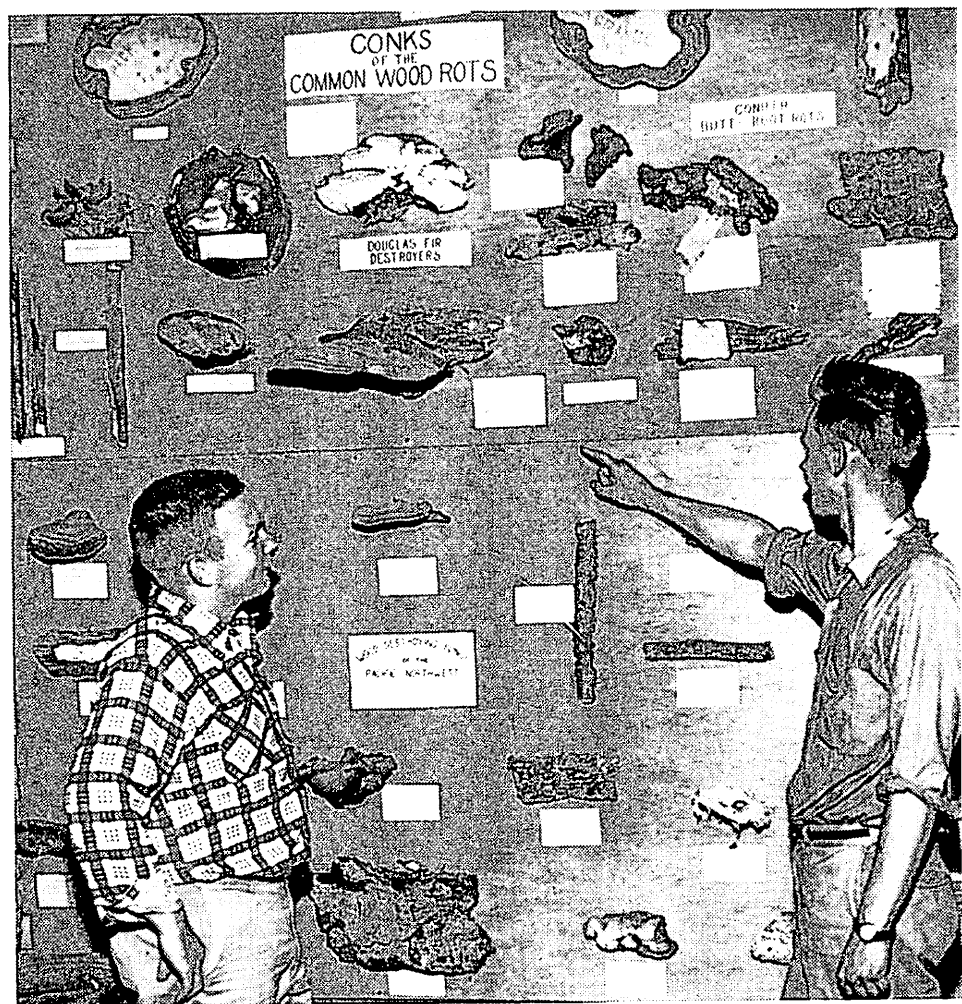
- BROCKMAN, C. FRANK, 1946 (1957), *Professor of Forestry*  
B.S., 1924, Colorado State; M.S., 1931, Washington
- BRYANT, BENJAMIN SMYTH, 1949 (1952), *Assistant Professor of Forestry*  
B.S.F., 1947, M.S.F., 1948, Washington; D.F., 1951, Yale
- CAMPBELL, ROBERT KENNETH, 1958, *Instructor of Forestry*  
B.A., 1951, Montana State University; M.S., 1954, University of Washington; Ph.D., 1958, University of Washington
- ERICKSON, HARVEY D., 1947, *Associate Professor of Forest Products*  
B.S., 1933, B.S., 1934, M.S., 1936, Ph.D., 1937, Minnesota
- GESSEL, STANLEY PAUL, 1948 (1956), *Associate Professor of Forest Soils*  
B.S., 1939, Utah State Agricultural College; Ph.D., 1950, California
- GRONDAL, BROR LEONARD, 1913 (1929), *Professor of Forest Products*  
B.A., 1910, Bethany College (Kansas); M.S.F., 1913, Washington; D.Sc. (Hon.), 1943, Bethany College; Ph.D. (Hon.), 1951, Crown Zellerbach Paper School
- MARCKWORTH, GORDON DOTTER, 1939, *Professor of Forest Management; Dean of the College of Forestry*  
B.S.F., 1916, Ohio State; M.F., 1917, Yale
- PEARCE, JOHN KENNETH, 1934 (1943), *Professor of Logging Engineering*  
B.S.F., 1921, Washington
- ROBERTSON, JAMES CAMPBELL HAY, 1945 (1956), *Professor of Forest Management*  
B.S.F., 1927, Washington; M.S.F., 1933, California; D.F., 1947, Duke
- SCHAEFFER, WALTER HOWARD, 1952, *Associate Professor of Forestry*  
B.S.F., 1936, Washington; M.S.F., 1937, Yale; Ph.D., 1952, Washington

- SCOTT, DAVID ROBERT MAIN, 1955, *Assistant Professor of Silviculture*  
B.A., 1942, Virginia; M.F., 1947, Ph.D., 1950, Yale
- STENZEL, GEORGE, 1949 (1957), *Associate Professor of Forestry*  
B.S., 1938, New Hampshire; M.F., 1939, Yale
- THOMAS, DAVID PHILLIP, 1950, *Assistant Professor of Forest Products*  
B.S.F., 1941, M.F., 1948, Washington
- TURNBULL, KENNETH JAMES, 1958, *Instructor of Forestry*  
B.Sc., 1951, University of Edinburgh; M.F., 1958, University of Washington
- 
- HUPMAN, CARL BRANTNER, JR., 1956, *Resident Manager of the Charles Lathrop  
Pack Demonstration Forest*  
B.S.F., 1939, Washington; M.F., 1946, Yale
- MULLIGAN, BRIAN O., 1946, *Director of the Arboretum*  
N.D.H., 1933, England
- SMITH, BERNICE L., 1955, *Librarian*  
B.A., 1936, B.A. in L.S., 1937, Washington

#### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*



## GENERAL INFORMATION



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## GENERAL INFORMATION

**T**HE UNIVERSITY OF WASHINGTON College of Forestry was established in 1907 in response to the need for professional management of the important forest resource of the Northwest. Subsequent needs for men especially trained to harvest the forest crop efficiently and wisely and for men skilled in techniques of converting the forest raw material to maximal economic use have led to a broadening of the forestry curriculum with the passage of years.

The College began its program with a staff of two instructors and a class of ten students at a time when professional forestry education in the United States was in its infancy. Accredited by the Society of American Foresters, a professional body of 14,000 members, the College today numbers 14 faculty, 300 students, and 1,750 alumni. The objectives of its founders have been pursued for nearly a half century. These objectives are to provide instruction in the principles and practices of forestry and to promote the interests of forestry in the state of Washington by encouraging the best use of the forest resource.

Since Washington is one of the leading timber-producing states, and Seattle is in the center of the Northwest timber industry, forestry students encounter at first hand the forest-management and forest-industry problems with which they will be concerned as foresters. Government forests and private timber holdings serve as laboratories and are regularly integrated into the four-year curriculum in which students study forest management and logging engineering in the field. Practicing foresters contribute to the laboratory instruction. Sawmills, plywood plants, pulp and paper mills, wood-industry research laboratories, and other wood-processing plants, all in close proximity to the College, provide field laboratories for student projects in the forest products curriculum. This favorable educational environment makes it possible to incorporate practical experience into the academic program.

Forestry research is a fundamental precept of the College of Forestry. Advantage is taken of every opportunity for students to participate in new and continuing research projects in the College, in industrial plants, and in the forest. Throughout the forestry course, classroom instruction is supplemented by field studies and research projects on the University's two demonstration and experimental forests and in industry.

Since 1925, the College program has been centered in the main forestry building, Alfred H. Anderson Hall, where facilities include lecture-rooms, laboratories, an

assembly hall, student activity rooms, a Forest Club room, and the College Library. The building was a gift of Mrs. Agnes H. Anderson, whose husband was a pioneer lumberman and civic leader in Washington.

## **COLLEGE FACILITIES**

### **THE LIBRARY**

The College of Forestry Library, a branch of the University's Henry Suzzallo Library, contains 10,000 bound volumes and 20,000 pamphlets, reports, and monographs. It also possesses an excellent collection of approximately 500 forestry periodicals and many indexes to current forestry literature. Under the nation-wide Farmington Plan, sponsored by the Special Library Association, it has assumed responsibility for collecting all foreign material published in the fields of forestry and pulp and paper technology. This facility provides unusual opportunity for academic research.

### **FOREST SOILS LABORATORY**

The Forest Soils Laboratory, in Anderson Hall, serves a dual purpose as a research and teaching aid in the College. In addition to enabling graduate students to study all types of forest soil problems and thoroughly explore properties of forest soils, it familiarizes undergraduate students with important forest soil characteristics and acquaints them with methods of analyzing physical and chemical properties of forest soils.

Supplementing the Forest Soils Laboratory is a field laboratory at the Pack Demonstration Forest, where less elaborate studies of forest soils and other problems are conducted. These two laboratories have been important factors in expanding research on the growth of forest trees.

### **HERBARIUM**

The Herbarium supplements forestry students' field work in dendrology. The collection contains representative plant material from all parts of the United States, and includes dried mounted specimens of leaves, twigs, and flowers of the hardwood trees, and shrubs and twigs of the coniferous species. Fruit specimens and a complete cone collection of American conifers are maintained apart from the mounted collection. The Herbarium also provides authentic specimens for use in identifying woody plant material in many branches of forestry work. Another herbarium, complete in range plants, is maintained by the Botany Department and is available to forestry students.

### **WOOD COLLECTION**

The Wood Collection contains nearly 3,500 specimens from all parts of the world, providing authentic material for research and for identification of wood samples. The collection is valuable in the study of properties, characteristics, and uses of various woods, and provides material for studies of wood structure, both gross and microscopic.

### **FOREST PRODUCTS LABORATORY**

Housed in its own building on the campus, the Forest Products Laboratory is equipped to conduct advanced studies of wood and wood products. Sections of the Laboratory are devoted to timber physics, woodworking, wood gluing, wood preservation, kiln drying, photomicrography, advanced wood technology, fiber board, and particle board. Testing machines, presses, machine tools, chemical apparatus, kilns, and mensuration devices permit almost unlimited experiments with wood.

### **ARBORETUM**

The University Arboretum is a 267-acre park planted with trees and shrubs from all over the world. The diversified topography of the Arboretum, which

produces varied soil and moisture conditions, and the mild climate of the Puget Sound region permit the growth of a greater number of species and varieties than is possible in almost any other area. The Arboretum is a ten-minute walk from the campus.

#### **LEE MEMORIAL FOREST**

The Lee Forest is a tract of young timber in Snohomish County, near Maltby, about twenty-two miles from the University. The 158-acre property was deeded to the College of Forestry in the early 1930's by Mr. and Mrs. George O. Lee in memory of Mr. Lee's parents, Mr. and Mrs. O. H. Lee, Snohomish County pioneers. An experimental and demonstration farm forestry area, the Lee Forest is used for teaching and research in forest management, silviculture, ecology, and forest soils. A number of permanent study plots have been established, a study map made, and intensive growth measurements taken. During the winter of 1952 a first thinning was made in Douglas fir stands thirty-five and fifty-five years old.

The accessibility, stocking age, and site of the Lee Forest make it exceptionally valuable for studies and demonstrations of farm forestry practices applicable in western Washington.

#### **PACK DEMONSTRATION FOREST**

The Charles Lathrop Pack Demonstration Forest, an enlargement and development of an original gift from the Charles Lathrop Pack Forestry Trust, is a tract of more than 2,300 acres. It extends along both sides of the Mt. Rainier National Park highway at La Grande, Washington, sixty-five miles from the University. The Pack Forest is an excellent field and research laboratory as well as a public demonstration project.

Following the freshman year, forestry students spend the Summer Quarter at Pack Forest studying plane and topographic surveying, forest mensuration, and ecology. The forest has its own electrically driven sawmill, and several large logging operations in the vicinity offer opportunity for practice in log scaling, collection of data for volume and growth tables, and other forest mensuration work requiring down trees and logs.

Since 1928, when several permanent sample plots were established, research projects in various phases of silviculture, mensuration, and forest soils have been set up. Cooperative studies are being conducted with the Pacific Northwest Forest and Range Experiment Station.

Complete facilities for classwork and living accommodations are available to students and instructors working at the Pack Forest.

#### **INSTITUTE OF FOREST PRODUCTS**

Housed in Anderson Hall, and cooperating closely with the College of Forestry in research and general activities, the Institute of Forest Products relies heavily upon College faculty members and advanced forestry students in its investigations. Administration of the Institute is under the State Department of Conservation and Development and the Forest Products Commission. The Dean of the College of Forestry is the Institute's technical director.

#### **LECTURESHIP**

The Colonel William B. Greeley Lectureship in Industrial Forestry was established by the Industrial Forestry Association in 1956 to commemorate one of the nation's foremost pioneer foresters. With the funds provided by the grant, prominent industrial foresters are invited to the College during the Winter Quarter to conduct a special course in industrial forestry which includes public lectures and a series of seminars. The Lectureship serves as a memorial to a man who made great contributions to American forestry through his support of industrial forestry, tree farming, the Keep Green movement, and numerous other significant advances in forestry.

## ADMISSION

Regulations pertaining to admission to the University are administered by the Board of Admissions, an administrative board appointed by the President. First preference is given to qualified residents of Washington and all sons and daughters of University of Washington alumni. The College of Forestry, like most colleges in the University, admits qualified out-of-state students and encourages those who meet the nonresident scholarship requirements to apply.

Applications for admission must be submitted by prescribed deadlines and must be substantiated by certain credentials and reports submitted in accordance with University rules and practices. It is important that the student's application be submitted by the proper time, for the University *can accept no responsibility for students who come to the University before their credentials have been submitted or before they are officially notified of acceptance, do so at their own risk.*

Correspondence regarding requirements for admission to and graduation from any college or school of the University should be addressed to the Registrar.

It is the student's responsibility to make sure that complete credentials covering all his previous secondary and college education are submitted to the University. To be official they must be forwarded by the principal or registrar of the last school attended, direct to the Registrar of the University. These records become part of the official file and cannot be returned to the student nor duplicated for any purpose whatsoever, as the University does not issue or certify copies of transcripts from other institutions. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University.

To be assured of admission in Autumn Quarter, it is imperative that complete required credentials are forwarded after high school graduation and no later than July 15. The July 15 deadline also applies to applicants desiring to transfer from other colleges and universities. Applications with complete credentials postmarked between July 15 and August 31 will be accepted in order of receipt only as long as additional new students may be accommodated. No applications postmarked after August 31 will be considered. For admission in the other quarters, applications and credentials should be submitted at least thirty days before the opening of the quarter. This applies to *all* new students seeking admission as graduates or undergraduates. *It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.* Telegraphed or airmailed messages or requests will *not* be given precedence over other material already received by regular mail.

Before notice of admission is given, a medical questionnaire, on a form supplied by the Registrar, is issued to new out-of-state students. This should be completed by a doctor of medicine and returned by him to the Registrar's Office.

### ADMISSION FROM ACCREDITED HIGH SCHOOLS

Graduates who earn diplomas of graduation from accredited high schools and who meet the University unit and scholarship requirements for entrance are eligible for admission as freshmen with regular standing.

No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state (see Nonresident Scholarship Requirement, page 19).

All entering freshmen from accredited high schools are required to submit official Application for Admission blanks (obtainable from any high school principal or from the Registrar of the University) which include all credits and grades and a statement that the student has completed his high school course with a diploma of graduation. A high school diploma may not be substituted for the official blank. Accredited high schools in Washington are those accredited by the State Department of Public Instruction; in Alaska, by the Northwest Association

of Secondary and Higher Schools; in other states, by the state university of the state or a regional accrediting association.

High school seniors may submit, after the end of the seventh semester, an official Application for Admission blank which includes all credits and grades through the seventh semester, a list of eighth semester courses, and the expected date of graduation. Those who are found qualified will be notified they have been granted conditional admission with final admission contingent upon submission of a supplementary transcript after high school graduation, which includes the eighth semester subjects with satisfactory grades and a statement that the high school course has been completed with a diploma of graduation. *Final admission to the University will continue to be based on complete records through the eighth semester and a statement that a diploma of high school graduation has been awarded.*

#### **SCHOLARSHIP REQUIREMENT FOR APPLICANTS ENTERING DIRECTLY FROM HIGH SCHOOL**

See page 21 for applicants who have had college work.

#### **Legal Residents of the State of Washington and All Sons and Daughters of University of Washington Alumni**

The University scholarship requirement is a high school grade-point average of 2.00 (equivalent to a C average on the state of Washington grading system).

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his high school records.

The student who is admitted on probation may continue his attendance at the University at the discretion of the dean of his college but may not (1) be pledged to or initiated into a fraternity or sorority, or engage in those other student activities in which his right to participate is restricted by the regulations of the Committee on Student Welfare; (2) engage in those athletic activities in which his right to participate is restricted by the regulations of the Intercollegiate Athletics Committee. He will be removed from probation when he has earned a minimum of 12 credits exclusive of those in lower-division physical education activity and Army, Air Force, and Navy ROTC courses with a 2.00 grade-point average, except that if he carries less than 12 credits in one quarter, he may not be removed from probation unless he has earned at least a 2.00 average for the current quarter, as well as a minimum cumulative average of 2.00 for his total quarters in attendance. A student removed from probation under these provisions then is subject to the regular scholarship rules.

#### **Nonresidents or Students Residing in States and Countries Other Than the State of Washington**

The University scholarship requirement for nonresidents<sup>o</sup> or students residing outside the state of Washington and applying for admission directly from high school is a grade-point average of 3.00 (equivalent to a B average on the state of Washington grading system) or placement in the upper 25 per cent of their graduating class. No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

<sup>o</sup>Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students outlined in the preceding section. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students from high schools in other states which use different grading systems will find their scholarship averages adjusted to the state of Washington four-point system.

A nonresident applicant who cannot meet the 3.00 (B) scholarship requirement, if he believes that there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the college of his choice, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### UNIT REQUIREMENT FOR ALL APPLICANTS

The minimum requirement of the University is 16 high school units<sup>1</sup> (or 15 units exclusive of activity credit in physical education, debate, etc.) with grades certifiable for university entrance. The 16 units should include at least 9 units in academic subjects (a unit equals 2 semester credits, or one full year of high school study). No unit which received lower than the lowest passing grade as defined by the high school itself may be included in the required total. The College of Forestry requires that the 16 units include 3 units of English, 1½ units of algebra, and 1 unit of plane geometry. One unit of physics and 1 of chemistry are recommended but not required.

#### SUBJECT MATTER DEFICIENCIES FOR ALL APPLICANTS

Applicants with diplomas of graduation from accredited high schools who meet the scholarship requirement and have at least 3 units in English and 6 in other academic subjects, including either 1 unit of algebra or 1 unit of plane geometry, may petition the Dean of the College for permission to enter. (Typical academic subjects are English, foreign languages, mathematics, science, history, and economics. Some nonacademic courses are those in commerce, industrial arts, home economics, and band.) Students who are permitted to enter with provisional standing must register each quarter for make-up courses in the subject they lack until the entrance deficiency is removed. *Those deficient in first-year algebra or plane geometry and who have a grade-point average of below 2.30 (nonresidents, 2.70 or 3.00) will be expected to remove their deficiencies prior to entering the University.* Provisional standing continues until the student has satisfied the entrance requirements of the college in which he is enrolled. *No application for a degree may be accepted until all entrance deficiencies have been removed.*

Deficiencies may be made up with university credit if college courses covering the high school material are available; 10 college credits are considered the equivalent of 1 high school unit, except that for foreign languages 15 quarter credits of college work are considered the equivalent of 2 units (4 semesters) of high school credit. No student may receive credit for repetition of work at the same or at a more elementary level, if credit has been granted in the earlier course. This rule applies whether the earlier course was taken in high school or in college, and whether, in the latter case, course numbers are duplicated or not. First-year algebra and plane geometry are offered by the Division of Adult Education and Extension Services (fee, \$24.00 per course) and do not carry University credit.

<sup>1</sup> To count as a unit, a subject must be taught five times a week, in periods of not less than forty-five minutes, for a high school year of thirty-six weeks. The maximum allowance toward University entrance for junior high school study is 4 units.

#### GRADUATES FROM UNACCREDITED SCHOOLS

A graduate from an unaccredited high school in Washington or Alaska, if he has the recommendation of his principal, may petition the Board of Admissions for permission to enter if he meets other entrance requirements. The Board will require these students to pass certain examinations.

#### NON-HIGH SCHOOL GRADUATES

In general, the Board of Admissions considers that College Entrance Board Examinations may be used to supplement unaccredited or incomplete preparatory study but may not be used as the sole basis to supply entrance credits. Applications of this kind must be reviewed by the Board of Admissions.

Information regarding College Entrance Board Examinations may be obtained by writing to the Educational Testing Service, P. O. Box 592, Princeton, New Jersey, or Box 27896, Los Feliz Station, Los Angeles 27, California.

#### ADMISSION WITH ADVANCED UNDERGRADUATE STANDING

Students in other institutions who plan to transfer to the College of Forestry are urged to pattern their schedules after the curricula of this College, so that they may transfer as many credits as possible.

Applicants are admitted to the University and to the College of Forestry by transfer from accredited colleges, universities, and junior colleges under these conditions:

1. Except for one introductory course, credits for forestry courses may be transferred only from accredited forestry schools. This means that students entering from junior colleges or liberal arts colleges normally cannot complete the requirements for graduation from the College of Forestry in less than three years. The College faculty must approve any exception to this rule.

2. Complete transcripts and letters of honorable dismissal must be sent directly to the University Registrar by the registrar of the former school. In general, the University will not accept a student who is in scholastic or disciplinary difficulty at his former school. Failure to present full transcripts will be considered a serious breach of honor and may result in permanent dismissal from the University.

3. *Applicants who are legal residents of the state of Washington and all those who are sons or daughters of University of Washington alumni* and who have less than a year of college work must have a 2.00 (C) average in both their college and high school records. Those who have completed a year or more of college work must have a 2.00 (C) average in both their college records and in the last term of attendance.

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his school records.

4. *Applicants who are not legal residents\* of the state of Washington applying with fewer than 45 acceptable college credits* must have a 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also have a 3.00 (B) average in their standard college courses.

5. *Applicants who are not legal residents\* of the state of Washington and who have completed 45 or more standard college credits* must have a 2.70 (B-) average in their standard college courses.

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students outlined in paragraph 3 above. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, a student transferring from a college or university that employs a three-point or five-point system of passing grades will find his admission grade point adjusted to the four-point system of the University of Washington.

A nonresident applicant who cannot meet the 3.00 (B) or 2.70 (B-) scholarship requirement, whichever applies in his case, if he believes that there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the College of Forestry, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

### TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS

The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted:

1. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined until the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or senior standing. Transfer credit will not be allowed in the senior year.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution. This rule shall apply to students who enter the University of Washington in Autumn Quarter, 1958, and thereafter.

3. Transfer of credit from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits, exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training schools credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the senior year.

6. A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of these credits can apply in the senior year. Extension and correspondence credits from schools that are members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination.

7. Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension or correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Division of Adult Education and Extension Services. All credits earned by advance-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum. Up to 10 extension or correspondence credits earned at this University can apply toward the work of the senior year.

8. For work done in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advance-credit examinations must be filed during the first quarter in residence.

9. No credit will be granted to a student for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

### ADMISSION OF FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD

Students educated entirely or partially in foreign countries must meet the same general requirements as those educated in American schools and must demonstrate a satisfactory command of the English language. A student who has gradu-



ated from a high school system that provides less than twelve years of instruction may be required to take additional school work.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in university attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students must meet the scholarship requirement for nonresident students. See pages 19 and 21.

In some background subjects, a student, with formal training below the university level but more than is usually given in American high schools, may be registered for a more advanced course.

Where there is reasonable doubt concerning equivalent forestry training or course work, an examination, either oral or written, shall be given by an instructor of the subject in question to determine whether the student meets minimum standards. If the number of transfer credits in a particular course equals at least three-fourths the number of credits required, exemption from that course may be granted at the discretion of the student's adviser and the instructor in that field, provided that such allowances occur in not more than three courses. However, general deficiency, especially in the major field, shall not be condoned. Field training or experience may apply to the extent that it augments a small deficiency in course credit or provides the knowledge for passing an examination for exemption from a course.

#### **ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Persons twenty-one or older who are legal residents of Washington or Alaska and are not eligible for admission as regular students may apply to the Board of Admissions for admission with special standing. With their applications they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the Dean of the College permits but may not participate in student activities or receive degrees. By fulfilling requirements for admission to the College, special students may change their status to that of regular students and may receive degrees.

Persons twenty-one or older may register as auditors in nonlaboratory courses or the lecture parts of laboratory courses by obtaining the consent of the Dean of the College and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter. Students who have been dropped for low scholarship or new applicants who do not qualify for admission may not register as auditors until they have been reinstated or accepted in some college of the University.

#### **ADMISSION TO THE GRADUATE SCHOOL**

Prospective graduate students must apply for admission to the Graduate School. Entrance requirements are described in the *Graduate School Bulletin*, which may be obtained from the Registrar.

#### **KOREAN VETERANS**

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. Veterans Administration regulations specify that the veteran's ultimate goal must be stated on his application for a certificate. Only one change of course is allowed under the Korean Bill. If the veteran has any questions regarding application for a certificate, he should contact the Veterans Division, 1B Administration Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

### KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to registration for the quarter the veteran wishes to enter the University. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be filed in the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

Veterans Administration regulations provide that after initiating his training a Korean veteran may discontinue training at any time as long as his interruption is not in excess of twelve consecutive calendar months.

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

### DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

### WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 27).

### REQUIRED TESTS AND EXAMINATIONS

#### WASHINGTON PRE-COLLEGE DIFFERENTIAL GUIDANCE TEST

New students of freshman standing (including transfer students with less than 45 quarter college credits, exclusive of credits in physical education activity and Army, Air Force, and Navy ROTC subjects) are required to take college aptitude tests at a time to be announced each quarter.

These tests have been selected on the basis of their proven value for the prediction of grades most likely to be earned by each student. The achieved scores are often used by members of staff in counseling students. In addition, a student's score on three parts of the battery (spelling, usage, and vocabulary) are used to assign him to the appropriate section in Freshman English; a student who scores in the lower fifth on these three tests must take the remedial, noncredit English course, English N50 (Basic Grammar) offered in Evening Classes, for which an additional fee is charged. Little can be gained by preliminary study for these tests. Sample copies are not available. Special, exchange, and blind students and auditors are exempted.

Foreign students who have markedly inadequate previous training in the use of English are required to take a special examination under the supervision of the English department. *Since the aptitude tests are a prerequisite to English 101 (Composition) and Humanities-Social Studies 265 (Techniques of Communication) any student otherwise exempted must take these tests if he wishes to register for either of these courses.*

**MATHEMATICS QUALIFYING AND EXEMPTION TESTS**

Students who have taken third-semester algebra in high school, or the equivalent course in any other college, and who plan to take Mathematics 104 (Plane Trigonometry) and/or 105 (College Algebra) are required to take a qualifying test before they are permitted to register for these University courses. Those who fail the qualifying test and who wish to study trigonometry at the University must choose one of the following alternative plans:

1. Pass Mathematics 101 (without credit for such students) and then take 104.
2. Take Mathematics 103 which meets five hours per week, but carries only 3 credits.

Those who fail the qualifying test and who wish to study college algebra must first pass either Mathematics 101 or 103.

Students who have taken trigonometry and/or college algebra in high school and whose University courses of study require these subjects may obtain exemption from Mathematics 104 and/or 105 by taking an exemption test. Particularly high scores on both of these tests will qualify students to be placed in special sections of Mathematics 153. Directions for taking these tests are included in *Registration Information for New Students* which is enclosed with the Notification of Admission blank. Students are advised to review their high school work before taking these tests.

**MEDICAL EXAMINATION**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, is required to pass a medical examination as a condition of registration. A definite appointment is made for the examination. This appointment takes precedence over all others scheduled for that hour. Students who fail to appear for the medical examination at the appointed time will be excluded from classes on notice to the Registrar. For a second appointment, a special fee of \$5.00 is assessed.

**REGISTRATION****REGULAR STUDENTS**

A regular student is a student who fulfills the following requirements: (1) he has been granted regular admission to a school or college of the University; (2) his current schedule for credit is satisfactory to the dean of his school or college; (3) he has completed registration, including paying tuition and fees.

**PROCEDURE**

All students currently in school who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration dates and deadlines which appear in the bulletins, in Official Notices in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointments may be obtained by writing to or telephoning the Registrar's Office at the time specified in the Calendar (see pages 4-10).

**ADVISING**

After notification of admission, and before registration, new students should visit or write to the College for help in planning their course programs. Academic and other counseling of forestry students is assigned to faculty advisers in the College. The adviser for freshmen and new students is Professor Walter H. Schaeffer, whose office is 210 Anderson Hall.

### REGISTERED CREDITS ALLOWED EACH QUARTER

Except with the consent of his dean, no student may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent) or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no case may a student be registered for, or receive credit for more than 20 credits (or the equivalent) of work, exclusive of physical education activity courses and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove deficiencies, or concurrently in extension classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

### CHANGES OF REGISTRATION

After students have registered, they cannot change their schedules except with permission of the dean of the college. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the dean's consent.

### WITHDRAWAL FROM A COURSE

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

### WITHDRAWAL FROM THE UNIVERSITY

The student should obtain at the office of the dean of his school or college the "Request for Withdrawal From the University" form. The same system of grading applies as that described under Withdrawal from a Course.

### TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

#### *Tuition*

Resident students, per quarter	\$25.00
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A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter	75.00
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Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Nonresident Office, 205A Administration Building, for a change of classification.

Auditors, per quarter 12.00

#### Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office.

Nonresident students who meet one of these requirements pay one-half the nonresident tuition.

This exemption is not granted to Summer Quarter students.

#### *Incidental Fee*, per quarter

Full-time resident students 37.50

Part-time resident students (registered for 6 credits or less, exclusive of ROTC) 15.00

Full-time nonresident students 82.50

Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC) 50.00

Auditors do not pay an incidental fee; there are no other exemptions.

#### *ASUW Fees*

Membership, per quarter 8.50

Optional for auditors and part-time students.

Athletic admission ticket (optional for ASUW members) 3.00-5.00

Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters only, \$3.00; Spring Quarter only, \$3.00.

#### *Military Uniform Deposit* 25.00

Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.

#### *Pack Forest Fee* 10.00

Paid in Summer Quarter when course is taken at Pack Forest.

#### *Pack Forest Subsistence Fee* 130.00

Approximate charge for meals during the quarter spent at Pack Forest.

#### *Breakage Ticket Deposit* 3.00

Required in some laboratory courses; ticket is returnable for full or partial refund.

#### *Locker Fee*, per quarter 1.50

Required of men students taking physical education activities.

#### *Grade Sheet Fee* .25

One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.

#### *Transcript Fee* .50

One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.

#### *Graduation Fee* 10.00

#### SPECIAL FEES

A registration service fee of \$15.00 is charged those students: (1) eligible for advance (mail) registration who fail to participate; or (2) who, after the established application deadline, are granted permits to register *in person*. A late registration fee of \$15.00 is charged students eligible for in-person registration who fail to register before the first day of instruction Autumn, Winter, and Spring Quarters. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change

of registration, or change of section, or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. A fee of \$5.00 is charged for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00, and for removal of an incomplete, \$2.00.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter are: Bowling, \$5.00; canoeing, \$2.50. Golf instruction, \$3.00 per quarter; season ticket, \$5.00 per quarter. A season ticket is good on the golf course for play and may be purchased alone or in addition to golf instruction fee.

#### REFUND OF FEES

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one-half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

#### ESTIMATE OF YEARLY EXPENSES

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

##### *Tuition, Incidental, and ASUW Membership Fees*

Full-time resident student	\$213.00
Full-time nonresident student	498.00

<i>Athletic Admission Ticket</i> (optional)	3.00-5.00
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<i>Accident Insurance</i> (optional)	3.60
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<i>Special Fees and Deposits</i>	38.50
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Military uniform deposit, breakage ticket, and locker fees.

<i>Books and Supplies</i>	75.00
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##### *Board and Room*

Room and meals in Men's Residence Halls	630.00
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Room and meals in Women's Residence Halls	630.00-660.00
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Room and meals in fraternity or sorority house	660.00-700.00
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Initial cost of joining is not included; this information may be obtained from the Interfraternity or Panhellenic Council.

<i>Personal Expenses</i>	200.00
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#### STUDENT ACTIVITIES AND SERVICES

##### ASSOCIATED STUDENTS

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the *University of Washington Daily* and the Student Union Building.

##### FOREST CLUB

The Forest Club, founded in 1908, is an organization of students in the College of Forestry. Through the club, students and faculty members cooperate to keep

in touch with current developments in forestry and lumbering and the leaders in these fields, and to interest the public in the College and in the forestry problems of the state. Club meetings feature prominent speakers and educational films. The club sponsors an all-day field event, called Garb Day, an annual formal dance, and an annual banquet, which is attended by representatives from nearly every field of forestry.

The Forest Club is affiliated with the Association of Western Forestry Clubs, a student-sponsored organization fostering inter-forest school cooperation among the eight accredited institutions in the western United States. A major project of this organization is the sponsorship of an annual Conservation Week to promote conservation through education.

Each year, Forest Club members work with the King County Forest Committee in conducting tree-farm tours for school children in the county. Serving as guides, students transmit their classroom and field-acquired knowledge to the younger generation so that America's junior citizens may appreciate the philosophy of conservation and wise use of the forest resource.

#### **XI SIGMA PI**

Organized at the University of Washington in 1908, Xi Sigma Pi is the oldest and largest national forestry honorary fraternity in the United States. It has chapters in nearly all the leading forestry schools in the country. At the University of Washington, Alpha Chapter encourages a high standard of scholarship in forestry education, the advancement of the profession, and fraternal relations among workers in forest activities.

Xi Sigma Pi requires a grade-point average of at least 3.10 and participation in Forest Club activities.

The growth of Xi Sigma Pi is reflected in a membership list of more than 1,500, a list that includes names familiar to foresters throughout the country.

#### **AWARDS AND LOANS**

The University offers a number of awards for outstanding academic achievement. Some are given by the University, and many others are available through the generosity of friends and alumni. A handbook listing the current awards is available from the Office of the Dean of Students.

A number of scholarships and awards are specifically for students in the College of Forestry. These are:

1. AGNES HEALY ANDERSON RESEARCH FELLOWSHIP. Awarded a graduate student. Amount variable, depending on availability of funds and need.

2. BILES-COLEMAN LUMBER COMPANY SCHOLARSHIP. Awarded a graduate of Omak High School ranking in the upper half of his class and with an interest in forestry. Amount, \$500 a year for a four-year period.

3. EDWARD K. BISHOP SCHOLARSHIP. Amount \$500.

4. J. H. BLOEDEL FORESTRY RESEARCH AND SCHOLARSHIP AWARD. Amount (approximately \$1,000 annually) and number of grants variable; available to both graduate and undergraduate students.

5. CROWN ZELLERBACH FOUNDATION SCHOLARSHIP. Awarded a junior or senior in the College of Forestry.

6. U. M. DICKEY SCHOLARSHIP. Established by the Scott Paper Company, \$500 to \$1,000 annually for a two-year period to the outstanding student completing the sophomore year.

7. CUSTOMERS OF THE ELLIOTT BAY LUMBER COMPANY SCHOLARSHIP. One to a forest products major, one to a logging engineering major, and one to a forest management major at the completion of the junior year for the senior year; three at \$500 each.

8. HOMELITE CORPORATION AWARD. Awarded outstanding students of forestry; amount, \$250 to \$500.

9. PAUL H. JOHNS, JR., MEMORIAL AWARDS. Awarded the outstanding junior and senior student; \$200 each.

10. R. D. MERRILL FORESTRY RESEARCH AND SCHOLARSHIP AWARD. Amount (approximately \$1,000 annually) and number of grants variable; available to both graduate and undergraduate students.

11. NORTHERN COMMERCIAL COMPANY SCHOLARSHIP. Awarded a junior, senior, or graduate student; \$500.

12. LAWRENCE OTTINGER FOREST PRODUCTS FELLOWSHIP. Award of \$1,000 annually to a graduate student in forest products with interests in plywood, wood particle board, adhesives, or allied fields.

13. SEATTLE HOO-HOO CLUB SCHOLARSHIP. Based on scholarship and need, is awarded to a resident of King County in the state of Washington.

14. ST. REGIS PAPER COMPANY SCHOLARSHIP. An amount of \$800 annually for a two-year period awarded an outstanding forestry student completing the sophomore year at the University of Washington, Oregon State College, University of Idaho, or University of Montana.

15. UNIVERSITY OF WASHINGTON FORESTERS' ALUMNI ASSOCIATION SCHOLARSHIPS. Awarded two outstanding high school seniors who are residents of the state of Washington and interested in majoring in forestry at the University of Washington. Two to be awarded at \$250 each.

16. WEYERHAEUSER FELLOWSHIPS IN FOREST MANAGEMENT. Presented graduate students; two at \$2,000 each.

17. HUGO WINKENWERDER GRADUATE FELLOWSHIP. An annual award of \$1,000 given a graduate student in forestry.

18. HUGO WINKENWERDER MEMORIAL SCHOLARSHIPS. Awarded outstanding high school seniors dedicated to the pursuit of forestry at the University of Washington; six at \$200 each.

Further information on these awards may be obtained from the College of Forestry.

Two annual essay contests are open to forestry students. The Western Forestry and Conservation Association sponsors a contest each spring for juniors in the forestry schools of the West, with a first prize of \$100 and a second prize of \$75, plus a trip to the autumn conference of the association. The Pack Essay Contest, which is open to all students in the College, offers prizes of \$25, \$15, and \$10.

Loans for emergency purposes may be made to students in the College of Forestry through the Agnes H. Anderson Student Loan Fund. Information about the fund is available at the College of Forestry. Other emergency loans are made through the Office of the Dean of Students.

#### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This office works closely with the advisory system of the colleges and schools of the University and is in a position to direct students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and social problems. The Dean of Students Office also has current information on Selective Service regulations.

The Counselor for International Services offers guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, employment, and home hospitality should be referred to this counselor in the Office of the Dean of Students. United States students who are interested in study abroad may obtain information on institutions and on Fulbright and other scholarships from the Counselor for International Services.



**COUNSELING CENTER**

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors, and psychologists, works closely with other student services and supplements the academic advisory program.

**HOUSING**

For information about accommodations in the Men's Residence Halls, write to the Manager at 1201 Campus Parkway, Seattle 5, Washington. Preference is given to younger girls in assignment to the Women's Residence Halls. Interested women should write to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Information about fraternities may be obtained from the Interfraternity Council, Student Union Building, University of Washington, and about sororities from the Panhellenic Council, Student Union Building, University of Washington.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be approved by the Office of the Dean of Students.

Married students who have children are eligible to apply to the Office of Student Residences for accommodations in Union Bay Village and Sand Point Homes, the University's family housing projects. Because there is a long waiting list, new students should not rely on the possibility of immediate housing.

The Office of Student Residences, 23 Administration, keeps listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must be consulted in person.

**HEALTH CENTER**

The University maintains a health center and infirmary which help to guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

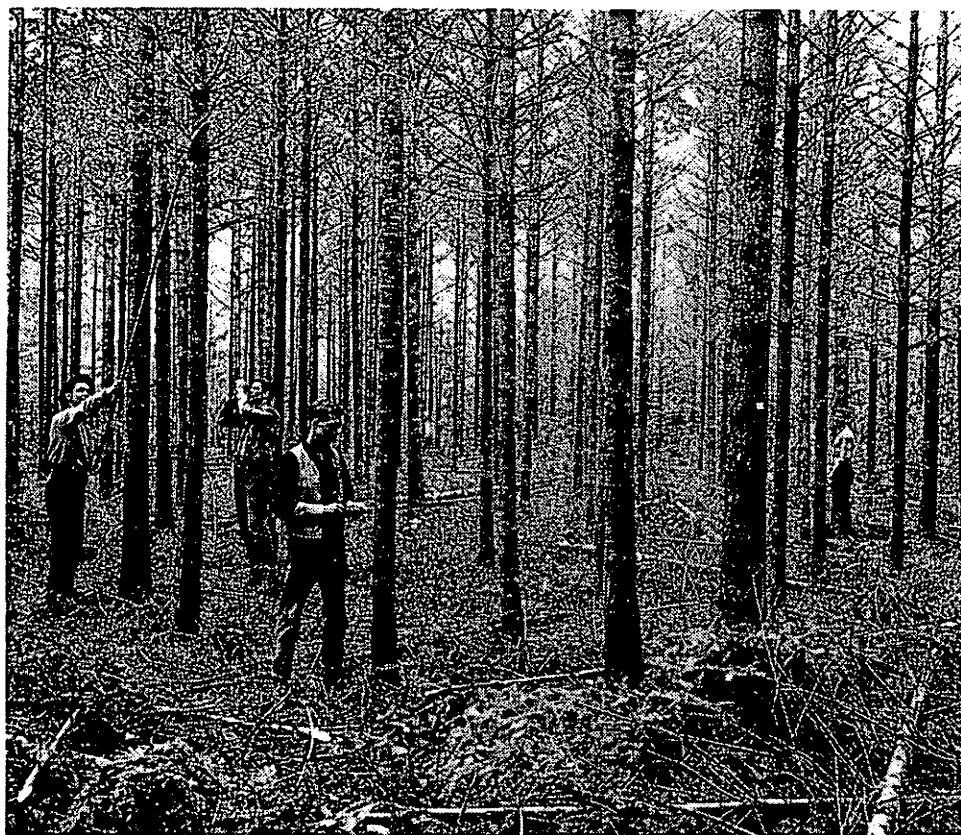
**PLACEMENT**

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Department and the ASUW Personnel Office.

The College of Forestry faculty helps forestry students to obtain summer employment while in the University and permanent employment upon graduation. Summer work is usually available through the United States Forest Service, Bureau of Land Management, and National Park Service, the State Department of Natural Resources, and a number of companies in the forest and lumber industries. Many of these agencies and companies send representatives to the College during Winter Quarter to interview prospective employees. All students are encouraged to seek summer employment, because such work offers an excellent opportunity for practical experience as well as financial help.

**FORESTRY ALUMNI ASSOCIATION**

Graduates of the College of Forestry are members of the Washington Foresters' Alumni Association. The yearly dues are \$2.00. Members receive the *Washington Forester*, which is published annually, and the Alumni Directory. An annual alumni reunion is held each spring either at Pack Forest or at the College of Forestry in conjunction with the annual Forest Club Banquet.



THE PROGRAMS IN FORESTRY

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# THE PROGRAMS IN FORESTRY

**T**HE COLLEGE OF FORESTRY offers courses leading to the degrees of Bachelor of Science in Forestry, Master of Forestry, Master of Science in Forestry, and Doctor of Philosophy. Curricula leading to these degrees are accredited by the Society of American Foresters.

## **BACHELOR OF SCIENCE IN FORESTRY**

For undergraduate students working toward the bachelor's degree, specialization is offered in forest management, logging engineering, and forest products. Students must meet certain general requirements of the University and the College as well as the particular curriculum requirements which are described in the announcements below. General requirements for the bachelor's degree include military training, physical education, scholarship and minimum credits, course requirements, and senior-year residence.

Students should apply for bachelor's degrees during the first quarter of the senior year. A student may choose to graduate under the graduation requirements of the appropriate school or college bulletin published most recently before the date of his entry into the college in which he is to graduate, provided that not more than ten years have elapsed since that date. As an alternative he may choose to fulfill the graduation requirements of the appropriate school or college bulletin published most recently before the date of his graduation. All responsibility for fulfilling graduation requirements shall rest with the student concerned. No student whose standing is provisional because he has not removed his entrance deficiencies can have an application for degree accepted until the deficiency is cleared.

## **MILITARY TRAINING**

Male students who enter the University as freshmen or sophomores are required to complete six quarters of military training. Students should meet this requirement during the first two years they are in residence (registered in regular University classes).

The requirement may be met with courses in one of three University departments: Air Science, Military Science and Tactics, or Naval Science. The Depart-

ments of Air Science and Military Science offer six-quarter (two-year) basic programs of class work and drill which fulfill University requirements, and two years of advanced ROTC training which selected students may enter after completing the basic program. Information about these programs may be obtained from the Professor of Air Science and the Professor of Military Science and Tactics at the University. The Department of Naval Science offers four-year programs only, and prospective students who are interested in Naval ROTC should write to the Professor of Naval Science.

Students with junior or senior standing in the Naval ROTC, and those who enter advanced Air Force or Army ROTC, must complete the program as a condition of graduation unless excused or dismissed by authority of the Secretary of the service concerned.

Exemptions from the requirement are granted to:

1. Students who are twenty-three or older at the time of original entrance.
2. Special students.
3. Part-time students, those registered for 6 credits or less.
4. Students who are not citizens of the United States.
5. Students who because of physical condition are exempted by the University Health Officer.
6. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.
7. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.
8. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.
9. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.
10. Students who seek exemptions on grounds other than specified above, and whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the dean of the college after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 4 or 10 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

#### PHYSICAL AND HEALTH EDUCATION

**ACTIVITY COURSES.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

*Men* students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

*Women* students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual or team activity.

*Transfer* students who present acceptable credit for physical education activity courses taken in other colleges may be exempted from all or part of the physical education requirement, the amount of exemption depending on the number of quarters for which credit is transferred.

Exemptions from the activity requirement are granted to men and women:

1. Students who are twenty-five or older at the time of original entrance.
2. Special students.

3. Part-time students, those registered for 6 credits or less.

4. Students who because of physical condition are exempted by the Graduation Committee upon the recommendation of the dean of the college. Such action will be taken only when the dean has received a joint recommendation for exemption from the University Health Officer and the Executive Officer of the Departments of Physical and Health Education for Men or Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfit to join regular classes will be assigned by the Executive Officer of the Departments of Physical and Health Education for Men or Women to special programs adapted to their needs.

5. Students who are veterans of military service. Complete exemption is granted for six months or more of active service. This exemption does not grant credit. Veterans with less than six months of service receive no exemption.

6. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**HEALTH COURSES.** All men students who enter the University as freshmen are required to take Health Education 175, a course in personal health, during the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption also does not grant credit.

Women students who enter the University as freshmen are required to take Health Education 110, a course in health education, during the first three quarters of residence. Women entering the University for the first time may satisfy this requirement by passing a health-knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 110.

#### SCHOLARSHIP AND MINIMUM CREDITS

Freshman students in their first three quarters, and transfer students in their first quarter, must maintain a 1.80 grade-point average. All other students must maintain a 2.00 (C). A cumulative average of 2.00 (C) is required for graduation.

Grade points per credit are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; and D, 1 point. A grade of E signifies failure and the grade point is 0. The grade-point average is computed by multiplying the grade point received in a course by the number of total credits the course carries, totaling these values for all courses, and dividing by the total number of credits for which the student is registered.

The University credit requirement for graduation (180 academic credits, plus physical education activity and military training credits) is superseded by the College of Forestry requirement, which is completion of one of the three undergraduate curricula. Each curriculum has 198 academic credits distributed over thirteen quarters, plus physical education activity and military training.

Army, Navy, and Air Force students may not use more than 9 quarter credits in advanced Army, Navy, or Air Force subjects to satisfy unrestricted elective credits in the College of Forestry.

Grades earned at other institutions may not be used to raise the grade-point average at the University of Washington. Any college may make additional requirements for graduation.

#### SENIOR-YEAR RESIDENCE

Senior standing is attained when 135 credits, plus the required quarters of ROTC and physical education, have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in at least three quarters of residence.

The remaining 10 credits shall be earned either in residence or in this University's extension or correspondence courses.

## ADVANCED DEGREES

Students who intend to work toward an advanced degree must apply for admission to the Graduate School and meet the requirements set forth by the Graduate School and the College of Forestry. *Graduate students must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.* The Master of Forestry, Master of Science in Forestry, and Doctor of Philosophy degrees are conferred by the Graduate School through the College of Forestry.

**Master of Forestry.** To qualify for the Master of Forestry degree, the candidate must have a bachelor's degree in forestry. Supporting course work is taken mainly in the field of forestry. Only 400- and 500-numbered courses are acceptable. A foreign language is not required.

**Master of Science in Forestry.** To qualify for the Master of Science in Forestry degree, the candidate must have a bachelor's degree in forestry or equivalent. A minor in science, constituting one third of the required course work, is required in support of the forestry major. Only 400- and 500-numbered courses are acceptable. Candidates admitted with a forestry-equivalent bachelor's degree ordinarily require two years to complete the degree. A foreign language is not required.

**Doctor of Philosophy.** Requirements are listed in the *Graduate School Bulletin*.

## COURSE-NUMBERING SYSTEM

Courses numbered from 100 through 299 are lower-division courses, for freshmen and sophomores; those numbered from 300 through 499 are upper-division, for juniors and seniors. Some 400 courses, if listed in the *Graduate School Bulletin* and if approved by the College of Forestry, may be applied toward an advanced degree. Courses numbered 500 and above are open to graduate students only.

The number in parentheses following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## CURRICULA

The lower-division curriculum is the same for all forestry students. Requirements for the first two years in the College are as follows:

### First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 101 Development.....	3	For. 130 Elem. Fire Control	3	For. 160 Elem. Forest	
Botany 114 Forestry		Botany 115 Forestry		Mensuration .....	5
Botany .....	3	Botany .....	3	Chemistry 150	
English 101 Composition ..	3	Chemistry 100 or 110		General .....	4
Gen. Engr. 101 Engr.		General .....	4-3	Math. 156 Algebra &	
Drawing .....	3	Gen. Engr. 121 Plane		Calculus .....	3
Math. 104 Plane		Surveying .....	3	Health Educ. 175 Personal	
Trig. ....	3	Math. 155 Algebra &		Health .....	2
Phys. Educ. activity .....	1	Calculus .....	3	Phys. Educ. activity .....	1
ROTC .....	2-3	Phys. Educ. activity .....	1	ROTC .....	2-3
		ROTC .....	2-3		
	18-19		18-20		17-18

**Summer Quarter****(Pack Forest)**

	CREDITS
For. 120 Intro. to Forest Ecology .....	5
For. 140 Forest Surveying .....	5
For. 161 Mensuration Field Problems .....	5
	<hr/> 15

**Second Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 202 Dendrology .....	3	For. 206 Wood Technology .....	4	For. 203 Dendrology .....	3
For. 260 Mensuration .....	5	Botany 216 Physiology of Seed Plants .....	4	For. 210 Elem. Forest Soils .....	3
English 102 Composition .....	3	Economics 211 General .....	3	For. 240 General Logging .....	2
Physics 101 and 107 General .....	5	Physics 102 and 108 General .....	5	For. 273 Major Forest Industries .....	4
ROTC .....	2-3	ROTC .....	2-3	Physics 103 and 109 General .....	5
	<hr/> 18-19		<hr/> 18-19	ROTC .....	2-3
					<hr/> 19-20

With the approval of their faculty advisers, third-year students choose a specialty and enter one of the three upper-division curricula in forestry.

**CURRICULUM IN FOREST MANAGEMENT****Third Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 310 Gen. Forest Soils .....	4	For. 321 Silvics .....	3	For. 322 Silvicultural Methods .....	3
For. 403 Timber Physics .....	3	For. 372 Seasoning & Preservation .....	2	For. 335 Insect Control .....	3
English 253 Factual Writing .....	3	For. 465 Forest Photo Interpretation .....	3	For. 430 Adv. Fire Control .....	3
Approved electives .....	5	Zoology 204 Forestry Zoology .....	5	Botany 361 Forest Pathology .....	5
	<hr/> 15	Approved electives .....	7	Approved electives .....	1
			<hr/> 15		<hr/> 15

**Fourth Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 423 Application of Silvicultural Methods .....	3	For. 408 Economics & Finance .....	5	For. 466 Field Studies .....	5
For. 460 Forest Management .....	5	For. 409 Forest Policy & Administration .....	3	For. 467 Field Studies .....	5
Approved electives .....	6	Approved electives .....	7	For. 468 Field Studies .....	4
	<hr/> 14		<hr/> 15	For. 469 Field Studies .....	2
					<hr/> 16

**CURRICULUM IN LOGGING ENGINEERING****Third Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 310 Gen. Forest Soils .....	4	For. 321 Silvics .....	3	For. 322 Silvicultural Methods .....	3
For. 404 Timber Physics .....	5	For. 372 Seasoning & Preservation .....	2	For. 335 Insect Control .....	3
Civil Engr. 212 Route Surveying .....	3	For. 440 Construction .....	4	For. 430 Adv. Fire Control .....	3
Civil Engr. 315 Photogrammetry or Interpretation .....	3	Civil Engr. 213 Earthwork Measurements .....	3	Botany 361 Forest Pathology .....	5
For. 465 Forest Photo Interpretation .....	3	Approved electives .....	3	Approved electives .....	1
	<hr/> 15		<hr/> 15		<hr/> 15

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 401 Safety Practices . . .	2	For. 408 Economics & Finance . . . . .	5	For. 446 Field Studies . . .	3
For. 441 Forest Engr. . . . .	5	For. 442 Logging Engr. . . .	5	For. 447 Field Studies . . .	5
For. 460 Forest Management . . . . .	5	Approved electives . . . . .	4	For. 448 Field Studies . . .	5
Approved electives . . . . .	3			For. 449 Field Studies . . .	3
	<hr/> 15		<hr/> 14		<hr/> 16

## CURRICULUM IN FOREST PRODUCTS

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 320 Silviculture . . . . .	3	For. 307 Wood Structure . .	3	For. 370 Wood Preservation . . . . .	3
For. 404 Timber Physics . . .	5	For. 461 Forest Management . . . . .	3	For. 371 Wood Preservation Lab. . . . .	2
For. 407 Forest Economics . .	2	Bus. Law 307 Business Law . . . . .	3	For. 471 Timber Design . .	3
Approved electives . . . . .	5	Approved electives . . . . .	6	Botany 361 Forest Pathology . . . . .	5
	<hr/> 15		<hr/> 15	Approved electives . . . . .	2

## Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 470 Forest Products Industries . . . . .	5	For. 472 Plywood, Lamination, & Glues . . .	5	For. 476 Wood Pulp . . . . .	6
For. 481 Milling . . . . .	5	For. 483 Kiln Drying . . . .	3	For. 482 Manufacturing Problems . . . . .	5
Approved electives . . . . .	5	Approved electives . . . . .	7	For. 484 Field Studies . . .	2
	<hr/> 15		<hr/> 15	For. 485 Seminar . . . . .	2

## COURSES FOR UNDERGRADUATES

- 101 Development of Forestry (3)** **Schaeffer**  
History of forestry and its present status in the United States. Orientation course required of all freshman forestry students; not open to others.
- 120 Introduction to Forest Ecology (5)** **Scott**  
An elementary study of the ecology of forest communities. Particular emphasis on field investigations of succession and development as related to different environments. (Given only at Pack Forest.)
- 130 Elementary Forest Fire Control (3)** **Schaeffer**  
Factors influencing spread of forest fires. Methods of forest fire prevention, suppression, detection, and suppression. Prerequisite, 101 or 301.
- 140 Forest Surveying (5)** **Thomas**  
Plane surveying with special emphasis on forest topographic mapping, including establishment of ground control through the use of the compass, Abney level, transit, level, steel tape, trailer chain and tape and pacing. Prerequisite, General Engineering 121. (Given only at Pack Forest.)
- 160 Elementary Forest Mensuration (5)** **Turnbull**  
The analysis and interpretation of forestry data through the use of statistical methods; fundamentals of forest measurements. Prerequisite, Mathematics 155.
- 161 Field Problems in Forest Mensuration (5)** **Turnbull**  
Field problems, including tree and timber stand measurement, site, tree form, and volume tables, timber cruising methods, log scaling, forest mapping, and growth investigations. Prerequisites, 160, General Engineering 101, 121, and Mathematics 156. (Given only at Pack Forest.)
- 202, 203 Dendrology (3,3)** **Brockman**  
Identification, classification, and distribution of the trees of North America. Prerequisite, Botany 114.
- 206 Wood Technology (4)** **Erickson, Thomas**  
The identification, uses, and basic physical and chemical properties of domestic and some foreign woods; natural moisture in wood; the effect of moisture changes on shrinking and swelling; calculations of moisture content, specific gravity and dimensional change. Prerequisites, 202, Botany 115, 10 credits in chemistry, and Physics 101 and 107.
- 210 Elementary Forest Soils (3)** **Gessol, Campbell**  
Relations of soils to geology and physiography: rocks and minerals in soils and soil organisms. Introduction to physical, chemical, and biological properties of soils. One Saturday field trip required.



- 240 General Logging (2)** **Stenzel**  
Regional logging methods in the United States with emphasis on those used in the Pacific Northwest. Prerequisites, 202, 203.
- 260 Forest Mensuration (5)** **Turnbull**  
Analysis and presentation of field data; methods of tree and timber stand volume determination; theory of log rules and volume tables; method of yield analysis and computation. Prerequisite, 161.
- 273 Major Forest Industries (4)** **Thomas**  
Fundamentals of processing and distributing the primary forest products; role of major forest industries in the economic structure of the Pacific Northwest.
- 301 Survey of Forestry (3)** **Brockman**  
History of the development of forestry, its aims and objectives; interrelationship between forestry and other phases of land use. For nonmajors.
- 307 Wood Structure (3)** **Thomas**  
Microscopic study of the structural features of wood. Identification of wood and wood fibers by microscopic methods. Prerequisite, 206, Botany 216.
- 310 General Forest Soils (4)** **Gessel**  
Advanced study of physical, chemical, biological, and morphological characteristics of forest soils. Consideration of soil properties important to tree growth. Introduction to soil development and classification. Prerequisites, 210, Botany 216, Mathematics 156, Physics 101 and 107.
- 320 Elements of Silviculture (3)** **Scott, Campbell**  
The fundamentals of silvics and silviculture. Emphasis is placed on methods of controlling wood quality and quantity through silvicultural practice. For forest products students only. Prerequisites, 120, 210, 260, and Botany 216.
- 321 Silvics (3)** **Scott, Campbell**  
A study of forest ecology and the silvicultural characteristics of forest trees. Includes environmental factors, forest influences, the establishment, development and general characteristics of trees and stands. Prerequisites, 120, 310, and Botany 216.
- 322 Silvicultural Methods (3)** **Scott**  
The theory and technique of applying silvical knowledge in controlling establishment, composition, and growth of forest stands. Includes reproduction methods, intermediate cuttings, and techniques for controlling cutting. Prerequisites, 260, 321.
- 335 Forest Insect Control (3)** **Brockman**  
Forestry practice in the control of insect attacks. Prerequisite, 320 or 322.
- 350 Wildlife Management (3)** **Brockman**  
Interrelations between forests and wildlife; life histories and habits of animals involved. Prerequisites, junior standing and permission.
- 353 Range Management (3)** **Campbell**  
Interrelations of plants, animals, and man on range lands. History of range-land use, principles and economics of proper use. One Saturday field trip required.
- 356 Forest Recreation (3)** **Brockman**  
Recreational needs, values, resources, and objectives; planning and development of outdoor recreational resources. Prerequisites, 101 or 301, junior standing, and permission.
- 370 Wood Preservation (3)** **Erickson**  
Wood-destroying agencies; semi-color classification and manner of attack. Theory of preservation; the important preservatives; pressure and nonpressure treating processes. Fire-retardant treatments, coatings and impregnation. Prerequisite, 307.
- 371 Wood Preservation Laboratory (2)** **Erickson**  
Evaluation of preservatives; analysis of preservatives; specifications for treated wood products; testing and inspection. Field trips to nearby commercial treating plants. Must be preceded or accompanied by 370.
- 372 Seasoning and Preservation (2)** **Erickson**  
The elementary principles and practices of drying and treating wood with major emphasis on methods of air seasoning and nonpressure treating of wood suitable for home use and small-scale operations. Prerequisite, 206.
- 380 Lumber Grading (2)** **Bryant**  
The principles of lumber grading and grade use with emphasis on softwood lumber grades. Hardwood and shingle grades included. Regular field trips. Prerequisites, 206, 273, 403 or 404.
- 401 Safety Practices in Forest Industries (2)** **Pearce**  
Accident costs and frequency rates; accident investigations; safety inspection; safety organization and program. Prerequisite, senior standing or permission.
- 403 Timber Physics (3)** **Bryant**  
The mechanical properties of wood; factors which affect its strength characteristics; introduction to graphic analysis of design problems; simple beam design. For forest management students only. Prerequisites, 160, 206, Mathematics 156, and Physics 101 and 107.
- 404 Timber Physics (5)** **Bryant**  
The mechanical properties of wood; factors which affect its strength characteristics; graphic analysis of design problems; beam design; timber testing. Prerequisites, 160, 206, Mathematics 156, and Physics 101 and 107.

- 406 Microtechnique (3)** **Thomas**  
The technique of preparing, sectioning, staining, and mounting woody tissues and fibers for microscopic study. Prerequisite, 307.
- 407 Forest Economics (2)** **Turnbull**  
A survey of the field of forest economics. Application of economic principles to forestry; economics of forest production and stumpage appraisal techniques. For forest products majors. Prerequisites, 260 and Economics 211.
- 408 Forest Economics and Finance (5)** **Turnbull**  
Position of forests in the economic structure; cost of growing timber; valuation of land for forest production; stumpage appraisal techniques; problems of forest taxation; labor-management relations in the forest industry. Prerequisites, 260 and Economics 211.
- 409 Forest Policy and Administration (3)** **Marckworth**  
Development of the attitude of the federal government and the states toward forests, and the general methods of administering public interest in forests; the development of private forestry in the United States. Prerequisite, senior standing.
- 410 Advanced Forest Soils (3)** **Gessel**  
A laboratory study of physical, chemical, and biological properties of forest soils. Prerequisites, 310 and permission.
- 423 Application of Silvicultural Methods (3)** **Scott**  
A study of the application of silvicultural methods to the important forest species, types, and regions of North America. Prerequisites, 202, 203, 322.
- 424 Advanced Silviculture (3)** **Scott**  
A detailed discussion of special problems or subjects in silviculture of interest to advanced students. Prerequisite, permission.
- 430 Advanced Forest Fire Control (3)** **Schaeffer**  
Presuppression; suppression; training methods; analysis of protection facilities; proper methods of slash disposal and hazard removal; fire behavior; organization for large fires. Prerequisite, 130.
- 440 Construction (4)** **Stanzel**  
Design and construction of forest roads; earth-moving methods and costs, explosives, surfacing, drainage. Laboratory: design of timber bridges. Prerequisites, 140, 403 or 404, and General Engineering 101.
- 441 Forest Engineering (5)** **Pearce**  
Logging planning; road projection, selection of landings and settings, logging cost control. Land surveying, subdivision, platting, and boundaries. Prerequisites, 322, 440.
- 442 Logging Engineering (5)** **Pearce**  
Logging machinery and equipment; application problems, with emphasis on motor truck performance. Field trips to logging equipment factories. Prerequisites, 240, 441.
- 446, 447, 448, 449 Logging Engineering Field Studies (3,5,5,3)** **Pearce**  
446: logging plans. 447: topographic and timber surveys. 448: road location. 449: cost estimates and reports. Development of a complete logging plan for a timber tract. Courses given consecutively in Spring Quarter. Prerequisites, 442, Civil Engineering 213 and 315, or Forestry 465.
- 455 Forest Influences (4)** **Gessel, Scott**  
A study of the effects of vegetation on climate, water and soil, with application to the conservation of water and soil and the control of floods. Fundamentals of watershed management are stressed. Prerequisite, permission.
- 460 Forest Management (5)** **Robertson**  
Economic and technical principles involved in the management of federal, state, and private forest lands. Emphasis is placed on principles of forest management applied to integrated use of all forest resources. Techniques used in timber inventories and management plans for continuous production of forest crops. Prerequisite, senior standing.
- 461 Forest Management (3)** **Robertson**  
Survey of the field of forest management. A comprehensive course in the general principles of forest management. For forest products majors. Prerequisite, 407.
- 465 Forest Photo Interpretation (3)** **Robertson**  
The use of aerial photographs in mapping vegetation types and estimating timber volumes. Construction of aerial photomosaics. Use of aerial photographs in fire control and range and timber management. Allocation of cut; logging road location; construction of planimetric and topographic maps from vertical photographs. Prerequisites, 260 and permission.
- 466, 467, 468, 469 Senior Management Field Studies (5,5,4,2)** **Robertson**  
466: surveys, use of aerial photographs in mapping forest types and estimating timber volumes. Application of statistical methods to cruising. 467: forest and land inventory in pine and fir regions. 468: growth and yield studies, permanent sample plots. 469: reports and summary of work accomplished by field studies. Course leads to development of a working plan for a large operation. All four courses are taken during the same quarter, and the entire quarter is spent off campus in a logging camp. Prerequisite, 460.
- 470 Forest Products Industries (5)** **Erickson**  
Wood products other than lumber, plywood, and pulp. Derived and miscellaneous forest products. Economic and industrial aspects of forest products. Laboratory experiments and field trips. Prerequisite, 307.
- 471 Timber Design (3)** **Bryant**  
Design of solid and laminated beams; design of trusses using timber connectors, bolts and other fastenings; column design; laminated arches. Prerequisite, 403 or 404.

- 472 Plywood, Lamination, and Glues (5)** **Bryant**  
Techniques of manufacturing plywood and laminated wood; theory of adhesion, modern wood adhesives, gluing problems. Laboratory emphasizes student familiarization with glues and gluing techniques, individual research problems, visits to plywood and laminating operations. Prerequisites, 307 and 404.
- 476 Wood Pulp (6)** **Grondal**  
The preparation of wood for pulp manufacture; production of mechanical and chemical pulp; practical problems in the operation of pulp and paper mills. Prerequisites, 206 and 372.
- 478 Advanced Wood Technology (5)** **Erickson, Bryant**  
The physical and chemical nature of wood; its colloidal properties as related to its physical and mechanical behavior in its solid and transmuted forms. Prerequisites, 370, 470, 472, 483.
- 481 Milling (5)** **Thomas**  
The sawmilling process with emphasis on modern milling practice, sawmill layout, plant engineering, and mill management. Prerequisites, 206, 273, and 403 or 404.
- 482 Manufacturing Problems (5)** **Thomas**  
Distribution and marketing of lumber, plywood, pulp, and other forest products; inter-regional and intra-industry competition; industry problems. Prerequisites, 470, 472, 476, and 481.
- 483 Theory and Practice of Kiln Drying (3)** **Grondal**  
Wood-liquid relationships and hygrometry; application of gas laws. Problems in the design of dry kilns. Prerequisite, 206, and 372 or 470.
- 484 Forest Products Field Studies (2)** **Thomas**  
Two-week field study of the forest products industry of the Northwest. Prerequisite, senior standing in forest products.
- 485 Forest Products Seminar (2)** **Staff**  
Reports by students and outside speakers on topics of current interest in forest products; discussion of special problems and field trips. Prerequisites, senior standing in forest products.
- 490, 491, 492 Undergraduate Studies (1-5, 1-5, 1-5)** **Staff**  
Preparation for work in fields for which there is not sufficient demand to warrant the organization of regular classes. Instructors are assigned according to the nature of the work.
- 495 Research Methods Seminar (3)** **Bryant**  
Methods of approaching research problems; conventional statistical techniques which can be adapted to problems in forestry and forest products. Course is designed to improve the student's efficiency as a research worker. Prerequisite, senior or graduate standing.

## COURSES FOR GRADUATES ONLY

- 510 Seminar in Forest Soils (2)** **Gessel**  
Prerequisites, 410 and permission.
- 512 Soil Morphology and Classification (3)** **Gessel**  
An advanced study of the principles of soil formation and classification; intensive coverage of these principles as applied to the survey and classification of forested lands; the factors of the environment that determine soil properties. Prerequisite, permission.
- 513 Methods of Forest Soil Survey (5)** **Gessel**  
A course of field studies to acquaint the student with methods of determining the productive capacity of forested lands from soil properties. Prerequisites, 512 and permission.
- 520 Seminar (1, maximum 3)** **Staff**  
Required of graduate students.
- 521 Advanced Silvics (3-5)** **Scott**  
A consideration of current literature and topics in forest tree ecology and physiology. Prerequisite, permission of instructor.
- 522 Advanced Silviculture (3)** **Scott**  
A detailed study of the literature dealing with the more recent applications of silviculture in world forestry. Prerequisite, permission of instructor.
- 523 Forest Tree Seed (2)** **Scott, Campbell**  
The study of forest tree seed, including structure, development, production, collection, provenance, storage, germination, dormancy, and stimulation. Prerequisite, permission.
- 525 Research Methods in Forest Ecology (2)** **Gessel, Scott, Campbell**  
The study of techniques for measuring environmental factors in silvicultural and soils research; methods used in the assessment of forest vegetation. Required of all graduate students in forest management. Prerequisites, 310 and 423, and permission.
- 540 Advanced Forest Engineering (5)** **Pearce**  
Logging organization and management; logging cost analysis and budgeting. Prerequisite, permission of instructor.
- 560 Forest History and Policy (3)** **Marckworth**  
Special studies in the development and administration of forest policies in the United States and/or in other countries. Prerequisites, 409 and 460.
- 562 Forest Management Plans (3-5)** **Robertson**  
Preparation of management plans for large areas of public and private forest lands. Discussion of current literature, principles, and new developments in forest management. Special study of assigned problems. Prerequisite, 469.

- 570 Advanced Wood Preservation (3)** **Erickson**  
Permeability of wood; theory of penetration; treating plants, their equipment and design. Prerequisites, 370 and 371.
- 590, 591, 592 Graduate Studies (2-5, 2-5, 2-5)** **Staff**  
Study in fields for which there is not sufficient demand to warrant the organization of regular courses.
- 600 Research (\*)** **Staff**
- Thesis (\*)** **Staff**

## PREScribed COURSES IN OTHER FIELDS

### BOTANY

- 114, 115, 216 Forestry Botany (3,3,4)** **Staff**  
114: structure of seed plants. 115: morphology of fungi and reproduction of seed plants. 216: physiology of seed plants. Prerequisites, 114 and Chemistry 150.
- 361 Forest Pathology (5)** **Staff**  
Common wood-destroying fungi and diseases of forest trees. Prerequisite, 115 or equivalent.

### BUSINESS LAW

- 307 Business Law (3)** **Staff**  
For engineering students and others unable to take more than 3 credits in business law. May not be substituted for 201. Not open for credit to business administration students. Prerequisite, permission.

### CHEMISTRY

- 100 General Chemistry (4)** **Staff**  
Open only to students without high school chemistry credit. States of matter, atomic and molecular structure, covalence reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test. (Formerly 111.)
- 110 General Chemistry (3)** **Staff**  
For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103, or the Algebra Qualifying Test. (Formerly 115.)
- 150 General Chemistry (4)** **Staff**  
For students planning more than two quarters of chemistry. Stoichiometry, gases, aqueous solutions, kinetics, acid and base equilibria, electrochemistry, oxidation and reduction. Prerequisite, 100 or 110, Mathematics 101 or 103, or passing score on Algebra Qualifying Test. (Formerly 112.)

### CIVIL ENGINEERING

- 212 Route Location (3)** **Staff**  
Alignment survey problems associated with the location of highways and railways, including preliminary and final location, staking of curves, compensation for curvature and sight distance, and preparation of location maps. Prerequisite, General Engineering 121.
- 213 Earthwork Measurements (3)** **Staff**  
Highway and railway grades, profiles, cross sections, earthwork quantities, including shrinkage and swell, and application of the mass diagram to the problems of haul; legal description and estimates. Prerequisite, General Engineering 121.
- 315 Photogrammetry (3)** **Staff**  
Application of aerial photography to the fields of engineering, geology, and forestry. Includes characteristics and geometry of aerial photographs, photo interpretation, flight planning and topographic map compilation from ground control and aerial photos. Includes a mapping project of a local area involving the establishment of ground control, flight line location by graphic triangulation, location of topography by use of the stereoscope parallax measuring devices, and vertical sketchmaster. Prerequisite, General Engineering 121 and junior standing; permission for nonengineering students.

### ECONOMICS

- 211 General Economics (3)** **Staff**  
Condensation of 200. Primarily for engineering and forestry students; other students by permission.

### ENGLISH

- 101, 102 Composition (3,3)** **Staff**  
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form.
- 253 Factual Writing (3)** **Staff**  
Term papers and reports. Prerequisites for foresters, English 101 and 102.

**GENERAL ENGINEERING**

- 101 Engineering Drawing (3)** **Staff**  
Short course for forestry and art students.
- 121 Plane Surveying (3)** **Staff**  
Surveying methods; use of the engineer's level, transit, and chain; computations of bearings, plane coordinate systems, areas, stadia surveying for topographic mapping; public land surveys. Emphasis is on physical measurements and problems. Prerequisites, 102 and trigonometry.

**MATHEMATICS**

- 104 Plane Trigonometry (3)** **Staff**  
Trigonometric functions, identities, graphs, logarithms, and solution of triangles. Mathematics 120 may be taken concurrently as a supplement to this course. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, and one year of plane geometry.
- 155, 156 Algebra and Calculus (3,3)** **Staff**  
Selected topics from college algebra, analytic geometry, and elementary calculus. Intended primarily for nonscience majors who need a brief introduction to calculus. Not open to students who have taken either 105 or 153. Prerequisites, 103 or 104 for 155; 155 for 156.

**PHYSICAL AND HEALTH EDUCATION****Health Education**

- 110 Health Education (Women) (2)**  
Health problems of freshman women. Required of all freshman women; exemption without credit by examination. See page 36.
- 175 Personal Health (Men) (2)** **Staff**  
Health information that affords a basis for intelligent guidance in the formation of health habits and attitudes. Required of all freshman men; exemption without credit by examination. See page 36.
- 292 First Aid and Safety (Men and Women) (3)**  
The student may meet requirements for both standard and advanced American Red Cross first aid certification. Includes safety education in schools. Prerequisite for men, junior standing.

**Physical Education Activities**

- 101 through 255 Physical Education Activities (Men) (1 each)** **Staff**  
101, 102, 103, adapted activities; 106, handball; 107, basketball; 108, tennis; 109, softball; 110, golf (fee, \$3.00 per quarter); 111, track; 112, crew (class), prerequisite, swimming; 114, boxing; 115, gymnastics; 117, wrestling; 118, volleyball; 119, swimming; 120, Rugby; 121, touch football; 122, badminton; 123, archery; 125, skiing (fee); 126, speedball; 127, bowling (fee, \$3.00 per quarter); 128, weight training; 129, sailing; 131, beginning; 134, intermediate folk and square dancing; 151, modern dance; 154, social dance; 157, canoeing (fee, \$2.50 per quarter); 141, freshman, 241, varsity basketball; 142, freshman, 242, varsity crew, prerequisite, swimming; 143, freshman, 243, varsity football; 144, freshman, 244, varsity track; 145, freshman, 245, varsity swimming; 146, freshman, 246, varsity baseball; 147, freshman, 247, varsity tennis; 148, freshman, 248, varsity golf; 149, freshman, 249, varsity skiing; 150, freshman, 250, varsity volleyball; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.
- 111 through 170; 211 through 270 Physical Education Activities (Women) (1 each)** **Staff**  
111, adapted activities; 112, basic activities (general); 113-114, basic activities (applied); 115, archery; 118, badminton; 119, body conditioning; 121, bowling (fee, \$3.00 per quarter); 124, fencing; 126, golf (fee, \$3.00 per quarter); 128, riding (fee); 129, sailing; 131, ski conditioning; 132, elementary skiing (fee); 133, stunts and tumbling; 135, tennis; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, folk and square dancing; 149, international folk dance; 151, modern dance; 154, social dance; 155, tap dance; 157, canoeing (fee, \$2.50 per quarter); 160, adapted swimming; 161, beginning swimming; 162, elementary swimming; 215, intermediate archery; 218, intermediate badminton; 221, intermediate bowling (fee, \$3.00 per quarter); 222, advanced bowling (fee, \$3.00 per quarter); 224, intermediate fencing; 228, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dancing; 251, intermediate modern dance; 252, advanced modern dance; 257, intermediate canoeing (fee, \$2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, rhythmic swimming; 266, diving; 267, lifesaving.

**PHYSICS**

- 101, 102, 103 General Physics (4,4,4)** **Staff**  
101: mechanics and sound. Concurrent registration in 107 recommended and may be required by individual departments. Prerequisites, plane geometry, trigonometry, and one year of high school physics. 102: electricity and magnetism. No credit in 102 if 112 has been taken. Prerequisite, 101; concurrent registration in 108 recommended and may be required by individual departments. 103: heat, light, and modern physics. No credit in 103 if 113 has been taken. Prerequisites, 101, 102; concurrent registration in 109 recommended and may be required by individual departments.

- 107, 108, 109 General Physics Laboratory (1,1,1)** **Staff**  
 107: mechanics and sound laboratory, concurrent registration in 101 recommended; 108: electricity and magnetism laboratory, concurrent registration in 102 recommended; 109: heat and light laboratory, concurrent registration in 103 recommended.

## ZOOLOGY

- 204 Forestry Zoology (5)** **Staff**  
 Evolution of animals to the level of the Arthropoda and Chordata; emphasis on these as the groups of animals of greatest practical importance in the forest fauna. Prerequisites, Botany 114, 115, and 216.

## ELECTIVE COURSES FOR UNDERGRADUATES

The forestry curriculum provides for a considerable number of elective courses which are selected in consultation with faculty advisers to fit the individual student's educational objective. Conventional areas of elective course work include courses from the following list (elective courses are not restricted to this list):

### ACCOUNTING

- 150 Fundamentals of Accounting (4)** **Staff**  
**151 Accounting Techniques (3)** **Staff**

### BOTANY

- 113 Elementary Botany (5)** **Staff**  
**431, 432 Taxonomy (5,5)** **Staff**  
**471 Mineral Nutrition (5)** **Staff**

### BUSINESS WRITING

- 310 Business Correspondence (5)** **Staff**

### CHEMISTRY

- 170 Elementary Qualitative Analysis (3)** **Staff**  
**221 Quantitative Analysis (5)** **Staff**  
**231, 232 Organic Chemistry (3,3)** **Staff**  
**241, 242 Organic Chemistry Laboratory (2,2)** **Staff**

### CIVIL ENGINEERING

- 214 Intermediate Surveying (3)** **Staff**  
**321 Roads and Pavements (3)** **Staff**

### ECONOMICS

- 340 Labor in the Economy (5)** **Staff**  
**441 Union-Management Relations (5)** **Staff**

### ENGLISH

- 253 Factual Writing (3)** **Staff**

### GEOGRAPHY

- 360 Introductory Cartography (5)** **Staff**  
**370 Conservation of Natural Resources (5)** **Staff**  
**444 Geography of Water Resources (3 or 5)** **Staff**

### GEOLOGY

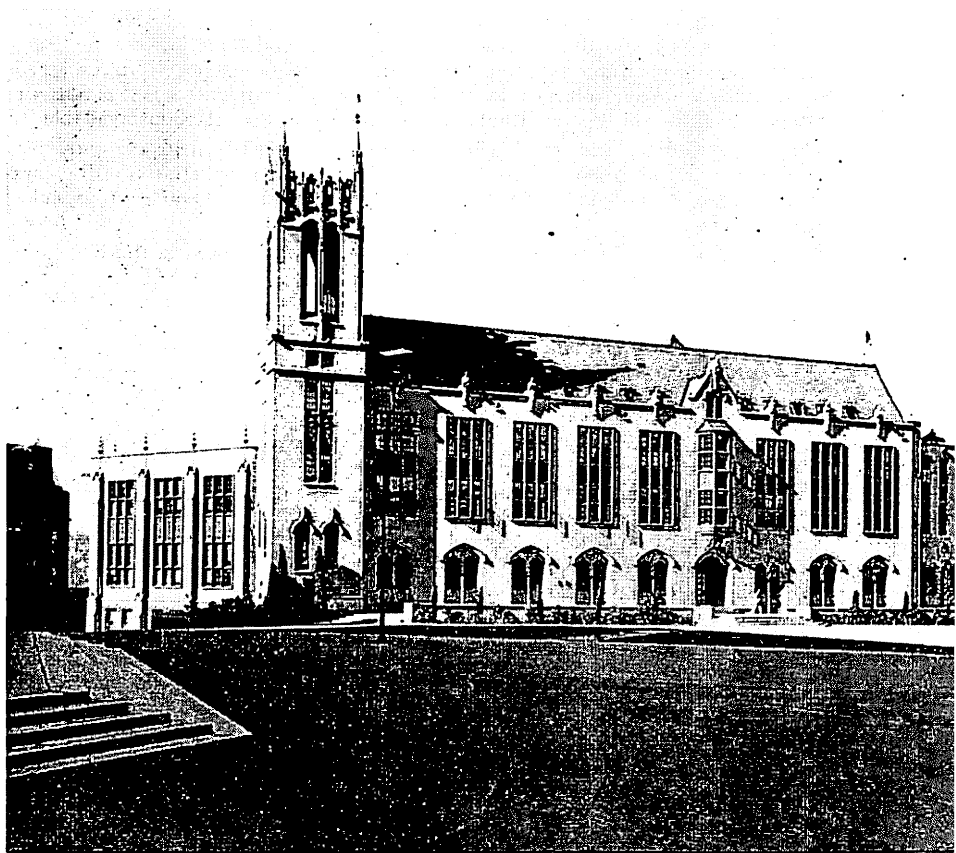
- 205 Rocks and Minerals (5)** **Staff**  
**206 Elements of Physiography (5)** **Staff**  
**207 Historical Geology (5)** **Staff**

### HISTORY

- 241 Survey of the History of the United States (5)** **Staff**  
**463 The Westward Movement (5)** **Staff**  
**464 History of Washington and the Pacific Northwest (5)** **Staff**

**HUMAN RELATIONS IN BUSINESS AND INDUSTRY****365 Industrial Relations for Engineers (3)****Staff****460 Human Relations in Business and Industry (5)****Staff****MATHEMATICS****153 Analytic Geometry and Calculus (5)****MECHANICAL ENGINEERING****201 Metal Casting (1)****Staff****202 Welding (1)****Staff****203 Metal Machining (1)****Staff****220 Heat Engines (3)****Staff****410 Engineering Administration (3)****Staff****411 Engineering Economy (3)****Staff****415 Quality Control (3)****Staff****417 Methods Analysis (3)****Staff****METEOROLOGY****101 Survey of the Atmosphere (5)****Staff****322 Regional Climatology (5)****Staff****MICROBIOLOGY****301 General Microbiology (5)****Staff****PERSONNEL****310 Personnel Management (5)****Staff****POLITICAL SCIENCE****202 American Government and Politics (5)****Staff****SPEECH****120 Introduction to Public Speaking (5)****Staff****327 Extempore Speaking (3)****Staff****ZOOLOGY****444 Entomology (5)****Staff****464 Natural History of Birds (Ornithology) (5)****Staff****465 Natural History of Mammals (5)****Staff**

**BULLETIN • UNIVERSITY OF WASHINGTON**



**GRADUATE SCHOOL**

**1959-1961**



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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Department of Correspondence Study and the Department of Extension Classes, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Registrar.

#### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS

INTRODUCTION TO THE UNIVERSITY

UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

#### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF DENTISTRY

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FISHERIES

COLLEGE OF FORESTRY

GRADUATE SCHOOL

SCHOOL OF LAW

SCHOOL OF MEDICINE

SCHOOL OF NURSING

COLLEGE OF PHARMACY

SCHOOL OF SOCIAL WORK

#### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT

SUMMER QUARTER ANNOUNCEMENT

CENTER FOR GRADUATE STUDY AT HANFORD

CORRESPONDENCE STUDY

EVENING CLASSES

# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	10
Board of Regents; Officers of Administration; Research Committee of the Graduate School; Executive Committee of the Graduate School; Gradu- ate Faculty Council and Group Operating Committees; Graduate Faculty	
GRADUATE SCHOOL ORGANIZATION . . . . .	41
Administration; Research; Special Features, Friday Harbor Laboratories, Laboratory of Radiation Biology, Research Computer Laboratory, Uni- versity of Washington Center for Graduate Study at Hanford, Univer- sity of Washington Press, Walker-Ames Visiting Professorships	
GENERAL INFORMATION . . . . .	49
Admission; Veterans; Required Examinations; Registration; Assistantships, Fellowships, and Scholarships; Tuition and Fees; Estimate of Yearly Expenses; Student Activities and Services	
THE GRADUATE PROGRAMS . . . . .	61
Residence; Scholarship; Master's Degrees; Doctor's Degrees; Course- Numbering System	
<i>College of Architecture and Urban Planning</i> . . . . .	66
<i>College of Arts and Sciences</i> . . . . .	67
Anthropology . . . . .	67
Art . . . . .	69
Botany . . . . .	71
Chemistry . . . . .	72
Classics . . . . .	74
Communications . . . . .	75
Drama . . . . .	77
Economics . . . . .	78
English . . . . .	80
Far Eastern and Russian Institute . . . . .	83
Far Eastern and Slavic Languages . . . . .	86
General and Comparative Literature . . . . .	90
Geography . . . . .	91
Geology . . . . .	93
Germanic Languages . . . . .	94
<i>College of Business Administration</i> . . . . .	132
<i>School of Dentistry</i> . . . . .	139
<i>College of Education</i> . . . . .	143
<i>College of Engineering</i> . . . . .	148
Aeronautical . . . . .	150
Chemical . . . . .	151
Civil . . . . .	153
<i>College of Fisheries</i> . . . . .	165
<i>College of Forestry</i> . . . . .	167
<i>Graduate School of Librarianship</i> . . . . .	169
<i>School of Medicine</i> . . . . .	171
Anatomy . . . . .	171
Biochemistry . . . . .	172
Microbiology . . . . .	173
Pathology . . . . .	174
Pharmacology . . . . .	174
Physiology and Biophysics . . . . .	175
History . . . . .	97
Home Economics . . . . .	100
Linguistics . . . . .	102
Mathematics . . . . .	102
Meteorology and Climatology . . . . .	104
Music . . . . .	106
Oceanography . . . . .	108
Philosophy . . . . .	109
Physical and Health Education . . . . .	111
Physics . . . . .	112
Political Science . . . . .	114
Psychology . . . . .	117
Romance Languages . . . . .	121
Scandinavian Languages . . . . .	125
Sociology . . . . .	126
Speech . . . . .	128
Zoology . . . . .	130
Electrical . . . . .	156
Mechanical . . . . .	159
Mineral . . . . .	162
<i>School of Nursing</i> . . . . .	179
<i>College of Pharmacy</i> . . . . .	180
<i>School of Social Work</i> . . . . .	182
Public Health . . . . .	176
Conjoint . . . . .	177
Pediatrics . . . . .	177
Psychiatry . . . . .	177
Surgery . . . . .	178

# CALENDAR

**AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS**  
(Autumn Quarter, 1959, through Summer Quarter, 1961)

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

## AUTUMN QUARTER, 1959

### REGISTRATION PERIOD

MAY 4-29	Advance Registration only for students in residence Spring Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-29	In-Person Registration for former students not in residence Spring Quarter, 1959, and those attending Spring Quarter, 1959, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning <i>June 8</i> . Deadline for applying for Registration Appointment or Permit is <i>September 15</i> .
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 14-25	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 14-29	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 29	Last day to register for Autumn Quarter, 1959.
OCT. 1-6	Change of registration by appointment only.

### ACADEMIC PERIOD

SEPT. 28—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 30—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 6—TUESDAY	Last day to add a course
OCT. 13—TUESDAY	Last day to file applications for master's degrees for Autumn Quarter
NOV. 11—WEDNESDAY	State Admission Day holiday
NOV. 25-30	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 14-18	Final examinations
DEC. 18—FRIDAY	Quarter ends

## WINTER QUARTER, 1960

### REGISTRATION PERIOD

OCT. 26-Nov. 20	Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
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- DEC. 28-30 In-Person Registration for former students not in residence Autumn Quarter, 1959, and those attending Autumn Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than December 11*. Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between *November 23 and December 11*. Deadline for applying for Registration Appointment or Permit is *December 11*.
- DEC. 4 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- DEC. 28-30 In-Person Registration for ALL new students.
- DEC. 30 Last day to register for Winter Quarter, 1960.
- JAN. 5-8 Change of registration by appointment only.

**ACADEMIC PERIOD**

- JAN. 4—MONDAY Instruction begins
- JAN. 8—FRIDAY Last day to add a course
- JAN. 15—FRIDAY Last day to file applications for master's degrees for Winter Quarter
- FEB. 22—MONDAY Washington's Birthday and Founder's Day holiday
- MAR. 14-18 Final examinations
- MAR. 18—FRIDAY Quarter ends

**SPRING QUARTER, 1960****REGISTRATION PERIOD**

- JAN. 25-FEB. 19 Advance Registration only for students in residence Winter Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- MAR. 22-24 In-Person Registration for former students not in residence Winter Quarter, 1960, and those attending Winter Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 11*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between *February 23 and March 11*. Deadline for applying for Registration Appointment or Permit is *March 11*.
- FEB. 26 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- MAR. 22-24 In-Person Registration for ALL new students.

MAR. 24 Last day to register for Spring Quarter, 1960.  
 MAR. 29-APR. 1 Change of registration by appointment only.

#### ACADEMIC PERIOD

MAR. 28-MONDAY Instruction begins  
 APR. 1-FRIDAY Last day to add a course  
 APR. 8-FRIDAY Last day to file applications for master's degrees for Spring Quarter  
 MAY 20-FRIDAY Governor's Day  
 MAY 30-MONDAY Memorial Day holiday  
 JUNE 5-SUNDAY Baccalaureate Sunday  
 JUNE 6-10 Final examinations  
 JUNE 10-FRIDAY Quarter ends  
 JUNE 11-SATURDAY Commencement

### SUMMER QUARTER, 1960

#### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 1-3  
 June 13-17

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

#### *Students in residence Spring Quarter, 1960:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates ..... Monday, April 18, 8 a.m. to 5 p.m.  
 Juniors ..... Tuesday, April 19, 8 a.m. to 5 p.m.  
 Sophomores ..... Wednesday, April 20, 8 a.m. to 5 p.m.  
 Freshmen ..... Thursday, April 21, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1960*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 19 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

#### ACADEMIC PERIOD

JUNE 20-MONDAY Instruction begins  
 JUNE 21-TUESDAY Last day to add a course for the first term  
 JUNE 24-FRIDAY Last day to add a course for the full quarter  
 JULY 1-FRIDAY Last day to file applications for master's degrees for Summer Quarter  
 JULY 4-MONDAY Independence Day holiday  
 JULY 20-WEDNESDAY Final examinations and first term end

JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
AUG. 19—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1960****REGISTRATION PERIOD**

MAY 2-27	Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 8-27	In-Person Registration for former students not in residence Spring Quarter, 1960, and those attending Spring Quarter, 1960, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning <i>June 6</i> . Deadline for applying for Registration Appointment or Permit is <i>September 13</i> .
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 12-23	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 12-27	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 27	Last day to register for Autumn Quarter, 1960.
SEPT. 29-OCT. 4	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 26—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 4—TUESDAY	Last day to add a course
OCT. 11—TUESDAY	Last day to file applications for master's degrees for Autumn Quarter
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 12-16	Final examinations
DEC. 16—FRIDAY	Quarter ends

**WINTER QUARTER, 1961****REGISTRATION PERIOD**

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960, and those attending

Autumn Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing or calling at the Registrar's Office *no later than December 9*. Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between *November 22* and *December 9*. Deadline for applying for *Registration Appointment* or *Permit* is *December 9*.

- DEC. 2      Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- DEC. 27-29      In-Person Registration for ALL new students.
- DEC. 29      Last day to register for Winter Quarter, 1961.
- JAN. 4-9      Change of registration by appointment only.

#### ACADEMIC PERIOD

- JAN. 3—TUESDAY      Instruction begins
- JAN. 9—MONDAY      Last day to add a course
- JAN. 16—MONDAY      Last day to file applications for master's degrees for Winter Quarter
- FEB. 22—WEDNESDAY      Washington's Birthday and Founder's Day holiday
- MAR. 13-17      Final examinations
- MAR. 17—FRIDAY      Quarter ends

### SPRING QUARTER, 1961

#### REGISTRATION PERIOD

- JAN. 23-FEB. 17      Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- MAR. 21-23      In-Person Registration for former students not in residence Winter Quarter, 1961, and those attending Winter Quarter, 1961, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 10*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between *February 20* and *March 10*. Deadline for applying for *Registration Appointment* or *Permit* is *March 10*.
- MAR. 1      Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- MAR. 21-23      In-Person Registration for ALL new students.
- MAR. 23      Last day to register for Spring Quarter, 1961.
- MAR. 27-31      Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 27—MONDAY	Instruction begins
MAR. 31—FRIDAY	Last day to add a course
APR. 7—FRIDAY	Last day to file applications for master's degrees for Spring Quarter
MAY 19—FRIDAY	Governor's Day
MAY 30—TUESDAY	Memorial Day holiday
JUNE 4—SUNDAY	Baccalaureate Sunday
JUNE 5—MONDAY	Final examinations begin
JUNE 9—FRIDAY	Final examinations and Quarter end
JUNE 10—SATURDAY	Commencement

**SUMMER QUARTER, 1961****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

May 31-June 2

June 12-16

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits to register will be issued as follows:

*Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 17, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 18, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 19, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 20, 8 a.m. to 5 p.m.

*Former students not in residence Spring Quarter, 1961, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 17 and preferably no later than May 15. Applications for Registration Appointment must be received before registration materials can be processed.*

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 19—MONDAY	Instruction begins
JUNE 20—TUESDAY	Last day to add a course for the first term
JUNE 23—FRIDAY	Last day to add a course for the full quarter
JUNE 30—FRIDAY	Last day to file applications for master's degree for Summer Quarter
JULY 4—TUESDAY	Independence Day holiday
JULY 19—WEDNESDAY	Final examinations and first term end
JULY 20—THURSDAY	Second term begins
JULY 21—FRIDAY	Last day to add a course for the second term
AUG. 18—FRIDAY	Final examinations and second term end



## ADMINISTRATION

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### OFFICERS OF ADMINISTRATION

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NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Treasurer</i>
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DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
JOSEPH L. MCCARTHY, Ph.D.	<i>Dean of the Graduate School</i>
HENRIETTA WILSON, M.A.	<i>Assistant to the Dean</i>

### RESEARCH COMMITTEE OF THE GRADUATE SCHOOL

#### INITIATIVE 171 SECTION (MEDICINE AND BIOLOGY)

JOSEPH L. MCCARTHY, <i>Chairman</i>	EDWIN G. KREBS, <i>Biochemistry</i>
ARTHUR G. ANDERSON, <i>Chemistry</i>	LLOYD M. NYHUS, <i>Surgery</i>
ALLEN C. DELACY, <i>Fisheries</i>	HARRY D. PATTON, <i>Physiology and</i>
W. THOMAS EDMONDSON, <i>Zoology</i>	<i>Biophysics</i>
B. S. HENRY, <i>Microbiology</i>	HERBERT S. RIPLEY, <i>Psychiatry</i>
BERTRAM KRAUS, <i>Dentistry</i>	WADE VOLWILER, <i>Medicine</i>

#### RESEARCH FUND OF THE GRADUATE SCHOOL SECTION (ARTS, HUMANITIES, AND SOCIAL SCIENCES)

JOSEPH L. MCCARTHY, <i>Chairman</i>	BOYER GONZALES, <i>Art</i>
EDWARD E. BOSTETTER, <i>English</i>	GUY G. GORDON, <i>Business Administration</i>
JEAN C. CHESSEX, <i>Romance Languages</i>	JOHN C. SHERMAN, <i>Geography</i>

### EXECUTIVE COMMITTEE OF THE GRADUATE SCHOOL

JOSEPH L. MCCARTHY, <i>Chairman</i>	NEWEL COMISH, <i>Marketing, Transportation, Foreign Trade</i>
CARROLL E. REED, <i>Germanics</i>	W. RYLAND HILL, <i>Electrical Engineering</i>
BOYER GONZALES, <i>Art</i>	HANS NEURATH, <i>Biochemistry</i>
E. C. LINGAFELTER, <i>Chemistry</i>	NATHAN A. HALL, <i>Pharmacy</i>
W. STULL HOLT, <i>History</i>	

### GRADUATE FACULTY COUNCIL AND GROUP OPERATING COMMITTEES

(The combined membership of the eight Group Operating Committees comprises the Graduate Faculty Council—Joseph L. McCarthy, *Chairman*.)

#### GROUP 1.

Edward E. Bostetter, Abraham Keller, Carroll E. Reed (Chairman), Thomas G. Rosenmeyer, and Arnold Stein.

**GROUP 2.**

Barnet Baskerville, Stanley Chapple, Boyer Gonzales (Chairman), Kathleen Munro, and Henry Ladd Smith.

**GROUP 3.**

Maynard G. Arsove, Ronald Geballe, E. C. Lingafelter (Chairman), J. Hoover Mackin, and William T. Simpson.

**GROUP 4.**

W. Stull Holt (Chairman), Vernon A. Mund, Donald W. Treadgold, Edward L. Ullman, and James B. Watson.

**GROUP 5.**

Theodore J. Barnowe, Newel W. Comish (Chairman), Alice H. Hayden, Fred J. Mueller, and Dwight E. Robinson.

**GROUP 6.**

W. Ryland Hill (Chairman), Harvey D. Erickson, Blake D. Mills, and Earl C. Roberts.

**GROUP 7.**

H. Stanley Bennett, Howard C. Douglas, Edmond H. Fischer, Hans Neurath (Chairman), and Allen M. Scher.

**GROUP 8.**

David Gronewold, Nathan Hall (Chairman), Katherine Hoffman, Norman F. Kunde, and Alton W. Moore.

**GRADUATE FACULTY**

(As of September 16, 1959)

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

Aagaard, George Nelson, 1954, *Professor of Medicine; Dean of the School of Medicine*

B.S., 1934, M.B., 1936, M.D., 1937, Minnesota

Abrahamson, Arthur Clarence, 1956 (1959), *Associate Professor of Social Work*

B.A., 1924, Augustana College; M.A., 1947, Minnesota

Adams, Robert Pardee, 1947, *Associate Professor of English*

B.A., 1931, Oberlin; Ph.D., 1937, Chicago

Allendoerfer, Carl Barnett, 1951, *Professor of Mathematics; Executive Officer of the Department of Mathematics*

B.S., 1932, Haverford College; B.A., 1934, M.A., 1939, Oxford (England); Ph.D., 1937, Princeton

Alps, Glen Earl, 1945 (1955), *Associate Professor of Art*

B.A., 1940, Colorado State College of Education; M.F.A., 1947, Washington

Ames, William E., 1957, *Assistant Professor of Communications*

B.S., 1948, South Dakota State, M.S., 1952, Iowa State

Anderson, Arthur G., Jr., 1946 (1957), *Professor of Chemistry*

A.B., 1940, Illinois; M.S., 1942, Ph.D., 1944, Michigan

Anderson, Berton Emmett, 1948 (1950), *Associate Professor of Dental Science and Literature; Assistant Dean of the School of Dentistry; Director of Post-graduate Dental Education; Director of Admissions of School of Dentistry*

D.M.D., 1925, Oregon

Anderson, Frederick Neil, 1945 (1959), *Associate Professor of Art*

B.A., 1943, Washington; M.F.A., 1954, Minnesota

Archer, Stephen H., 1956, *Assistant Professor of Finance*

B.A., 1949, M.A., 1953, Ph.D., 1958, Minnesota

- Arestad, Sverre, 1937 (1958), *Professor of Scandinavian Languages; Executive Officer of the Department of Scandinavian Languages*  
B.A., 1929, Ph.D., 1938, Washington
- Arsove, Maynard Goodwin, 1951 (1956), *Associate Professor of Mathematics*  
B.S., 1943, Lehigh; M.S., 1948, Ph.D., 1950, Brown
- Avann, Sherwin Parker, 1946, *Assistant Professor of Mathematics*  
B.S., 1938, Washington; M.S., 1940, Ph.D., 1942, California Institute of Technology
- Ayllón, Cándido, 1956 (1957), *Assistant Professor in Spanish*  
B.A., 1951, Brooklyn; M.A., 1952, Ph.D., 1956, Wisconsin
- Babb, Albert Leslie, 1952 (1956), *Associate Professor of Chemical Engineering*  
B.A.Sc., 1948, British Columbia; M.S., 1949, Ph.D., 1951, Illinois
- Babb, Warren, 1955, *Assistant Professor of Music*  
B.A., 1938, M.A., 1939, Harvard
- Badgley, Franklin Ilsley, 1950 (1959), *Associate Professor of Meteorology and Climatology*  
B.S., 1935, Chicago; M.S., 1948, Ph.D., 1951, New York
- Baer, Donald M., 1957, *Assistant Professor of Psychology*  
A.B., 1950, Ph.D., 1957, Chicago
- Baily, Athol Romaine, 1949 (1955), *Associate Professor of Industrial Education*  
B.S., 1931, Kansas State Teachers College; M.A., 1936, Ed.D., 1949, Missouri
- Balise, Peter Louis, Jr., 1953 (1957), *Associate Professor of Mechanical Engineering*  
S.B., 1948, S.M., 1950, Massachusetts Institute of Technology
- Ballantine, John Perry, 1926 (1937), *Professor of Mathematics*  
A.B., 1918, Harvard; Ph.D., 1923, Chicago
- Barksdale, Julian Devreau, 1936 (1949), *Professor of Geology*  
A.B., 1930, Stanford; Ph.D., 1936, Yale
- Barnes, Clifford Adrian, 1947 (1955), *Professor of Oceanography*  
B.S., 1930; Ph.D., 1936, Washington
- Barnowe, Theodore Joseph, 1947 (1955), *Professor of Human Relations and Administration*  
B.A., 1939, Morningside College (Iowa); M.A., 1940, Ph.D., 1946, Washington
- Barth, Ernest A. T., 1955 (1959), *Assistant Professor of Sociology*  
B.A., Rochester, 1950; M.A., 1953, Ph.D., 1955, North Carolina
- Baskerville, Barnet, 1948 (1954), *Associate Professor of Speech*  
B.A., 1940, M.A., 1944, Washington; Ph.D., 1948, Northwestern
- Batie, Harriett Virginia, 1941 (1954), *Assistant Professor of Education; Certification and Academic Adviser*  
B.S., 1935, Hastings College; M.A., 1945, Ph.D., 1953, Washington
- Bauer, Harry C., 1945 (1947), *Professor of Librarianship; Director of Libraries*  
A.B., 1927, M.S., 1929, Washington University, St. Louis; Certificate of Librarianship, 1931, St. Louis Library School
- Beale, James MacArthur, Jr., 1948 (1958), *Associate Professor of Music*  
B.A., 1945, Harvard; B.Mus., 1946, M.Mus., 1947, Yale
- Bear, Herbert Stanley, Jr., 1957 (1958), *Assistant Professor of Mathematics*  
B.A., 1950, Ph.D., 1957, California
- Beaty, Jerome, 1956 (1958), *Assistant Professor of English*  
A.B., 1947, M.A., 1948, Johns Hopkins; Ph.D., 1956, Illinois
- Beaumont, Ross Allen, 1940 (1954), *Professor of Mathematics*  
A.B., 1936, M.S., 1937, Michigan; Ph.D., 1940, Illinois
- Bennett, H. Stanley, 1948, *Professor of Anatomy; Executive Officer of the Department of Anatomy*  
A.B., 1932, Oberlin; M.D., 1936, Harvard
- Bentley, G. Nelson, 1952 (1957), *Assistant Professor of English*  
A.B., 1941, M.A., 1945, Michigan
- Benson, Merritt E., 1931 (1948), *Professor of Communications*  
L.L.B., 1930, Minnesota; B.A., 1942, Washington

- Berg, Kenneth Bernard, 1950 (1957), *Professor of Accounting*  
B.S.C., 1939, North Dakota; M.S., 1941, Ph.D., 1952, Illinois; C.P.A., 1954, State of Washington
- Bergseth, Frederick Robert, 1947 (1957), *Professor of Electrical Engineering*  
B.S. in E.E., 1937, Washington; S.M. in E.E., 1938, Massachusetts Institute of Technology
- Bevis, Leura Dorothy, 1947 (1956), *Associate Professor of Librarianship*  
B.A., 1927, Pomona; B.S. in L.S., 1947, Southern California; M.A., 1951, Washington
- Bijou, Sidney William, 1948 (1951), *Professor of Psychology; Director of the Institute of Child Development*  
B.S., 1933, Florida; M.A., 1936, Columbia; Ph.D., 1941, Iowa
- Bird, Winfred Wylam, 1928 (1946), *Associate Professor of Speech*  
A.B., 1926, Lawrence College (Wisconsin); Ph.D., 1938, Iowa
- Birnbaum, Zygmunt William, 1939 (1950), *Professor of Mathematics; Director of the Laboratory of Statistical Research*  
LL.M., 1925, Ph.D., 1929, John Casimir (Lwow, Poland)
- Blair, John Sanborn, 1952 (1957), *Associate Professor of Physics*  
B.S., 1943, Yale; M.S., 1949, Ph.D., 1951, Illinois
- Blandau, Richard Julius, 1949 (1951), *Professor of Anatomy; Assistant Dean of the School of Medicine*  
A.B., 1935, Linfield College; Ph.D., 1939, Brown; M.D., 1948, Rochester
- Blankenship, William Russell, 1932 (1943), *Professor of English*  
A.B., 1914, Missouri; A.M., 1929, Ph.D., 1935, Washington
- Blaser, Henry Weston, 1946 (1948), *Associate Professor of Botany*  
B.S., 1931, A.M., 1933, Temple; Ph.D., 1940, Cornell
- Bluestone, George, 1957 (1959), *Assistant Professor of English*  
B.A., 1949, Harvard; M.F.A., 1951, Iowa; Ph.D., 1956, Johns Hopkins
- Blumenthal, Robert McCallum, 1956 (1957), *Assistant Professor of Mathematics*  
B.A., 1952, Oberlin; Ph.D., 1956, Cornell
- Bodansky, David, 1954 (1958), *Associate Professor of Physics*  
B.S., 1943, M.A., 1948, Ph.D., 1950, Harvard
- Bodemer, Charles W., 1956 (1959), *Assistant Professor of Anatomy*  
B.A., 1951, Pomona College; M.A., 1952, Claremont Graduate School; Ph.D., 1956, Cornell
- Bogan, Richard Herbert, 1954 (1957), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1949, Washington; S.M., 1952, Sc.D., 1954, Massachusetts Institute of Technology
- Bone, Hugh Alvin, 1948, *Professor of Political Science; Executive Officer of the Department of Political Science*  
B.A., 1931, North Central College; M.A., 1935, Wisconsin; Ph.D., 1937, Northwestern
- Boroughts, Homer, Jr., 1948 (1956), *Associate Professor of Elementary Education*  
B.A., 1939, Western Washington College of Education; M.A., 1947, Ph.D., 1949, Washington
- Bostetter, Edward Everett, 1940 (1959), *Professor of English*  
B.A., 1935, Franklin and Marshall (Pennsylvania); M.A., 1937, Ph.D., 1938, Princeton
- Bourque, Philip J., 1957, *Associate Professor of General Business*  
A.B., 1949, Massachusetts; M.A., 1950, Ph.D., 1956, Pennsylvania
- Brabb, George J., 1956 (1957), *Assistant Professor of Statistics*  
B.S., 1950, M.S., 1954, Idaho; Ph.D., 1957, Illinois
- Brazeau, Wendell Phillips, 1945 (1955), *Associate Professor of Art*  
B.F.A., 1933, M.F.A., 1947, Washington
- Brewer, Stanley Harold, 1946 (1956), *Professor of Transportation*  
B.A., 1942, M.B.A., 1943, Washington, I.C.C. Practitioner, 1948; F.M.B. Practitioner, 1950
- Brien, Frederick Blyth, 1954 (1957), *Associate Professor of Mineral Engineering*  
B.S. in Min.E., 1950, Alberta; M.S. in Min.E., 1951, Columbia
- Briggs, James Robert, 1952 (1955), *Associate Professor of Business Administration*  
A.B., 1935, M.A., 1950, Washington; D.Ed., 1954, Stanford
- Brockman, Christian Frank, 1946 (1957), *Professor of Forestry*  
B.S., 1924, Colorado State; M.S., 1931, Washington
- Brockway, Doris J., 1951, *Associate Professor of Home Economics*  
B.A., 1926, Washington State; M.A., 1939, Washington

- Broer, Marion Ruth, 1947 (1955), *Associate Professor of Physical Education*  
B.S., 1933, M.S., 1936, Wisconsin; Ph.D., 1954, New York
- Brown, Edward Gordon, 1948 (1949), *Professor of Business Policy*  
A.B., 1929, Washington; M.B.A., 1932, Harvard
- Brown, Malcolm Johnston, 1946 (1956), *Associate Professor of English*  
B.A., 1931, Ph.D., 1946, Washington
- Brown, Stephen Darden, 1930 (1937), *Associate Professor of Business Law*  
LL.B., 1925, A.B., 1932, Washington; LL.M., 1938, Stanford
- Brownell, Francis Herbert, III, 1950 (1956), *Associate Professor of Mathematics*  
B.A., 1943, M.S., 1947, Yale; Ph.D., 1949, Princeton
- Bryant, Benjamin Smyth, 1949 (1959), *Associate Professor of Forestry*  
B.S.F., 1947, M.S.F., 1948, Washington; D.F., 1951, Yale
- Buck, George Crawford, 1950 (1958), *Assistant Professor of Germanic Literature*  
B.A., 1942, Amherst; M.A., 1948, Ph.D., 1954, Yale
- Budel, Oscar, 1956, *Assistant Professor of Italian Language and Literature*  
Abitur, 1942, Dr.Phil., 1950, University of Wurzburg (Germany)
- Buettner, Konrad J. K., 1953 (1957), *Professor of Meteorology and Climatology*  
B.S., 1922, Gymnasium (Pforte, Germany); Dr.phil., 1926, Göttingen (Germany);  
Dr.phil.habil., 1934, Kiel (Germany)
- Burke, Agnes Evelyn, 1943 (1953), *Associate Professor of Nursing*  
B.S., 1930, Akron Municipal; R.N., 1930, M.A., 1941, Western Reserve; C.P.H.N., 1943,  
Washington
- Burke, Robert Eugene, 1957, *Assistant Professor of History*  
A.B., 1946, Chico State College; M.A., 1947, Ph.D., 1950, California
- Burns, Harry Hamilton, 1934 (1948), *Associate Professor of English*  
B.A., 1928, Ph.D., 1935, Washington
- Burns, Wayne, 1948 (1954), *Associate Professor of English*  
A.B., 1938, Miami (Ohio); A.M., 1940, Harvard; Ph.D., 1946, Cornell
- Businger, Joost A., 1958, *Assistant Professor of Meteorology and Climatology*  
B.S., 1947, Doctoralexamen, 1950, Ph.D., 1954, Utrecht (Netherlands)
- Butterbaugh, Grant Illion, 1930 (1956), *Professor of Statistics*  
A.B., 1916, Wisconsin; M.B.A., 1923, Washington; Ph.D., 1942, Chicago
- Cady, George Hamilton, 1938 (1947), *Professor of Chemistry*  
A.B., 1927, A.M., 1928, Kansas; Ph.D., 1930, California
- Camilleri, Santo Francis, 1952 (1957), *Assistant Professor of Sociology*  
A.A., 1946, Los Angeles City College; B.A., 1947, M.A., 1949, Ph.D., 1955, California  
(Los Angeles)
- Campbell, Robert John, Jr., 1955, *Assistant Professor of Ceramic Engineering*  
B.S., Ch.E., 1939, Oregon State; M.S. in Cer.E., 1954, Washington
- Campbell, Thomas Herbert, 1945 (1955), *Professor of Civil Engineering*  
B.S. in C.E., 1934, Washington; M.S. in C.E., 1938, Massachusetts Institute of Technology
- Carlson, Loren Daniel, 1945 (1955), *Professor of Physiology and Biophysics*  
B.S., 1937, St. Ambrose College; Ph.D., 1941, Iowa
- Carr, Kenneth Mills, 1944 (1953), *Assistant Professor of Drama*  
B.A., 1942, Eastern Washington College of Education; M.A., 1945, Washington
- Carrell, James Aubrey, 1939 (1947), *Professor of Speech*  
A.B., 1927, Nebraska Wesleyan; M.A., 1929, Ph.D., 1936, Northwestern
- Cartwright, Philip Windsor, 1947 (1952), *Associate Professor of Economics;*  
*Associate Dean of the College of Arts and Sciences*  
A.B., 1940, M.A., 1942, Ph.D., 1950, Stanford
- Catton, William Robert, Jr., 1957, *Assistant Professor of Sociology*  
A.B., 1950, Oberlin; M.A., 1952, Ph.D., 1954, Washington
- Chang, Kun, 1951 (1957), *Associate Professor of Far Eastern and Slavic*  
*Languages and Literature*  
B.A., 1938, National Tsinghua (China); M.A., 1949, Ph.D., 1955, Yale
- Chapman, Douglas George, 1949 (1957), *Professor of Mathematics*  
B.A., 1938, Saskatchewan; M.A., 1940, Ph.D., 1949, California

- Chapple, Stanley, 1948, *Professor of Music; Director of the School of Music*  
D.Mus. (Hon.), 1947, Colby College
- Chessex, Jean-Charles, 1928 (1948), *Professor of French*  
B.A., 1920, Gymnase Classique (Lausanne, Switzerland); B.D., 1922, M.A., 1925, Lausanne (Switzerland)
- Childs, Morris Elsmere, 1954 (1957), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1944, Oklahoma; M.S. in M.E., 1947, Ph.D., 1956, Illinois
- Church, Phil Edwards, 1935 (1948), *Professor of Meteorology and Climatology; Executive Officer of the Department of Meteorology and Climatology*  
B.S., 1923, Chicago; M.A., 1932, Ph.D., 1937, Clark
- Clanton, Jack Reed, 1947 (1958) *Professor of Civil Engineering*  
B.S. in C.E., 1936, Missouri School of Mines; M.S. in C.E., 1939, Pittsburgh
- Clark, Kenneth Courtright, 1948 (1955), *Associate Professor of Physics*  
B.A., 1940, Texas; A.M., 1941, Ph.D., 1947, Harvard
- Clark, Robert Newhall, 1957 (1959), *Associate Professor of Electrical Engineering*  
B.S. in E.E., 1950, M.S. in E.E., 1951, University of Michigan
- Clawson, David Kay, 1958, *Assistant Professor of Surgery; Head of the Division of Orthopedic Surgery*  
M.D., 1952, Harvard
- Cohen, Joseph, 1932 (1941), *Assistant Professor of Sociology*  
B.A., 1925, M.A., 1927, Washington; Ph.D., 1935, Michigan
- Cole, Kenneth Carey, 1924 (1936), *Professor of Political Science*  
B.Litt. in Law, 1924, Oxford (England); Ph.D., 1930, Harvard
- Comish, Newel William, 1949 (1955), *Associate Professor of Marketing*  
B.S., 1947, M.S., 1948, Oregon; Ph.D., 1953, Ohio State
- Conway, John Ashby, 1927 (1950), *Professor of Drama*  
B.A., 1927, Carnegie Institute of Technology
- Coombs, Howard Abbott, 1934 (1949), *Professor of Geology; Executive Officer of the Department of Geology*  
B.S., 1929, M.S., 1932, Ph.D., 1935, Washington
- Corbally, John Edward, 1927 (1942), *Professor of Secondary Education; Director of Practice Teaching*  
B.A., 1918, Whitworth College; M.A., 1925, Ph.D., 1929, Washington
- Corley, Clifford Lee, 1957, *Assistant Professor of Education*  
B.S. in Educ., 1948, M.Ed., 1949, Ed.D., 1954, Missouri
- Cornu, Max Donald, 1928 (1953), *Professor of English*  
LL.B., 1922, M.A., 1926, Ph.D., 1928, Washington
- Costigan, Giovanni, 1934 (1948), *Professor of History*  
B.A., 1926, B.Litt., 1930, M.A., 1930, Oxford (England); M.A., 1928, Ph.D., 1930, Wisconsin
- Crain, Richard Willson, Sr., 1936 (1953), *Associate Professor of Mechanical Engineering*  
B.S. in E.E., 1930, B.S. in M.E., 1932, Colorado Agricultural and Mechanical College; M.S. in M.E., 1946, Washington
- Cramlet, Clyde Myron, 1920 (1948), *Professor of Mathematics*  
B.S., 1916, Walla Walla College; M.S., 1920, Ph.D., 1926, Washington
- Creager, Joe S., 1958, *Assistant Professor of Oceanography*  
B.A., 1951, Colorado College; M.S., 1953, Ph.D., 1958, Agricultural and Mechanical College of Texas
- Creore, Alvin Emerson, 1940 (1953), *Associate Professor of Romance Languages and Literature*  
A.B., 1934, M.A., 1936, Rochester; Ph.D., 1939, Johns Hopkins
- Crieder, James Roberts, 1952 (1957), *Assistant Professor of Drama*  
B.A., 1945, Cornell College (Iowa); M.A., 1950, Washington
- Crittenden, Alden LaRue, 1947 (1949), *Assistant Professor of Chemistry*  
B.S., 1942, Ph.D., 1946, Illinois

- Cross, Paul Clifford, 1949 (1953), *Professor of Chemistry; Executive Officer of the Department of Chemistry; Director of Bagley Hall Laboratories*  
B.S., 1928, Geneva College; M.S., 1930, Ph.D., 1932, Wisconsin
- Crowell, Laura Irene, 1949 (1955), *Associate Professor of Speech*  
B.A., 1929, South Dakota; M.A., 1940, Ph.D., 1948, Iowa
- Crutchfield, James Arthur, 1949 (1957), *Associate Professor of Economics*  
A.B., 1940, M.A., 1942, California (Los Angeles); Ph.D., 1954, California
- Culbert, Sidney Spence, 1947 (1950), *Assistant Professor of Psychology*  
B.A., 1943, Ph.D., 1950, Washington
- Curtis, Elizabeth Long, 1930 (1947), *Assistant Professor of Art*  
B.F.A., 1929, M.F.A., 1933, Washington
- Cutler, Russell Kelsey, 1946 (1948), *Associate Professor of Physical Education; Executive Officer of the Department of Physical Education for Men*  
B.Ed., 1930, California (Los Angeles); M.S., 1934, Oregon; D.Ed., 1958, Stanford
- Dauben, Hyp Joseph, Jr., 1945 (1950), *Associate Professor of Chemistry*  
B.A., M.S., 1937, Ohio State; A.M., Ph.D., 1941, Harvard
- David, Jean Ferdinand, 1936 (1957), *Associate Professor of Romance Languages and Literature*  
Bacc., 1923 College Grandchamp (Versaille, France); A.B., 1929, M.A., 1932, Saskatchewan; Ph.D., 1936, Johns Hopkins
- David, Morton Morris, 1953 (1957), *Associate Professor of Chemical Engineering*  
B.S. in Ch.E., 1942, Colorado; D.Eng., 1950, Yale
- Davis, Alanson Bewick, 1947 (1955), *Lecturer and Stage Designer in Drama*  
A.B., 1947, Washington
- Davis, Merrell Rees, 1947 (1953), *Associate Professor of English*  
A.B., 1935, Whitman College; M.A., 1937, Tufts College; Ph.D., 1948, Yale
- Day, Emmett Elbert, 1947 (1954), *Professor of Mechanical Engineering*  
B.A., 1936, East Texas State Teachers College; B.S., 1945, M.S., 1946, Massachusetts Institute of Technology
- Dehmelt, Hans Georg, 1955 (1957), *Associate Professor of Physics*  
Ph.D., 1950, University of Goettingen (Germany)
- Dekker, David Bliss, 1948 (1959), *Associate Professor of Mathematics; Director of the Research Computer Laboratory*  
A.B., 1941, California; M.S., 1943, Illinois Institute of Technology; Ph.D., 1948, California
- De Lacy, Allan Clark, 1946 (1958), *Professor of Fisheries*  
B.S., 1932, M.S., 1933, Ph.D., 1941, Washington
- Demmery, Joseph, 1928 (1934), *Professor of General Business*  
Ph.B., 1920, M.A., 1924, Chicago
- de Vries, Mary Aid, 1921 (1939), *Associate Professor of Physical Education*  
B.A., 1920, Wisconsin
- Dietrichson, Paul, 1955, *Assistant Professor of Philosophy*  
A.B., 1947, Georgia; Ph.D., 1955, Yale
- Dill, Ellis Harold, 1956 (1959), *Associate Professor of Aeronautical Engineering*  
B.S. in C.E., 1954, M.S. in C.E., 1955, Ph.D., 1956, California
- Dillard, David Hugh, 1957 (1959), *Assistant Professor of Surgery*  
A.B., 1946, Whitman College; M.D., 1950, Johns Hopkins
- Dille, James Madison, 1936 (1946), *Professor of Pharmacology; Executive Officer of the Department of Pharmacology*  
B.S., 1930, M.S., 1933, Nebraska; Ph.D., 1935, Georgetown; M.D., 1946, Illinois
- Dodd, Stuart Carter, 1947, *Professor of Sociology; Director of the Washington Public Opinion Laboratory*  
B.S., 1922, M.A., 1924, Ph.D., 1926, Princeton
- Donaldson, Lauren Russell, 1935 (1948), *Professor of Fisheries; Director of the Laboratory of Radiation Biology*  
A.B., 1926, Intermountain Union College (Montana); M.S., 1931, Ph.D., 1939, Washington
- Dorfman, Eugene, 1955, *Assistant Professor of Romance Linguistics*  
A.B., 1938, New Jersey State Teachers College; A.M., 1947, Ph.D., 1950, Columbia

- Dornbusch, Sanford Maurice, 1958, *Associate Professor of Sociology*  
A.B., 1948, Syracuse; M.A., 1950, Ph.D., 1952, Chicago
- Douglas, Howard Clark, 1941 (1958), *Professor of Microbiology*  
A.B., 1936, Ph.D., 1949, California
- Draper, Edgar Marian, 1925 (1936), *Professor of Curriculum; Director of In-Service Teacher Training*  
B.A., 1916, M.A., 1925, Ph.D., 1926, Washington
- Du Pen, Everett George, 1945 (1954), *Associate Professor of Art*  
B.F.A., 1937, Yale
- Dvorak, August, 1923 (1937), *Professor of Education; Director of the Bureau of Admissions Research*  
B.A., 1920, Ph.D., 1923, Minnesota
- Earle, Frances M., 1931 (1941), *Associate Professor of Geography*  
A.B., 1918, Winthrop College; M.S., 1926, Columbia; Ph.D., 1929, George Washington
- Eastman, Austin V., 1924 (1942), *Professor of Electrical Engineering; Executive Officer of the Department of Electrical Engineering*  
B.S. in E.E., 1922, M.S. in E.E., 1929, Washington
- Eastman, Fred Scoville, 1927 (1943), *Professor of Aeronautical Engineering*  
B.S. in E.E., 1925, Washington; M.S., 1929, Massachusetts Institute of Technology
- Eby, E. Harold, 1927 (1947), *Professor of English*  
Ph.B., 1923, Chicago; Ph.D., 1927, Washington
- Edelstein, Alex, 1955 (1959), *Associate Professor of Communications*  
A.B., 1946, San Francisco State College; M.A., 1948, Stanford; Ph.D., 1958, Minnesota
- Edmondson, Walles Thomas, 1949 (1957), *Professor of Zoology*  
B.S., 1938, Ph.D., 1942, Yale
- Edwards, Allen L., 1944 (1948), *Professor of Psychology*  
B.A., 1937, Central College (Chicago); M.A., 1938, Ohio State; Ph.D., 1940, Northwestern
- Eggers, David Frank, Jr., 1950 (1956), *Associate Professor of Chemistry*  
B.S., 1943, Illinois; Ph.D., 1950, Minnesota
- Ekse, Martin Ingvald, 1948 (1957), *Professor of Civil Engineering*  
B.S., 1932, South Dakota State; M.S., 1948, Wisconsin
- Ellis, Ross C., 1954 (1957), *Assistant Professor of Geology*  
B.A., 1953, Occidental College; Ph.D., 1957, Washington
- Emerson, Donald Eugene, 1946 (1953), *Associate Professor of History*  
A.B., 1937, Johns Hopkins; M.A., 1938, Columbia; Ph.D., 1942, Johns Hopkins
- Emery, Donald William, 1934 (1954), *Associate Professor of English*  
A.B., 1927, A.M., 1928, Iowa
- Engle, Nathanael Howard, 1941, *Professor of Marketing*  
A.B., 1925, A.M., 1926, Washington; Ph.D., 1929, Michigan
- Enos, Lucy DeReid, 1954 (1958), *Assistant Professor of Nursing*  
Diploma, 1942, Pennsylvania Hospital School of Nursing; B.S., 1946, M.A., 1954, Minnesota
- Erickson, Harvey D., 1947 (1959), *Professor of Forest Products*  
B.S., 1933, B.S., 1934, M.S., 1936, Ph.D., 1937, Minnesota
- Erickson, John Wilbur, 1956, *Assistant Professor of Art*  
B.S., 1941, B.F.A., 1947, M.F.A., 1951, Illinois
- Erlich, Victor, 1948 (1959), *Professor of Far Eastern and Slavic Languages and Literature*  
M.A., 1937, Free Polish University (Warsaw, Poland); Ph.D., 1951, Columbia
- Esper, Erwin Allen, 1927 (1934), *Professor of Psychology*  
B.A., 1917, M.A., 1920, Ph.D., 1923, Ohio State
- Etcheson, Warren W., 1954 (1956), *Associate Professor of Marketing; Director of the Bureau of Business Research*  
B.S., 1942, Indiana; M.A., 1951, Ph.D., 1956, Iowa
- Evans, Charles Albert, 1946, *Professor of Microbiology; Executive Officer of the Department of Microbiology*  
B.S., 1935, B.M., 1936, M.D., 1937, Ph.D., 1942, Minnesota



- Everett, Newton Bennie, 1946 (1957), *Professor of Anatomy; Administrative Officer of the Department of Anatomy*  
B.S., 1937, M.S., 1938, North Texas State; Ph.D., 1942, Michigan
- Fairhall, Arthur William, 1954 (1958), *Associate Professor of Physics and Chemistry*  
B.Sc., 1946, Queens (Kingston, Ontario); Ph.D., 1952, Massachusetts Institute of Technology
- Falk, Gertrude, 1954 (1957), *Assistant Professor of Pharmacology*  
B.S., 1947, Antioch College; Ph.D., 1946, Rochester
- Faris, Robert E. Lee, 1948, *Professor of Sociology; Executive Officer of the Department of Sociology*  
Ph.B., 1928, M.A., 1930, Ph.D., 1931, Chicago
- Farquharson, Frederick Burt, 1925 (1940), *Professor of Civil Engineering; Director of the Engineering Experiment Station*  
B.S. in M.E., 1923, M.E., 1927, Washington
- Farwell, George Wells, 1948 (1959), *Professor of Physics*  
S.B., 1941, Harvard; Ph.D., 1948, Chicago
- Fea, Henry Robert, 1954 (1959), *Associate Professor of Education*  
B.A., 1942, B.Ed., 1947, M.Ed., 1948, Saskatchewan; Ph.D., 1950, California
- Fell, James Michael Gardner, 1956 (1957), *Assistant Professor of Mathematics*  
B.S., 1943, British Columbia; M.S., 1945, Ph.D., 1951, California
- Ferguson, Grace Beals, 1941 (1945), *Professor of Social Work*  
B.A., 1917, Minnesota; M.A., 1930, Indiana
- Fernald, Robert Leslie, 1946 (1959), *Associate Professor of Zoology; Acting Director of Friday Harbor Laboratories*  
A.B., 1937, Monmouth College; Ph.D., 1941, California
- Fields, Paul Eldon, 1955, *Professor of Psychology*  
A.B., 1926, A.M., 1927, Ohio Wesleyan; Ph.D., 1930, Ohio State
- Firey, Joseph Carl, 1954 (1956), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1940, Washington; M.S. in M.E., 1941, Wisconsin
- Fischer, Edmond H., 1953 (1956), *Associate Professor of Biochemistry*  
Ph.D., 1947, Geneva
- Fischer, Louis, 1929 (1945), *Professor of Pharmaceutical Chemistry; Assistant to the Dean; Chairman of the Department of Pharmaceutical Chemistry*  
B.S., Ph.C., 1926, M.S., 1928, Ph.D., 1933, Washington
- Fleagle, Robert Guthrie, 1948 (1956), *Professor of Meteorology and Climatology*  
A.B., 1940, Johns Hopkins; M.S., 1944, Ph.D., 1949, New York
- Fleming, Richard Howell, 1951, *Professor of Oceanography; Executive Officer of the Department of Oceanography*  
B.A., 1929, M.A., 1931, British Columbia; Ph.D., 1935, California
- Florey, Ernst, 1956, *Assistant Professor of Zoology*  
Ph.D., 1953, University of Graz (Austria)
- Flowers, W. Baker, 1958, *Assistant Professor of Accounting*  
B.S., 1943, M.S., 1949, Alabama; Ph.D., 1959, Texas; C.P.A., 1954, State of Texas
- Foltz, Eldon Leroy, 1950 (1958), *Associate Professor of Surgery*  
B.S., 1941, Michigan State; M.D., 1943, Michigan
- Foote, Hope Lucille, 1923 (1948), *Professor of Art*  
A.B., 1920, Iowa State Teachers College; M.A., 1923, Columbia
- Forrester, Herbert Amasa, 1954 (1956), *Assistant Professor of Mathematics*  
B.S., 1950, California Institute of Technology; M.A., 1951, Ph.D., 1954, Princeton
- Fowler, David Covington, 1952 (1959), *Associate Professor of English*  
B.A., 1942, Florida; M.A., 1947, Ph.D., 1949, Chicago
- Fox, Katharine Shirley, 1945 (1948), *Assistant Professor of Physical Education*  
B.S., 1938, Washington; M.S., 1943, Oregon; Ph.D., 1955, Iowa
- Franzke, Albert Leonard, 1936 (1939), *Associate Professor of Speech*  
B.A., 1916, M.A., 1923, Lawrence College (Wisconsin)
- Frederickson, Evan L., 1956 (1959), *Associate Professor of Surgery; Associate Professor of Pharmacology*  
B.S., 1947, M.D., 1950, Wisconsin

- French, Wendell L., 1958, *Associate Professor of Personnel*  
B.A., 1948, M.P.S., 1949, Colorado; D.Ed., 1956, Harvard
- Fuller, Steven D., 1946 (1958), *Associate Professor of Art*  
B.A., 1939, M.F.A., 1948, Washington
- Gallagher, Marian Could, 1944 (1953), *Professor of Law; Law Librarian*  
B.A., 1935, LL.B., 1937, B.A. in L.S., 1939, Washington
- Galstaun, Vanick Samuel, 1950 (1959), *Assistant Professor of Drama*  
B.A., 1946, San Francisco State College; M.A., 1948, Washington
- Ganzer, Victor Martin, 1947 (1953), *Professor of Aeronautical Engineering*  
B.A., 1933, Augustana College (Illinois); B.S. in A.E., 1941, Washington
- Garfield, Viola Edmundson, 1937 (1955), *Associate Professor of Anthropology*  
B.A., 1928, M.A., 1931, Washington; Ph.D., 1939, Columbia
- Garrison, William Louis, 1950 (1959), *Professor of Geography*  
B.S., 1946, M.A., 1947, George Peabody College; Ph.D., 1950, Northwestern
- Gates, Charles Marvin, 1936 (1951), *Professor of History*  
B.A., 1925, Yale; M.A., 1928, Harvard; Ph.D., 1934, Minnesota
- Gearing, Frederick O., 1957, *Assistant Professor of Anthropology*  
B.A., 1950, M.A., 1953, Ph.D., 1956, Chicago
- Geballe, Ronald, 1943 (1959), *Professor of Physics; Executive Officer of the Department of Physics*  
B.S., 1938, M.S., 1940, Ph.D., 1943, California
- Gerhart, James Basil, 1956, *Assistant Professor of Physics*  
B.S., 1950, California Institute of Technology; M.A., 1952, Ph.D., 1954, Princeton
- Gessel, Stanley Paul, 1948 (1956), *Associate Professor of Forest Soils*  
B.S., 1939, Utah State Agricultural College; Ph.D., 1950, California
- Getoor, Ronald Kay, 1956, *Assistant Professor of Mathematics*  
A.B., 1950, M.S., 1951, Ph.D., 1954, Michigan
- Gillam, Cornelius W., 1954 (1956), *Associate Professor of Business Law*  
B.A., 1945, Carleton College; M.A., 1946, Minnesota; J.D., 1950, Ph.D., 1954, Chicago
- Gillingham, John Benton, 1947, *Assistant Professor of Economics*  
A.B., 1939, Washington State; M.A., 1941, Wisconsin
- Goldberg, Leonard D., 1947 (1956), *Associate Professor of Business Law*  
A.B., 1943, J.D., 1945, Chicago
- Gonzales, Boyer, 1954, *Professor of Art; Director of the School of Art; Director, Henry Art Gallery*  
B.S. in Architecture, 1931, Virginia; Student of McFee and Kuniyoshi
- Goodrich, Forest Jackson, 1914 (1934), *Professor of Pharmacognosy; Dean Emeritus of the College of Pharmacy*  
Ph.C., 1913, B.S., 1914, M.S., 1917, Ph.D., 1927, Washington
- Gordon, Donald Flemming, 1950 (1957), *Associate Professor of Economics*  
B.A., 1944, Saskatchewan; M.A., 1946, Toronto; Ph.D., 1949, Cornell
- Gordon, Guy C., 1949 (1957), *Associate Professor of Marketing*  
B.A., 1949, M.B.A., 1950, Washington; Ph.D., 1957, California
- Gottfried, Alex, 1950, *Assistant Professor of Political Science*  
Ed.B., 1941, Chicago Teachers College; A.M., 1948, Ph.D., 1952, Chicago
- Gould, Florence Jones, 1948 (1958), *Associate Professor of English*  
A.B., 1928, M.A., 1931, Oregon
- Grathwohl, Harrison L., 1958, *Assistant Professor of Marketing*  
B.S., 1951, M.B.A., 1952, D.B.A., 1957, Indiana
- Gray, Florence Irene, 1945 (1959), *Associate Professor of Nursing*  
R.N., B.S., 1945, M.S., 1950, Washington
- Gray, Robert Simpson, 1939 (1957), *Associate Professor of Drama*  
B.A., 1936, M.A., 1938, Washington
- Gregory, Norman Wayne, 1946 (1957), *Professor of Chemistry*  
B.S., 1940, M.S., 1941, Washington; Ph.D., 1943, Ohio State
- Greengo, Robert E., 1957, *Assistant Professor of Anthropology*  
A.B., 1948, M.A., 1951, California; Ph.D., 1957, Harvard

- Greenwald, Gilbert S., 1956 (1959), *Assistant Professor of Anatomy*  
A.B., 1949, M.A., 1951, Ph.D., 1954, University of California, Berkeley
- Grimes, Wilma Horrell, 1953 (1955), *Assistant Professor of Speech*  
B.A., 1928, Wisconsin; M.A., 1947, Northwestern; Ph.D., 1953, Illinois
- Grimshaw, Austin, 1949, *Professor of Business Policy; Dean of the College of Business Administration*  
S.D. in C.E., 1927, M.B.A., 1934, D.C.S., 1938, Harvard
- Groman, Neal Benjamin, 1950 (1958), *Associate Professor of Microbiology*  
S.B., 1947, Ph.D., 1950, Chicago
- Gronewold, David H., 1954 (1956), *Associate Professor of Social Work*  
B.A., 1929, North Central College; M.A., 1952, Chicago
- Grummel, William Charles, 1950 (1955), *Associate Professor of Classics*  
A.B., 1937, St. Louis; A.M., 1940, Washington University (St. Louis); Ph.D., 1949, New York
- Guidon, Michael, III, 1946 (1956), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1942, Lehigh; M.S. in M.E., 1952, Washington
- Gullans, Charles Bennett, 1955 (1957), *Assistant Professor of English*  
B.A., 1948, M.A., 1951, Minnesota; Ph.D., 1956, Stanford
- Gunther, Erna, 1923 (1941), *Professor of Anthropology; Director of the Washington State Museum*  
A.B., 1919, Barnard; A.M., 1920, Ph.D., 1928, Columbia
- Haaga, Agnes Marie, 1947 (1955), *Assistant Professor of Drama*  
B.A., 1936, Siena College (Tennessee); M.A., 1952, Northwestern
- Hafermehl, C. Louis, 1957, *Assistant Professor of Art*  
B.F.A., 1940, Bethany College (Kansas); M.F.A., 1955, Cranbrook Academy of Art (Michigan)
- Hall, James Kendall, 1930 (1934), *Professor of Economics*  
A.B., 1925, A.M., 1926, Oregon; Ph.D., 1929, Stanford
- Hall, James Winford, 1949 (1955), *Associate Professor of English*  
A.B., 1937, Kansas City; M.A., 1938, Wisconsin; Ph.D., 1949, Cornell
- Hall, Nathan Albert, 1952 (1956), *Associate Professor of Pharmacy*  
B.S., 1939, Ph.D., 1948, Washington
- Haller, Mary Elizabeth, 1931 (1949), *Associate Professor of Mathematics*  
B.A., 1924, M.S., 1931, Ph.D., 1934, Washington
- Halpern, Isaac, 1953 (1956), *Associate Professor of Physics*  
B.S., 1943, City College of New York; Ph.D., 1948, Massachusetts Institute of Technology
- Halsey, George Dawson, Jr., 1951 (1958), *Professor of Chemistry*  
B.S. in Ch.E., 1943, South Carolina; Ph.D., 1948, Princeton
- Hamack, Frank Hartmond, 1921 (1942), *Lecturer in Accounting*  
LL.B., 1916, Georgetown
- Hamilton, Albert Charles, 1952 (1959), *Associate Professor of English*  
B.A., 1945, Manitoba; M.A., 1948, Toronto; Ph.D., 1952, Cambridge
- Hanahan, Donald James, 1948 (1959), *Professor of Biochemistry*  
B.S., 1941, Ph.D., 1944, Illinois
- Hanley, Clair Norton, 1952 (1956), *Associate Professor of Speech*  
B.A., 1947, M.A., 1950, Ph.D., 1952, Iowa
- Hanson, Kermit Osmond, 1948 (1954), *Professor of Accounting, Finance, and Statistics; Executive Officer of the Department of Accounting, Finance, and Statistics; Associate Dean of the College of Business Administration*  
A.B., 1938, Luther College (Iowa); M.S., 1940, Ph.D., 1950, Iowa State College
- Harbold, William Henry, 1949 (1955), *Assistant Professor of Political Science*  
A.B., 1947, Pennsylvania State; M.A., 1949, Ph.D., 1953, Harvard
- Harder, Virgil E., 1955 (1959), *Associate Professor of Business Writing*  
B.S.C., 1950, M.A., 1950, Ph.D., 1958, University of Illinois
- Harkins, Henry Nelson, 1947, *Professor of Surgery; Executive Officer of the Department of Surgery*  
B.S., 1925, M.S., 1926, Ph.D., 1928, M.D., 1931, Chicago

- Harrington, Donal Francis, 1938 (1952), *Professor of Drama*  
B.A., 1928, Montana; M.A., 1933, Columbia
- Harris, Edison Davis, 1947, *Associate Professor of Music*  
B.S., 1942, New York
- Harris, Markham, 1946 (1957), *Associate Professor of English*  
A.B., 1929, M.A., 1931, Williams
- Harrison, Arthur Elliot, 1948 (1952), *Professor of Electrical Engineering*  
B.S. in E.E., 1936, California; M.S., 1937, Ph.D., 1940, California Institute of Technology
- Hartz, Billy J., 1955 (1957), *Associate Professor of Civil Engineering*  
B.S. (C.E.), 1952, M.S. (C.E.), 1954, Ph.D., 1955, California
- Hatch, Melville Harrison, 1927 (1941), *Professor of Zoology*  
B.A., 1919, M.A., 1921, Ph.D., 1925, Michigan
- Hayden, Alice Hazel, 1942 (1952), *Professor and Director of Graduate Studies in Education*  
Ph.C., 1928, B.S., M.S., 1929, Oregon State; Ph.D., 1932, Purdue
- Hayner, Norman Sylvester, 1925 (1937), *Professor of Sociology*  
A.B., 1920, Washington; M.A., 1921, Ph.D., 1923, Chicago
- Heath, Willis Robertson, 1957 (1959), *Assistant Professor of Geography*  
B.A., 1954, M.A., 1956, Ph.D., 1958, Washington
- Heathers, Louise Bussard, 1945, *Assistant Professor of Psychology; Senior Clinical Psychologist in the Counseling Center*  
B.A., 1933, Washington; Ph.D., 1940, Yale
- Heideger, William Joseph, 1957, *Assistant Professor in Chemical Engineering*  
B.S., 1954, Carnegie Institute of Technology; M.S.E., 1955, Ph.D., 1959, Princeton
- Heilman, Robert Bechtold, 1948, *Professor of English; Executive Officer of the Department of English*  
A.B., 1927, Lafayette; M.A., 1930, Ohio State College; M.A., 1931, Ph.D., 1935, Harvard
- Heintz, Eva, 1948 (1956), *Associate Professor of Music*
- Held, Gedaliahu, 1954 (1956), *Associate Professor of Electrical Engineering*  
M.S., 1950, Hebrew University; Ph.D., 1954, California
- Henderson, Joseph Edmonds, 1929 (1942), *Professor of Physics; Director of the Applied Physics Laboratory*  
B.S., 1922, College of Wooster; Ph.D., 1928, Yale
- Hendrickson, Harold Martin, 1949 (1955), *Professor of Mechanical Engineering*  
B.S. in M.E., 1927, M.E., 1935, M.S. in M.E., 1954, Washington
- Henley, Ernest M., 1954 (1957), *Associate Professor of Physics*  
B.E.E., 1944, City College of New York; Ph.D., 1951, California
- Hennes, Robert Graham, 1934 (1947), *Professor of Civil Engineering*  
B.S. in C.E., 1927, Notre Dame; M.S., 1928, Massachusetts Institute of Technology
- Henning, Charles Nathaniel, 1948 (1955), *Professor of Finance*  
A.B., 1938, M.A., 1940, Ph.D., 1952, California (Los Angeles)
- Henning, Dale A., 1955 (1956), *Associate Professor of Policy and Administration and Production*  
B.S., 1948, M.B.A., 1949, Pennsylvania; Ph.D., 1954, Illinois
- Henry, Bernard Stauffer, 1931 (1941), *Professor of Microbiology*  
B.S., 1925, M.A., 1926, Ph.D., 1931, California
- Hensley, Mercedes Hoover, 1939 (1952), *Lecturer in Art*  
B.F.A., 1930, M.F.A., 1938, Washington
- Hermans, Thomas Gerald, 1929 (1940), *Assistant Professor of Psychology; Chief Examiner of the Bureau of Testing*  
B.S., 1923, M.A., 1927, Washington
- Hewitt, Edwin, 1948 (1954), *Professor of Mathematics*  
A.B., 1940, M.A., 1941, Ph.D., 1942, Harvard
- Hickey, Maurice J., 1956, *Professor of Oral Surgery; Dean of the School of Dentistry*  
D.M.D., 1932, Harvard; M.D., 1937, Columbia

- Higgs, Paul McClellan, 1926 (1959), *Associate Professor of Physics*  
B.S., 1919, Washington
- Hilen, Andrew Reuben, Jr., 1945 (1959), *Professor of English*  
B.A., 1937, Washington; Ph.D., 1943, Yale
- Hill, Raymond Leroy, 1927 (1945), *Professor of Art*  
Graduate, 1913, Rhode Island School of Design
- Hill, W. Ryland, 1941 (1953), *Professor of Electrical Engineering; Associate Dean of the College of Engineering*  
B.S. in E.E., 1934, Washington; M.S. in E.E., 1938, E.E., 1941, California
- Hitchcock, C. Leo, 1937 (1944), *Professor of Botany; Executive Officer of the Department of Botany*  
A.B., 1927, Pomona; A.M., 1929, Claremont Colleges; Ph.D., 1931, Washington University (St. Louis)
- Hitchner, Dell Gillette, 1947 (1951), *Associate Professor of Political Science*  
B.A., 1936, Wichita; M.A., 1937, Missouri; Ph.D., 1940, Wisconsin
- Hixson, William John, 1950 (1958), *Associate Professor of Art*  
B.A., 1948, M.F.A., 1950, Oregon
- Hoffman, Katherine Janet, 1942 (1956), *Professor of Nursing; Assistant Dean of the School of Nursing*  
A.B., 1929, College of Puget Sound; R.N., 1934, Tacoma General Hospital School of Nursing; M.N., 1941, Ph.D., 1956, Washington
- Holt, William Stull, 1940, *Professor of History*  
A.B., 1920, Cornell; Ph.D., 1926, Johns Hopkins
- Holzman, Franklyn Dunn, 1952 (1959), *Professor of Economics*  
A.B., 1940, North Carolina; M.A., 1948, Ph.D., 1952, Harvard
- Hoover, Benjamin Beard, 1952 (1954), *Assistant Professor of English*  
A.B., 1947, M.A., 1948, Ph.D., 1952, California
- Hopkins, William Stephen, 1946, *Professor of Economics; Director of the Institute of Labor Economics*  
B.S., 1925, M.A., 1928, Oregon; Ph.D., 1932, Stanford
- Horita, Akira, 1954 (1958), *Assistant Professor of Pharmacology*  
A.B., 1950, M.S., 1951, Ph.D., 1954, Washington
- Horst, A. Paul, 1947, *Professor of Psychology; Director of the Division of Counseling and Testing*  
B.A., 1927, California; Ph.D., 1931, Chicago
- Horton, George Plant, 1934 (1946), *Associate Professor of Psychology; Acting Executive Officer of the Department of Psychology*  
B.S., 1926, M.A., 1930, Ph.D., 1932, Princeton
- Horwood, Edgar Miller, 1946 (1957), *Associate Professor of Civil Engineering*  
B.S. in M.E., 1942, Georgia Institute of Technology; M.S. in Regional Planning, 1951, Washington; Ph.D., 1959, University of Pennsylvania
- Hosmer, Margaret George, 1948 (1954), *Lecturer in Home Economics*  
B.S., 1918, North Carolina
- Howery, Victor I., 1952 (1953), *Professor of Social Work; Dean of the School of Social Work*  
B.S., 1936, Wisconsin State; Ph.M., 1946, M.S.W., 1948, Ph.D., 1949, Wisconsin
- Hsiao, Kung-chuan, 1951 (1959), *Professor of Far Eastern and Slavic Languages and Literature*  
B.A., 1922, M.A., 1923, Missouri; Ph.D., 1926, Cornell
- Hsu, Chih-Chi, 1958, *Assistant Professor of Electrical Engineering*  
B.S., 1945, Chiao-Tung University, Shanghai, China; M.S.E., University of Michigan, 1949; Ph.D., 1951, Ohio State University
- Hsu, Wellington Siang, 1944 (1950), *Associate Professor of Zoology*  
B.S., 1922, Illinois; M.S., 1924, D.Sc., 1928, Harvard
- Huber, J. Richard, 1939 (1949), *Professor of Economics; Executive Officer of the Department of Economics*  
B.A., 1931, College of Wooster; M.A., 1933, Ph.D., 1937, Princeton

- Hudson, G. Donald, 1951, *Professor of Geography; Executive Officer of the Department of Geography*  
Ph.B., 1925, A.M., 1926, Ph.D., 1934, Chicago
- Huennekens, Frank Matthew, Jr., 1951 (1954), *Associate Professor of Biochemistry*  
B.S., 1943, Ph.D., 1948, California
- Hufford, George Allen, 1958, *Assistant Professor of Mathematics*  
B.S., Engr., 1946, California Institute of Technology; MSEE, 1948, Washington;  
M.A., 1952, Ph.D., 1953, Princeton
- Hughes, Eric Lester, 1951 (1956), *Assistant Professor of Physical Education*  
B.S., 1947, M.S., 1948, Illinois; D.Ed., 1956, Washington
- Hughes, Glenn Arthur, 1919 (1942), *Professor of Drama; Director of the School of Drama*  
B.A., 1916, Stanford; M.A., 1920, Washington
- Huitric, Alain C., 1955 (1957), *Assistant Professor of Pharmaceutical Chemistry*  
B.S., 1950, Loyola; M.S., 1952, Ph.D., 1954, California
- Hunt, Marguerite, 1949 (1950), *Associate Professor of Social Work*  
A.B., 1929, Brown; M.S., 1936, Western Reserve
- Hurvitz, Leon Nahum, 1955 (1957), *Assistant Professor of Japanese Language and Literature*  
B.A., 1949, Chicago; M.A., 1951, Columbia
- Illg, Paul Louis, 1952 (1959), *Professor of Zoology*  
A.B., 1936, M.A., 1941, California; Ph.D., 1952, George Washington
- Ingle, John Ide, 1948 (1959), *Professor of Periodontics and Endodontics; Acting Executive Officer of the Department of Periodontics and Endodontics*  
D.D.S., 1942, Northwestern; M.S.D., 1948, Michigan
- Irvine, Demar Buel, 1937 (1947), *Associate Professor of Music*  
A.B., 1929, M.A., 1931, California; Ph.D., 1937, Harvard
- Isbell, John Rolfe, 1957 (1959), *Associate Professor of Mathematics*  
B.S., 1951, Chicago; Ph.D., 1954, Princeton
- Ishimaru, Akira, 1954 (1958), *Assistant Professor of Electrical Engineering*  
B.S. in E.E., 1951, Tokyo; Ph.D., 1958, Washington
- Jackson, William A. Douglas, 1955, *Assistant Professor of Geography*  
B.A., 1946, M.A., 1949, Toronto; Ph.D., 1953, Maryland
- Jacobs, Melville, 1928 (1952), *Professor of Anthropology*  
A.B., 1929, City College of New York; A.M., 1923, Ph.D., 1931, Columbia
- Jacobsohn, Boris Abbott, 1948 (1959), *Professor of Physics*  
A.B., 1938, A.M., 1939, Columbia; Ph.D., 1947, Chicago
- Jacobson, Berthe Poncy, 1937 (1948), *Professor of Music*  
Diploma, 1915, Conservatory of Music (Geneva); Diploma, 1917, Schola Cantorum (Paris);  
Diploma, 1921, Dalcroze School (Geneva)
- Jans, James P., 1957, *Assistant Professor of Mathematics*  
A.B., 1949, M.A., 1950, Ph.D., 1955, Michigan
- Jensen, Lyle Howard, 1949 (1957), *Associate Professor of Anatomy*  
B.A., 1939, Walla Walla College; Ph.D., 1943, Washington
- Jerbert, Arthur Rudolph, 1921 (1937), *Associate Professor of Mathematics*  
B.S., 1916, M.S., 1923, Ph.D., 1928, Washington
- Jessup, John Hunnicutt, 1926 (1927), *Associate Professor of Educational Sociology*  
A.B., 1920, Earlham College; M.A., 1924, Iowa
- Johanson, Lennart Noble, 1951 (1956), *Associate Professor of Chemical Engineering*  
B.S., 1942, Utah; M.S., 1943, Ph.D., 1948, Wisconsin
- Johnson, David Laurence, 1955 (1957), *Associate Professor of Electrical Engineering*  
B.S. in E.E., 1948, Idaho; Ph.D., 1955, Purdue
- Johnson, Pauline, 1941 (1958), *Professor of Art*  
B.A., 1929, Washington; M.A., 1936, Columbia
- Johnson, Fletcher Ormond, 1950, *Lecturer in Accounting*  
B.B.A., 1924, Washington; C.P.A., 1925, States of Washington, Pennsylvania,  
California, Illinois

- Johnson, Mary Louise, 1945 (1957), *Professor of Home Economics; Director of the Department of Home Economics*  
B.A., 1940, Hardin-Simmons (Texas); M.S., 1942, Wisconsin; D.Sc., 1954, Harvard School of Public Health
- Johnson, Richard A., 1955 (1959), *Associate Professor of Production*  
B.B.A., 1949, M.B.A., 1952, Minnesota; D.B.A., 1958, Washington
- Johnson, Walter G., 1948 (1956), *Professor of Scandinavian Languages*  
B.A., 1927, Augsburg College; M.A., 1929, Minnesota; Ph.D., 1935, Illinois
- Jolivet, Vincent M., 1956 (1959), *Associate Professor of Finance*  
B.S., 1952, McGill; M.B.A., 1954, D.B.A., 1957, Harvard
- Jones, Frank William, 1955, *Associate Professor of English and Comparative Literature*  
B.A., 1934, Manitoba; Ph.D., 1941, Wisconsin; B.A., M.A., 1955, Oxford (England)
- Joppa, Robert Glenn, 1945 (1957), *Associate Professor of Aeronautical Engineering*  
B.S. in A.E., 1945, M.S. in A.E., 1951, Washington
- Kahn, Robert Ludwig, 1948 (1955), *Assistant Professor of Germanic Literature*  
B.A., 1944, M.A., 1945, Dalhousie (Nova Scotia); Ph.D., 1950, Toronto
- Kakiuchi, Hiroaki George, 1957, *Instructor in Geography*  
A.B., 1952, A.M., 1953, Ph.D., 1957, Michigan
- Kaminsky, Howard, 1957, *Assistant Professor of History*  
M.A., 1949, Ph.D., 1952, Chicago
- Kast, Fremont E., 1951 (1956), *Associate Professor of Production, Policy and Administration*  
A.B., 1946, San Jose State College; M.B.A., 1949, Stanford; D.B.A., 1956, Washington
- Katz, Solomon, 1936 (1950), *Professor of History; Executive Officer of the Department of History*  
A.B., 1930, Ph.D., 1933, Cornell
- Keller, Abraham Charles, 1948 (1952), *Associate Professor of Romance Languages and Literature*  
B.A., 1936, M.A., 1937, Ohio State; Ph.D., 1946, California
- Kennelly, John McRae, Jr., 1956 (1958), *Assistant Professor of Surgery*  
B.A., 1945, Willamette; M.D., 1948, George Washington
- Kent, Joseph Chan, 1952 (1955), *Assistant Professor of Civil Engineering*  
B.S. in C.E., 1945, British Columbia; M.S. in C.E., 1948, Stanford; Ph.D., 1952, California
- Kenworthy, Ray W., 1929 (1950), *Associate Professor of Physics*  
B.A., 1924, M.S., 1925, Iowa; Ph.D., 1938, Washington
- Kerby, Charity C., 1956 (1957), *Assistant Professor of Nursing*  
B.A., 1934, Seattle Pacific College; Diploma, 1946, Swedish Hospital School of Nursing; M.N., 1952, Washington
- Keyt, David, 1957, *Instructor in Philosophy*  
A.B., 1951, Kenyon College; Ph.D., 1955, Cornell
- Kidwell, M. Kathro, 1939 (1950), *Associate Professor of Physical Education*  
B.S., 1927, Nebraska; M.S., 1928, Wisconsin; Ed.D., 1954, Columbia
- Kim, Young Bae, 1955 (1957), *Assistant Professor of Physics*  
B.S., 1950, Washington; Ph.D., 1954, Princeton
- Kimura, Naoki, 1958, *Assistant Professor of Mathematics*  
Rigakushi, 1944, Osaka (Japan); Ph.D., 1957, Tulane
- Kingston, John Maurice, 1940 (1959), *Associate Professor of Mathematics; Executive Secretary of the Department of Mathematics*  
B.A., 1935, Western Ontario; M.A., 1936, Ph.D., 1939, Toronto
- Klee, Victor L., Jr., 1953 (1957), *Professor of Mathematics*  
B.A., 1945, Pomona College; Ph.D., 1949, Virginia
- Knudson, Harry R., Jr., 1958, *Assistant Professor of Personnel and Human Relations*  
B.S., 1952, M.B.A., 1953, Indiana; D.B.A., 1958, Harvard
- Kolde, Endel Jakob, 1951 (1959), *Professor of Foreign Trade*  
B.S., 1949, National Military Academy (Estonia); D.H.S., 1947, Stockholm (Sweden); M.A., 1951, D.B.A., 1954, Washington

- Korg, Jacob, 1955 (1956), *Assistant Professor of English*  
B.A., 1943, City College of New York; M.A., 1947, Ph.D., 1952, Columbia
- Kraus, Bertram S., 1957, *Professor of Physical Anthropology*  
A.B., 1934, Western Reserve University; M.A., Ph.D., 1949, Chicago
- Kraut, Joseph, 1953 (1958), *Assistant Professor of Biochemistry*  
B.S., 1950, Bucknell; Ph.D., 1953, California Institute of Technology
- Krebs, Edwin Gerhard, 1948 (1957), *Professor of Biochemistry*  
A.B., 1940, Illinois; M.D., 1943, Washington University (St. Louis)
- Kruckeberg, Arthur Rice, 1950 (1954), *Assistant Professor of Botany*  
B.A., 1941, Occidental College; Ph.D., 1950, California
- Krupski, Edward, 1944 (1955), *Associate Professor of Pharmaceutical Chemistry*  
B.S., 1939, M.S., 1941, Ph.D., 1949, Washington
- Kunde, Norman Frederick, 1931 (1949), *Associate Professor of Physical Education*  
B.S., 1928, M.S., 1932, Washington; D.Ed., 1946, New York
- Larsen, Otto Nyholm, 1949 (1958), *Associate Professor of Sociology*  
B.A., 1947, M.A., 1949, Ph.D., 1955, Washington
- La Russo, Dominic Anthony, 1951 (1956), *Assistant Professor of Speech*  
B.A., 1950, M.A., 1952, Ph.D., 1956, Northwestern
- Law, David Barclay, 1947 (1949), *Associate Professor of Pedodontics; Executive Officer of the Department of Pedodontics*  
D.D.S., B.S.D., 1938, M.S., 1941, Northwestern
- Lawrence, Richard Glenn, 1956, *Assistant Professor of Social Work*  
B.A., 1948, M.A., 1951, Iowa
- Leahy, Kathleen Mabel, 1935 (1949), *Professor of Nursing*  
R.N., 1921, Stanford; A.B., 1926, C.P.H.N., 1927, Oregon; M.S., 1931, Washington
- Leggett, Glenn Hubert, 1952, *Associate Professor of English; Director of Freshman English; Special Assistant to the President*  
B.A., 1940, Middlebury College; B.A., 1941, Ph.D., 1949, Ohio State
- Lenardon, Robert Joseph, 1957 (1958), *Assistant Professor of Classics*  
B.A., 1949, British Columbia; M.A., 1950, Ph.D., 1954, Cincinnati
- Lewis, Laurel Jones, 1946 (1954), *Professor of Electrical Engineering*  
A.B., 1933, E.E., 1935, Ph.D., 1947, Stanford
- Li, Fang-kuei, 1949 (1950), *Professor of Anthropology and of Chinese Linguistics*  
A.B., 1926, Michigan; A.M., 1927, Ph.D., 1928, Chicago
- Lieberman, Irving, 1956, *Professor of Librarianship; Director of the Graduate School of Librarianship*  
B.S., 1935, New York; B.S. (L.S.), 1939, Ed.D., 1955, Columbia
- Lingafelter, Edward Clay, Jr., 1939 (1952), *Professor of Chemistry*  
B.S., 1935, Ph.D., 1939, California
- Liston, John, 1957, *Assistant Professor of Fisheries*  
B.S., 1952, University of Edinburgh (Scotland); Ph.D., 1955, University of Aberdeen (Scotland)
- Little, Wallace I., 1954 (1956), *Associate Professor of Transportation*  
B.S., 1943, M.S., 1947, Illinois; Ph.D., 1952, Wisconsin
- Livingston, Arthur Eugene, 1953 (1955), *Assistant Professor of Mathematics*  
B.A., 1949, Fresno State College; M.A., 1950, Ph.D., 1952, Oregon
- Loomis, Ted Albert, 1947 (1957), *Professor of Pharmacology*  
B.S., 1939, Washington; M.S., 1941, Ph.D., 1943, Buffalo; M.D., 1946, Yale
- Lord, Jere Johns, 1952 (1957), *Associate Professor of Physics*  
A.B., 1943, Reed College; M.A., 1948, Ph.D., 1950, Chicago
- Lorig, Arthur Nicholas, 1934 (1949), *Professor of Accounting*  
B.A., 1922, Wisconsin; M.A., 1932, Stanford; Ph.D., 1936, Chicago; C.P.A., 1927, State of California
- Loucks, Roger Brown, 1936 (1948), *Professor of Psychology*  
B.S. in C.E., 1927, Ph.D., 1930, Minnesota
- Lounsbury, Warren Carson, 1948 (1956), *Assistant Professor of Drama*  
A.B., 1946, Western Reserve; M.A., 1953, Washington



- Luft, John H., 1956 (1958), *Assistant Professor of Anatomy*  
B.S., 1949, M.D., 1953, Washington
- Lundberg, George Andrew, 1945, *Professor of Sociology*  
B.A., 1920, North Dakota; M.A., 1923, Wisconsin; Ph.D., 1925, Minnesota
- Lytle, Dean, 1958, *Assistant Professor of Electrical Engineering*  
B.S., 1950, M.S., 1954, Ph.D., 1957, Stanford
- Lytle, Scott Harrison, 1949 (1957), *Associate Professor of History*  
A.B., 1940, Princeton; Ph.D., 1948, Cornell
- Macauley, Ronald Alvin, 1957, *Assistant Professor of Mathematics*  
B.A., 1949, M.A., 1951, British Columbia; Ph.D., 1955, Illinois
- Macdonald, Catherine Joan, 1945 (1954), *Assistant Professor of Social Work*  
B.A., 1936, Washington
- MacDonald, Cecilia, 1949 (1957), *Associate Professor of Elementary Education*  
B.A., 1946, Central Washington College of Education; M.Ed., 1952, Washington
- Mackin, Joseph Hoover, 1934 (1947), *Professor of Geology*  
B.S., 1930, New York; M.A., 1932, Ph.D., 1936, Columbia
- Magee, Donal Francis, 1951 (1957), *Associate Professor of Pharmacology*  
B.A., 1944, M.A., B.Med., B.Ch., 1948, Oxford (England); Ph.D., 1952, Illinois
- Maki, John McGilvrey, 1939 (1956), *Professor of Japanese Government and Politics*  
B.A., 1932, M.A., 1936, Washington; Ph.D., 1948, Harvard
- Mallory, Virgil Standish, 1952 (1957), *Associate Professor of Geology*  
A.B., 1943, Oberlin; M.A., 1948, Ph.D., 1952, California
- Mander, Linden Alfred, 1928 (1937), *Professor of Political Science*  
B.A., 1917, M.A., 1920, Adelaide (Australia)
- Mansfield, Louise Wasson, 1951 (1952), *Assistant Professor of Nursing*  
R.N., 1937, Samaritan Hospital School of Nursing (Idaho); B.S., 1947, Ohio State;  
M.A., 1951, Columbia
- Marckworth, Gordon Dotter, 1939, *Professor of Forest Management; Dean of the College of Forestry*  
B.S.F., 1916, Ohio State; M.F., 1917, Yale
- Marcus, Sumner, 1955 (1958), *Associate Professor of Business Law; Acting Executive Officer of the Department of General Business*  
A.B., 1931, M.B.A., 1933, LL.B., 1936, Harvard; D.B.A., 1958, Washington
- Martin, Arthur Wesley, Jr., 1937 (1950), *Professor of Physiology; Executive Officer of the Department of Zoology*  
B.S., 1931, College of Puget Sound; Ph.D., 1936, Stanford
- Martin, Charles Emanuel, 1924, *Professor of Political Science; Director of the Institute of International Affairs*  
B.Litt., 1914, M.A., 1915, California; Ph.D., 1918, Columbia; LL.D., 1942, Southern California
- Martin, Harold Clifford, 1948 (1952), *Professor of Aeronautical Engineering; Executive Officer of the Department of Aeronautical Engineering*  
B.S. in M.E., 1934, M.S., 1937, New York; Ph.D., 1950, California Institute of Technology
- Martin, Howard Hanna, 1930 (1940), *Professor of Geography*  
B.S., 1922, Pennsylvania; A.M., 1923, Ph.D., 1929, George Washington;  
Sc.D. (Hon.), 1937, Monmouth College
- Marts, Marion Ernest, 1946 (1955), *Associate Professor of Geography; Executive Officer of the Department of Extension Classes*  
B.A., 1937, M.A., 1944, Washington; Ph.D., 1950, Northwestern
- Masek, George E., 1958, *Assistant Professor of Physics*  
B.S., 1950, M.S., 1951, Ph.D., 1955, Stanford
- Mason, Alden C., 1946 (1957), *Associate Professor of Art*  
B.A., 1942, M.F.A., 1947, Washington
- Matchett, William H., 1954 (1956), *Assistant Professor of English*  
B.A., 1949, Swarthmore; M.A., 1950, Ph.D., 1957, Harvard
- McAdams, Laura Elizabeth, 1941 (1951), *Associate Professor of Home Economics*  
B.S., 1923, M.S., 1932, Kansas State

- McCaffree, Kenneth Maurice, 1949 (1956), *Associate Professor of Economics*  
B.A., 1940, Southwestern College (Kansas); M.A., 1942, Denver; Ph.D., 1950, Chicago
- McCarthy, Joseph Le Page, 1941 (1952), *Professor of Chemical Engineering; Dean of the Graduate School*  
B.S. in Ch.E., 1934, Washington; M.S., 1936, Idaho; Ph.D., 1938, McGill
- McCarthy, Walter Charles, 1949 (1957), *Associate Professor of Pharmaceutical Chemistry*  
B.S., 1943, Massachusetts Institute of Technology; Ph.D., 1949, Indiana
- McDiarmid, John Brodie, 1949 (1956), *Professor of Classics; Executive Officer of the Department of Classics*  
B.A., 1936, Toronto; Ph.D., 1940, Johns Hopkins
- McFarlan, Lee Horace, 1927 (1946), *Professor of Mathematics*  
B.S., 1917, Kansas State Teachers College; M.A., 1921, Ph.D., 1924, Missouri
- McGuire, Joseph William, 1950 (1956), *Associate Professor of Business Fluctuations*  
Ph.B., 1948, Marquette; M.B.A., 1950, Ph.D., 1956, Columbia
- McKay, George Frederick, 1927 (1943), *Professor of Music*  
B.Mus., 1923, Rochester
- McKeever, Benjamin Butler, 1949, *Associate Professor of Psychology*  
A.B., 1930, M.A., 1931, Harvard; Ph.D., 1940, Iowa
- McKinnon, Richard Nichols, 1951 (1957), *Associate Professor of Japanese Language and Literature*  
A.B., 1947, A.M., 1949, Ph.D., 1951, Harvard
- McMinn, Bryan Towne, 1920 (1946), *Professor of Mechanical Engineering; Executive Officer of the Department of Mechanical Engineering*  
B.S. in M.E., 1918, Oregon State; M.S. in M.E., 1926, M.E., 1931, Washington
- McMinn, Trevor James, 1956, *Assistant Professor of Mathematics*  
B.A., 1942, Utah; Ph.D., 1955, California
- Meeuse, Bastiaan Jacob Dirk, 1952 (1955), *Associate Professor of Botany*  
B.Sc., 1936, Doctoraal Examen, 1939, Leiden (Holland); Doctor, 1943, Delft (Holland)
- Melden, Abraham Irving, 1946 (1956), *Professor of Philosophy*  
A.B., 1931, California (Los Angeles); A.M., 1932, Brown; Ph.D., 1938, California
- Merendino, K. Alvin, 1948 (1955), *Professor of Surgery, Administrative Officer*  
B.A., 1936, Ohio; M.D., 1940, Yale; Ph.D., 1946, Minnesota
- Meyer, Herman Carl Henry, 1934 (1942), *Associate Professor of Germanic Languages; Acting Executive Officer of the Department of Germanic Languages and Literature*  
B.A., 1924, Capital (Ohio); Ph.D., 1936, Chicago
- Michael, Ernest A., 1953 (1956), *Associate Professor of Mathematics*  
B.A., 1947, Cornell; M.A., 1948, Harvard; Ph.D., 1951, Chicago
- Michael, Franz H., 1942 (1948), *Professor of Far Eastern History and Government; Assistant Director of the Far Eastern and Russian Institute*  
Dr.Jur., 1933, Freiburg (Germany)
- Micklesen, Lew R., 1953, *Assistant Professor of Slavic Languages*  
B.S., 1942, Minnesota; Ph.D., 1951, Harvard
- Miller, Alfred Lawrence, 1923 (1937), *Professor of Mechanics and Structures*  
B.S. in C.E., 1920, C.E., 1926, Washington
- Miller, Charles John, 1927 (1945), *Professor of Marketing; Executive Officer of the Department of Marketing, Transportation, and Foreign Trade*  
B.B.A., 1922, M.B.A., 1927, Washington
- Miller, Leonard Gordon, 1954, *Assistant Professor of Philosophy*  
B.A., 1948, British Columbia; M.A., 1950, Washington; Ph.D., 1954, Cornell
- Mills, Blake David, Jr., 1946 (1947), *Professor of Mechanical Engineering*  
B.S. in M.E., B.S. in E.E., 1934, Washington; M.S. in M.E., 1935, Massachusetts Institute of Technology; M.E., 1947, Washington
- Mills, Caswell Albert, 1942 (1954), *Lecturer in Physical Education*  
B.A., 1935, North Dakota State Teachers College; M.A., 1943, Washington
- Misch, Peter H., 1947 (1950), *Professor of Geology*  
D.Sc., 1932, Göttingen (Germany)

- Mittet, Holger Peder, 1946 (1955), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1937, Washington; M.S. in C.E., 1938, Massachusetts Institute of Technology
- Miyamoto, Shotaro Frank, 1945 (1956), *Associate Professor of Sociology*  
B.A., 1936, M.A., 1938, Washington; Ph.D., 1950, Chicago
- Moore, Alton Wallace, 1948, *Professor of Orthodontics; Executive Officer of the Department of Orthodontics*  
D.D.S., 1941, California; M.S., 1948, Illinois
- Moritz, Harold Kennedy, 1928 (1949), *Professor of Hydraulics*  
B.S. in M.E., 1921, Massachusetts Institute of Technology
- Morris, Morris David, 1949 (1958), *Associate Professor of Economics*  
A.B., 1941, Ph.D., 1954, California
- Morris, Lucien Ellis, 1954, *Professor of Surgery; Head of the Division of Anesthesiology*  
A.B., 1936, Oberlin; M.D., 1943, Western Reserve
- Morrison, James Bryan, 1946 (1955), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1943, Virginia Polytechnic Institute; M.S. in M.E., 1954, Washington
- Morrison, Kenneth N., 1948, *Associate Professor of Fixed Partial Dentures; Executive Officer of the Department of Fixed Partial Dentures*  
D.D.S., 1943, Toronto (Canada); M.S., 1952, Washington
- Moseley, Spencer Altemont, 1948 (1959), *Associate Professor of Art*  
B.A., 1948, M.F.A., 1951, Washington
- Moulton, Ralph Wells, 1941 (1950), *Professor of Chemical Engineering; Executive Officer of the Department of Chemical Engineering*  
B.S. in Ch.E., 1932, M.S. in Ch.E., 1934, Ph.D., 1938, Washington
- Mueller, Edward Eugene, 1953 (1955), *Associate Professor of Ceramic Engineering*  
B.S., Cer.E., 1948, Missouri School of Mines; M.S., 1952, Ph.D., 1953, Rutgers
- Mueller, Fred J., 1956 (1959), *Associate Professor of Accounting and Finance*  
B.A., 1953, M.A., 1954, Washington; Ph.D., 1956, Ohio State
- Mueller, James Irving, 1949 (1955), *Professor of Ceramic Engineering*  
B.Cer.E., 1939, Ohio State; Ph.D., 1949, Missouri
- Mund, Vernon Arthur, 1932 (1937), *Professor of Economics*  
B.B.A., 1928, M.B.A., 1929, Washington; Ph.D., 1932, Princeton
- Munro, Kathleen, 1929 (1945), *Professor of Music*  
B.M., 1924, Washington; M.A., 1929, Columbia; Ph.D., 1937, Washington
- Murphey, W. Rhoads, III, 1952 (1956), *Associate Professor of Geography*  
A.B., 1941, Harvard College; A.M., 1942, A.M., 1948, Ph.D., 1950, Harvard University
- Murphy, George G. S. (1958), *Assistant Professor of Economics*  
B.A., 1950, University of Bristol; Ph.D., 1957, Washington
- Murray, Louise, 1957, *Assistant Professor of Nursing*  
B.S., 1938, Portland; M.N., 1950, Washington
- Nash, Shirley Ista, 1952 (1957), *Assistant Professor of Nursing*  
Diploma, 1941, Virginia Mason Hospital School of Nursing; B.S., C.N.S., 1949, M.N., 1956, Washington
- Neddermeyer, Seth Henry, 1946 (1952), *Professor of Physics*  
A.B., 1929, Stanford; Ph.D., 1935, California Institute of Technology
- Nelson, Oliver Wendell, 1945 (1952), *Associate Professor of Speech*  
B.A., 1933, M.A., 1939, Ph.D., 1949, Washington
- Nelson, Robert A., 1955 (1956), *Associate Professor of Transportation*  
A.B., 1941, Clark; M.B.A., 1947, Boston; Ph.D., 1954, Clark
- Neurath, Hans, 1950, *Professor of Biochemistry; Executive Officer of the Department of Biochemistry*  
Ph.D., 1933, Vienna
- Nielsen, Mabel, 1957 (1959), *Assistant Professor of Home Economics*  
B.S., 1935, Idaho; M.S., 1941, Iowa State College
- Nijenhuis, Albert, 1956 (1958), *Associate Professor of Mathematics*  
B.S., 1947, M.S., 1950, Ph.D., 1952, Amsterdam (The Netherlands)

- Nilsen, Thomas Robert, 1946 (1954), *Assistant Professor of Speech*  
B.A., 1940, M.A., 1948, Washington; Ph.D., 1953, Northwestern
- Noges, Endrik, 1958, *Assistant Professor of Electrical Engineering*  
B.S., 1954, M.S., 1956, Ph.D., 1958, Northwestern
- Nordquist, William Bertil, 1947 (1955), *Associate Professor of Mechanical Engineering*  
B.M.E., 1941, Rensselaer Polytechnic Institute; M.S., 1946, Massachusetts Institute of Technology
- Normann, Theodore Frederick, 1940 (1958), *Professor of Music*  
B.A., 1925, Macalester College; M.A., 1928, Columbia
- North, Douglass Cecil, 1950 (1956), *Associate Professor of Economics*  
B.A., 1942, Ph.D., 1952, California
- Nostrand, Howard Lee, 1939, *Professor of Romance Languages and Literature; Executive Officer of the Department of Romance Languages and Literature*  
B.A., 1932, Amherst College; A.M., 1933, Harvard; Docteur, 1934, Université de Paris (France)
- Nunke, Ronald John, 1958, *Assistant Professor of Mathematics*  
B.S., 1950, M.S., 1951, Ph.D., 1955, Chicago
- Nyhus, Lloyd M., 1952 (1959), *Associate Professor of Surgery*  
B.A., 1945, Pacific Lutheran; M.D., 1947, Alabama
- O'Brien, Timothy Frederick, 1956 (1958), *Associate Professor of Aeronautical Engineering*  
B.S. in A.E., 1947, M.S. in A.E., 1951, Sc.D., 1958, Massachusetts Institute of Technology
- Ogilvie, Alfred Livingston, 1951 (1957), *Associate Professor of Periodontics*  
D.D.S., 1944, Toronto; M.S., 1948, California
- Olcott, Virginia, 1931 (1945), *Associate Professor of Nursing*  
R.N., 1926, Peter Bent Brigham Hospital School of Nursing (Massachusetts); B.S., 1927, M.S., 1931, C.P.H.N., 1949, Washington
- Ordal, Erling Josef, 1937 (1957), *Professor of Microbiology*  
B.A., 1927, Luther College; Ph.D., 1936, Minnesota
- Orr, Jack E., 1956, *Professor of Pharmacy; Dean of the College of Pharmacy; State Chemist*  
B.S., 1940, Purdue; Ph.D., 1943, Wisconsin
- Osterud, Kenneth Leland, 1949, *Assistant Professor of Zoology*  
B.A., 1935, Randolph-Macon College; Ph.D., 1941, New York
- Ottenberg, Simon, 1955 (1957), *Assistant Professor of Anthropology*  
B.A., 1948, Wisconsin; Ph.D., 1957, Northwestern
- Palmer, John Milton, 1952 (1954), *Assistant Professor of Speech*  
B.A., 1946, M.A., 1950, Washington; Ph.D., 1952, Michigan
- Palmer, Walter S., Jr., 1955 (1956), *Associate Professor of Finance*  
A.B., 1937, Nevada; M.B.A., 1941, Ph.D., 1954, Stanford
- Paris, Paul Croce, 1957, *Assistant Professor of Civil Engineering*  
B.S. in C.E., 1953, Michigan; M.S., 1955, Lehigh
- Parker, Donald D., 1955 (1959), *Associate Professor of Marketing*  
B.A., 1941, Linfield; M.B.A., 1942, Northwestern; D.B.A., 1958, Washington
- Parsons, Jack R., 1955 (1957), *Associate Professor of Social Work*  
B.A., 1935, M.A., 1940, College of the Pacific; M.S., 1943, Columbia; Ph.D., 1958, Chicago
- Pascal, Paul, 1953 (1956), *Assistant Professor of Classics*  
B.A., 1948, Vermont; Ph.D., 1953, North Carolina
- Patterson, Viola Hansen, 1947 (1958), *Associate Professor of Art*  
B.A., B.S. in L.S., 1921, B.F.A., 1925, M.F.A., 1947, Washington
- Patton, Harry Dickson, 1947 (1956), *Professor of Physiology and Biophysics*  
B.A., 1939, Arkansas; Ph.D., 1943, M.D., 1946, Yale
- Payne, Blanche, 1927 (1942), *Professor of Home Economics*  
B.S., 1916, Kansas State Teachers College; M.A., 1924, Columbia
- Pearce, John Kenneth, 1934 (1943), *Professor of Logging Engineering*  
B.S.F., 1921, Washington

- Peck, Charles Elwin, 1951 (1955), *Associate Professor of Business Writing*  
B.A., 1935, Wichita; M.A., 1947, Ph.D., 1950, Iowa
- Pedersen, Roma M. Kittelsby, 1953 (1956), *Assistant Professor of Nursing*  
B.S.N., 1943, Minnesota; M.N., 1955, Washington
- Peck, Clifford L., 1938, *Assistant Professor of Physical Education*  
B.S., 1929, Washington; M.A., 1931, Columbia
- Pence, Orville Leon, 1941 (1954), *Associate Professor of Speech*  
B.A., 1935, M.A., 1939, Washington; Ph.D., 1946, Iowa
- Penington, Ruth Esther, 1928 (1951), *Professor of Art*  
B.F.A., 1927, M.F.A., 1929, Washington
- Perrin, Porter Gale, 1947, *Professor of English*  
A.B., 1917, Dartmouth; A.M., 1921, Maine; Ph.D., 1936, Chicago
- Person, Henry Axel, 1937 (1947), *Assistant Professor of English*  
A.B., 1927, Ph.D., 1942, Washington
- Peterson, Douglas Lee, 1956 (1958), *Assistant Professor of English*  
B.A., 1949, M.A., 1952, Stanford
- Peterson, Marion Elizabeth, 1951 (1958), *Associate Professor of Librarianship*  
B.A., 1930, B.A. in Librarianship, 1941, M.A., 1957, Washington
- Phillips, William Louis, 1949 (1952), *Assistant Professor of English; Assistant Dean of the College of Arts and Sciences*  
B.A., 1942, Iowa State Teachers College; M.A., 1947, Ph.D., 1949, Chicago
- Pierce, Richard Scott, 1955 (1958), *Associate Professor of Mathematics*  
B.S., 1950, Ph.D., 1952, California Institute of Technology
- Pifer, Drury Augustus, 1945 (1948), *Professor of Mineral Engineering; Director of the School of Mineral Engineering*  
B.S. in Min.E., 1930, M.S. in Min.E., 1931, Washington
- Pigott, William, III, 1957, *Assistant Professor of Finance*  
B.S.S., 1949, Seattle; M.A., 1955, Ph.D., 1957, Washington
- Plein, Elmer Michael, 1938 (1951), *Professor of Pharmacy*  
Ph.C., B.S., 1929; M.S., 1931, Ph.D., 1936, Colorado
- Polonis, Douglas Hugh, 1955 (1958), *Associate Professor of Metallurgical Engineering*  
B.S., 1951, British Columbia; M.S., 1953, Toronto; Ph.D., 1955, British Columbia
- Poppe, Nicholas Nikolaevich, 1949 (1951), *Professor of Slavic and Altaic Studies and of Anthropology*  
Master, 1923, Petrograd (Russia); Ph.D., 1934, Petersburg (Russia)
- Powell, Sargent Gastman, 1919 (1943), *Professor of Chemistry*  
B.S., M.S., 1916, Washington; Ph.D., 1920, Illinois
- Powers, Francis Fountain, 1928 (1940), *Professor of Educational Psychology; Dean of the College of Education*  
B.A., 1923, Washington; M.A., 1927, Oregon; Ph.D., 1928, Washington
- Pressly, Thomas James, 1949 (1954), *Associate Professor of History*  
A.B., 1940, A.M., 1941, Ph.D., 1950, Harvard
- Rabinovitch, Benton Seymour, 1948 (1957), *Professor of Chemistry*  
B.S., 1939, Ph.D., 1942, McGill
- Rader, Melvin Miller, 1930 (1948), *Professor of Philosophy*  
A.B., 1925, M.A., 1927, Ph.D., 1929, Washington
- Rahskopf, Horace G., 1928 (1944), *Professor of Speech; Executive Officer of the Department of Speech*  
A.B., 1920, Willamette; M.A., 1927, Ph.D., 1935, Iowa
- Rattray, Maurice, Jr., 1950 (1957), *Associate Professor of Oceanography*  
B.S., 1944, M.S., 1947, Ph.D., 1951, California Institute of Technology
- Ray, Dixy Lee, 1945 (1957), *Associate Professor of Zoology*  
B.A., 1937, M.A., 1938, Mills College; Ph.D., 1945, Stanford
- Ray, Verne Frederick, 1933 (1947), *Professor of Anthropology*  
B.A., 1931, M.A., 1933, Washington; Ph.D., 1937, Yale
- Read, Kenneth E., 1957 (1958), *Associate Professor of Anthropology*  
B.A., 1940, M.A., 1946, Sydney (Australia); Ph.D., 1948, London (England)

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A.B., 1923, DePauw; M.A., 1924, Ph.D., 1927, Michigan
- Redford, Grant H., 1945 (1956), *Associate Professor of English*  
B.S., 1937, Utah State; M.A., 1940, Iowa
- Reed, Carroll Edward, 1946 (1959), *Professor of Germanic Languages*  
B.A., 1936, M.A., 1937, Washington; Ph.D., 1941, Brown
- Reed, Richard John, 1954 (1958), *Associate Professor of Meteorology*  
B.S., 1945, California Institute of Technology; Sc.D., 1949, Massachusetts Institute of Technology
- Reeves, George Spencer, 1935 (1948), *Associate Professor of Physical Education*  
B.S., 1933, Oregon State; M.S., 1937, Oregon; M.P.H., 1952, California
- Reiffer, Erwin, 1947 (1955), *Professor of Chinese Language*  
Dr.Rer.Pol., 1931, Vienna (Austria)
- Reinert, Otto, 1956 (1958), *Assistant Professor of English*  
B.A., 1947, Lafayette; M.A., 1948, Ph.D., 1952, Yale
- Reiss, Grace Dewey, 1947 (1954), *Assistant Professor of Social Work*  
B.A., 1932, Iowa; M.A., 1940, Minnesota
- Reshetar, John Stephen, Jr., 1957 (1958), *Associate Professor of Political Science*  
B.A., 1945, Williams; M.A., 1946, Ph.D., 1950, Harvard
- Rey, William Henry, 1950 (1959), *Professor of Germanic Literature*  
Ph.D., 1937, Frankfurt (Germany)
- Richardson, Frank, 1956 (1959), *Associate Professor of Zoology; Curator in Zoology, Washington State Museum*  
B.A., 1934, Pomona; Ph.D., 1939, California
- Richey, Eugene Porter, 1954 (1956), *Associate Professor of Civil Engineering*  
B.S. in C.E., 1941, Alaska; M.S., 1947, M.S. in C.E., 1948, California Institute of Technology; Ph.D., 1955, Stanford
- Rickenberg, Howard V., 1956 (1958), *Assistant Professor in Microbiology*  
B.S., 1950, Cornell; Ph.D., 1954, Yale
- Riedel, Richard Anthony, 1949 (1950), *Assistant Professor of Orthodontics*  
D.D.S., 1945, Marquette; M.D.S., 1948, Northwestern
- Rieke, William O., 1958, *Instructor in Anatomy*  
M.D., 1958, Washington
- Rising, L. Wait, 1934 (1936), *Professor of Pharmacy; Chairman of the Department of Pharmacy and Pharmacy Administration*  
Ph.G., B.S., 1924, Oregon State; M.S., 1926, Ph.C., 1928, Ph.D., 1929, Washington
- Ritter, David Moore, 1944 (1959), *Professor of Chemistry*  
S.B., 1933, Ph.D., 1937, Chicago
- Roberts, Earl Champion, 1954 (1958), *Professor of Metallurgical Engineering*  
B.S. in Met.E., 1943, Montana School of Mines; M.S. in Met.E., 1950, D.Sc., 1952, Massachusetts Institute of Technology
- Robertson, James Campbell H., 1945 (1956), *Professor of Forest Management*  
B.S.F., 1927, Washington; M.S.F., 1933, California; D.F., 1947, Duke
- Robinson, Dwight E., 1950 (1956), *Professor of Business Fluctuations*  
B.A., 1936, Yale; M.A., 1938, Oxford (England); Ph.D., 1948, Columbia
- Robinson, Rex Julian, 1929 (1945), *Professor of Chemistry*  
B.A., 1925, DePauw; M.A., 1927, Ph.D., 1929, Wisconsin
- Rodriguez-Alcala, Hugo, 1958, *Associate Professor of Romance Languages and Literature*  
Bachiller, 1936, Doctor of Law, 1943, Asuncion (Paraguay);  
M.F.L., 1950, State College of Washington; Ph.D., 1953, Wisconsin
- Roethke, Theodore Huebener, 1947 (1948), *Professor of English*  
A.B., 1929, A.M., 1936, Michigan
- Rogers, Walter Edwin, 1946 (1956), *Professor of Electrical Engineering*  
B.S. in E.E., 1934, California; M.S. in E.E., 1948, Washington
- Roller, Julius Abraham, 1945 (1950), *Associate Professor of Accounting*  
B.B.A., 1934, Washington

- Roman, Herschel Lewis, 1942 (1952), *Professor of Botany*  
A.B., 1936, Ph.D., 1942, Missouri
- Roosen-Runge, Edward C., 1952 (1959), *Professor of Anatomy*  
M.D., 1936, Hamburg (Germany)
- Rosenmeyer, Thomas Gustav, 1955 (1957), *Associate Professor of Classics*  
B.A., 1944, McMaster (Hamilton, Ontario); M.A., 1945, Toronto; Ph.D., 1949, Harvard
- Rosenzweig, Jim, 1956 (1959), *Associate Professor of Policy and Administration*  
B.A., 1951, M.B.A., 1954, Washington; Ph.D., 1956, Illinois
- Rosinbum, Ralph Rambo, 1948 (1953), *Assistant Professor of Music*  
B.A., 1947, M.A., 1948, Washington
- Royce, William F., 1958, *Professor of Fisheries; Director of the Fisheries Research Institute*  
B.S., 1937, Ph.D., 1943, Cornell
- Ruch, Theodore Cedric, 1946, *Professor of Physiology; Executive Officer of the Department of Physiology and Biophysics*  
B.A., 1927, Oregon; M.A., 1928, Stanford; B.A., 1930, B.Sc., 1932, Oxford (England); Ph.D., 1933, Yale
- Rushmer, Robert Frazer, 1947 (1956), *Professor of Physiology and Biophysics*  
B.S., 1936, M.D., 1939, Chicago
- Ryan, Milo, 1946 (1957), *Professor of Journalism and Radio-Television*  
B.A., 1928, M.A., 1934, Michigan
- Salzer, Rufus Coleman, Jr., 1953 (1956), *Assistant Professor of Education; Director of College of Education Bureau of Teacher Service and Placement*  
B.A., 1930, Seattle Pacific; M.A., 1931, Ph.D., 1955, Washington
- Sanderman, Llewellyn Arthur, 1928 (1952), *Associate Professor of Physics*  
B.S., 1923, Linfield College; M.S., 1931, Ph.D., 1943, Washington
- Sarason, Irwin Gerald, 1956 (1959), *Associate Professor of Psychology*  
B.A., 1951, Rutgers; M.A., 1953, Iowa; Ph.D., 1955, Indiana
- Sauerlander, Annemarie, 1947 (1949), *Associate Professor of Germanic Literature*  
B.A., 1928, M.A., 1930, Buffalo; Ph.D., 1936, Cornell
- Saville, Max, 1947, *Professor of History*  
A.B., 1924, M.A., 1926, Ph.D., 1932, Columbia
- Saxberg, Borje O., 1957, *Assistant Professor of Policy and Administration, and Production*  
B. Econ., 1950, Swedish University College of Commerce (Finland); B.S., 1952, Oregon State; M.S., 1953, Ph.D., 1958, Illinois
- Scarf, Frederick Leonard, 1956, *Assistant Professor of Physics*  
A.B., 1951, Temple; Ph.D., 1955, Massachusetts Institute of Technology
- Schaeffer, Walter Howard, 1952, *Associate Professor of Forestry*  
B.S.F., 1936, Washington; M.S.F., 1937, Yale; Ph.D., 1952, Washington
- Schaller, Gilbert Simon, 1922 (1937), *Professor of Mechanical Engineering*  
B.S. in M.E., 1916, Illinois; M.B.A., 1925, Washington
- Scher, Allen Myron, 1950 (1957), *Associate Professor of Physiology and Biophysics*  
B.A., 1942, Ph.D., 1951, Yale
- Scheidel, Thomas M., 1954 (1959), *Assistant Professor of Speech*  
B.A., 1953, Willamette University; M.A., 1955, Ph.D., 1958, Washington
- Schluger, Saul, 1958, *Professor of Periodontics; Director, Graduate Dental Education*  
D.D.S., 1931, Louisville
- Schmid, Calvin Fisher, 1937 (1941), *Professor of Sociology; Director of the Office of Population Research*  
A.B., 1925, Washington; Ph.D., 1930, Pittsburgh
- Schmidt, Fred Henry, 1946 (1956), *Professor of Physics*  
B.S.E., 1937, Michigan; M.A., 1940, Buffalo; Ph.D., 1945, California
- Schrag, Clarence Clyde, 1944 (1957), *Associate Professor of Sociology*  
B.A., 1939, Washington State; M.A., 1945, Ph.D., 1950, Washington

- Schrieber, Albert N., 1948 (1956), *Professor of Production and Policy and Administration*  
B.S. in M.E., 1938, Illinois Institute of Technology; M.B.A., 1947, Harvard
- Schubert, Wolfgang Manfred, 1947 (1958), *Professor of Chemistry*  
B.S., 1941, Illinois; Ph.D., 1947, Minnesota
- Scott, David Robert Main, 1955, *Assistant Professor of Silviculture*  
B.A., 1942, Virginia; M.F., 1947, Ph.D., 1950, Yale
- Sergev, Sergius Ivan, 1923 (1946), *Professor of Engineering Mechanics*  
B.S. in M.E., 1923, M.E., 1931, Washington
- Seyfried, Warren R., 1956, *Assistant Professor of Business Fluctuations and Real Estate*  
B.S. (M.E.), 1943, Vanderbilt; M.B.A., 1954, D.B.A., 1956, Indiana
- Sherman, John Clinton, 1942 (1954), *Associate Professor of Geography*  
A.B., 1937, Michigan; M.A., 1943, Clark; Ph.D., 1947, Washington
- Shih, Vincent Yu-Chung, 1945 (1956), *Professor of Chinese Literature and Philosophy*  
B.A., 1925, Fukien Christian (China); M.A., 1930, Yenching (China); Ph.D., 1939, Southern California
- Shimada, Katsunori, 1958, *Assistant Professor of Electrical Engineering*  
B.S., Tokyo U., 1945; M.S., 1954, Ph.D., 1958, Minnesota
- Shipman, George Anderson, 1946, *Professor of Political Science; Director of the Institute of Public Affairs*  
B.A., 1925, M.A., 1926, Wesleyan (Connecticut); Ph.D., 1931, Cornell
- Shouman, Ahmad Raafat, 1956, *Assistant Professor of Mechanical Engineering*  
B.S., 1950, Cairo University; M.S., 1954, Ph.D., 1956, Iowa
- Siks, Geraldine Brain, 1950 (1956), *Assistant Professor of Drama*  
B.A., 1935, Central Washington College of Education; M.A., 1940, Northwestern
- Simpson, Lurline Violet, 1924 (1944), *Associate Professor of Romance Languages and Literature*  
B.A., 1920, M.A., 1924, Ph.D., 1928, Washington
- Simpson, William Tracy, 1948 (1957), *Professor of Chemistry*  
A.B., 1943, Ph.D., 1948, California
- Sivertz, Victorian, 1926 (1949), *Associate Professor of Chemistry, Executive Secretary of Department of Chemistry*  
B.S., 1922, Washington; M.S., 1924, West Virginia; Ph.D., 1926, McGill
- Skahen, Julia Goodsell, 1946, *Assistant Professor of Anatomy, Physiology and Biophysics*  
B.S., 1926, M.S., 1928, Washington; Ph.D., 1940, Chicago
- Smith, Charles Wallace, 1948 (1959), *Associate Professor of Art*  
Pratt Institute; B.A., 1954, Washington; M.F.A., 1956, Cranbrook Academy of Art
- Smith, George Sherman, 1921 (1941), *Professor of Electrical Engineering*  
B.S. in E.E., 1916, E.E., 1924, Washington
- Smith, Harriet Holbrook, 1949, *Assistant Professor of Nursing*  
A.B., 1918, Mount Holyoke; R.N., 1920, Seattle General Hospital School of Nursing; M. of Nursing, 1957, Washington
- Smith, Henry Ladd, 1955, *Professor of Journalism; Director of the School of Communications*  
Ph.B., 1929, Yale; M.A., 1936, Ph.D., 1946, Wisconsin
- Smith, Moncrieff Hynson, Jr., 1949 (1959), *Professor of Psychology*  
A.B., 1940, M.A., 1941, Missouri; Ph.D., 1947, Stanford
- Smith, Orville A., Jr., 1958 (1959), *Assistant Professor of Anatomy, Physiology and Biophysics*  
B.A., 1949, Arizona; M.A., 1950, Ph.D., 1953, Michigan State
- Smullyan, Arthur Francis, 1946 (1956), *Professor of Philosophy; Acting Executive Officer of the Department of Philosophy*  
B.A., 1937, City College of New York; M.A., 1940, Ph.D., 1941, Harvard
- Snyder, Richard Craine, 1949 (1957), *Associate Professor of Zoology*  
A.B., 1940, Bucknell; A.M., 1941, Ph.D., 1948, Cornell



- Sparks, Albert K., 1958 (1959), *Associate Professor of Fisheries*  
B.S., 1947, M.S., 1949, Ph.D., 1957, Texas A and M
- Spector, Ivar, 1931 (1943), *Associate Professor of Russian Civilization and Literature*  
M.A., 1926, Northwestern; Ph.D., 1928, Chicago
- Sperry, Robert, 1954 (1957), *Assistant Professor of Art*  
B.A., 1950, Saskatchewan; M.F.A., 1955, Washington
- Spiro, Melford E., 1957, *Professor of Anthropology*  
B.A., 1941, Minnesota; Ph.D., 1950, Northwestern
- Sreebny, Leo M., 1957, *Associate Professor of Oral Pathology; Executive Officer of the Department of Oral Pathology*  
A.B., 1942, D.D.S., 1945, M.S., 1950, Ph.D., 1954, University of Illinois
- Stadler, David R., 1956 (1957), *Assistant Professor of Botany*  
A.B., 1948, Missouri; M.A., 1950, Ph.D., 1952, Princeton
- Stanton, Robert Bruce, 1956 (1958), *Assistant Professor of English*  
B.A., 1949, M.A., 1950, Kansas City; Ph.D., 1953, Indiana
- Stein, Arnold Sidney, 1948 (1953), *Professor of English*  
A.B., 1936, Yale; A.M., 1938, Ph.D., 1942, Harvard
- Stenzel, George, 1949 (1957), *Associate Professor of Forestry*  
B.S., 1938, New Hampshire; M.F., 1939, Yale
- Stevens, Leonard Woodbury, 1937 (1948), *Assistant Professor of Physical Education*  
B.S., 1933, M.S., 1941, Washington
- Stevenson, John K., 1957 (1959), *Assistant Professor of Surgery*  
M.D., 1949, University of Rochester
- Stibbs, Gerald Denike, 1948, *Professor of Operative Dentistry; Executive Officer of the Departments of Operative Dentistry and Fixed Partial Dentures; Director of the Dental Operatory*  
B.S., D.M.D., 1931, Oregon
- Stirling, Brents, 1932 (1949), *Professor of English*  
LL.B., 1926, Ph.D., 1934, Washington
- Storey, Reed K., 1956 (1958), *Assistant Professor of Accounting*  
B.S., 1952, Utah; C.P.A., 1952, State of Utah; Ph.D., 1958, California
- Stotland, Ezra, 1957, *Assistant Professor of Psychology*  
M.A., City College of New York; Ph.D., 1953, Michigan
- Stout, George Hugh, 1957, *Assistant Professor of Chemistry*  
B.S., 1953, M.S., 1954, Ph.D., 1956, Harvard
- Strayer, George Drayton, Jr., 1949, *Professor of Educational Administration*  
B.S., 1927, Princeton; M.A., 1928, Ph.D., 1934, Columbia
- Street, Robert Elliott, 1948 (1955), *Professor of Aeronautical Engineering*  
B.S., 1933, Rensselaer Polytechnic Institute; A.M., 1934, Ph.D., 1939, Harvard
- Streib, John Frederick, Jr., 1947, *Assistant Professor of Physics*  
B.S., 1936, Ph.D., 1942, California Institute of Technology
- Strother, Charles Riddell, 1947, *Professor of Psychology; Professor of Clinical Psychology in the School of Medicine*  
B.A., 1929, M.A., 1932, Washington; Ph.D., 1935, Iowa
- Strother, David Boyd (1958), *Assistant Professor of Speech*  
A.B., 1950, Georgetown College; M.A., 1951, Northwestern; Ph.D., 1958, Illinois
- Stuntz, Daniel Elliot, 1940 (1958), *Professor of Botany*  
B.S., 1935, Washington; Ph.D., 1940, Yale
- Sutermester, Robert A., 1949 (1952), *Professor of Personnel and Human Relations; Acting Executive Officer of the Department of Policy, Personnel Relations and Production*  
A.B., 1934, Harvard; M.A., 1942, Washington
- Swanson, Bessie R., 1955 (1957), *Assistant Professor of Music*  
A.B., B.M., 1943, M.A., 1953, College of the Pacific
- Swarm, Howard Myron, 1947 (1959), *Professor of Electrical Engineering*  
B.S. in E.E., 1940, M.S. in E.E., 1950, Washington

- Sylvester, Robert Ohrum, 1947 (1957), *Professor of Sanitary Engineering*  
B.S. in C.E., 1936, Washington; S.M., 1941, Harvard
- Tate, Robert F., 1953 (1955), *Assistant Professor of Mathematics*  
A.B., 1944, California; M.A., 1949, North Carolina; Ph.D., 1952, California
- Taylor, Donald Stewart, 1954 (1955), *Assistant Professor of English*  
A.B., 1947, M.A., 1948, Ph.D., 1950, California
- Taylor, George Edward, 1939 (1941), *Professor of Far Eastern History and Politics; Executive Officer of the Department of Far Eastern and Slavic Languages and Literature; Director of the Far Eastern and Russian Institute*  
A.B., 1927, A.M., 1928, D.Litt., 1957, Birmingham (England)
- Terrell, Margaret Elma, 1928 (1944), *Professor of Home Economics*  
A.B., 1923, Penn College (Iowa); M.A., 1927, Chicago
- Terry, Miriam, 1930 (1950), *Associate Professor of Music*  
B.Mus., 1926, M.A., 1948, Washington
- Thomas, David Phillip, 1950 (1959), *Associate Professor of Forest Products*  
B.S.F., 1941, M.F., 1948, Washington
- Thompson, Laurence C., Jr., 1957 (1959), *Assistant Professor of Russian Language*  
A.B., 1949, Middlebury; M.A., 1950, Ph.D., 1954, Yale
- Tiffany, William Robert, 1947 (1956), *Associate Professor of Speech*  
B.A., 1946, M.A., 1947, Washington; Ph.D., 1951, Iowa
- Torney, John Alfred, Jr., 1930 (1948), *Associate Professor of Physical Education*  
B.S., 1928, Washington; M.A., 1930, Columbia
- Towe, Arnold L., 1953 (1957), *Assistant Professor of Physiology and Biophysics*  
B.A., 1948, Pacific Lutheran; Ph.D., 1953, Washington
- Treadgold, Donald Warren, 1949 (1959), *Professor of Russian History; Professor of History*  
B.A., 1943, Oregon; M.A., 1947, Harvard; D.Phil., 1950, Oxford (England)
- Tschudin, Mary Stickels, 1942 (1955), *Professor of Nursing; Dean of the School of Nursing*  
R.N., B.S., 1935, C.P.H.N., 1936, M.S., 1939, Ph.D., 1959, Washington
- Tsutakawa, George, 1946 (1957), *Associate Professor of Art*  
B.A., 1937, M.F.A., 1950, Washington
- Turnbull, Florence Louisa, 1952, *Assistant Professor of Home Economics*  
B.Sc., 1943, Manitoba; M.S., 1945, Minnesota
- Turner, Mabel Alexandra, 1941 (1959), *Associate Professor of Librarianship*  
A.B., 1926, Oregon; B.S. in L.S., 1931, M.S. in L.S., 1959, Columbia
- Tyler, Varro E., Jr., 1957, *Associate Professor of Pharmacognosy; Chairman of the Department of Pharmacognosy; Director, Drug Plant Gardens*  
B.S., 1949, Nebraska; M.S., 1951, Ph.D., 1953, Connecticut
- Uehling, Edwin Albrecht, 1936 (1947), *Professor of Physics*  
A.B., 1925, Wisconsin; M.A., 1930, Ph.D., 1932, Michigan
- Ullman, Edward L., 1951, *Professor of Geography*  
S.B., 1934, Chicago; A.M., 1935, Harvard; Ph.D., 1942, Chicago
- Vance, Joseph Alan, 1957, *Assistant Professor of Geology*  
B.S., 1951, Ph.D., 1957, Washington
- Van Cleve, Richard, 1948, *Professor of Fisheries; Dean, College of Fisheries*  
B.S., 1927, Ph.D., 1936, Washington
- Van Horn, Robert Bowman, 1925 (1936), *Professor of Hydraulic Engineering; Executive Officer of the Department of Civil Engineering*  
B.S. in C.E., 1916, C.E., 1926, Washington
- Vargas-Barón, Anibal, 1949, *Associate Professor of Spanish*  
B.A., 1926, Asbury College; M.A., 1929, Ph.D., 1943, Washington
- Vasarhelyi, Desi D., 1949 (1956), *Associate Professor of Civil Engineering*  
B.A., 1928, Ref. Collegium Kolozsvár (Romania); Dipl.Ingr., 1932, Dr.Ingr., 1944, Technical University (Budapest, Hungary)
- Verrall, John Weedon, 1948 (1959), *Professor of Music*  
B.Mus., 1929, Minneapolis College of Music; Certificate of Music, 1932, Liszt Conservatory (Budapest); B.A., 1934, Minnesota

- Vopni, Sylvia Freda, 1952 (1956), *Assistant Professor of Education*  
B.A., 1931, M.A., 1938, Ph.D., 1955, Washington
- Wagner, Louis Charles, 1947 (1955), *Professor of Marketing*  
B.B.A., 1938, Washington; M.A., 1940, Minnesota
- Wagoner, David R., 1954 (1955), *Assistant Professor of English*  
B.A., 1947, Pennsylvania State; M.A., 1949, Indiana
- Waibler, Paul John, 1954 (1956), *Associate Professor of Mechanical Engineering*  
B.S. in M.E., 1943, Kansas State; M.S. in M.E., 1944, Yale; Ph.D., 1957, Illinois
- Walker, Lauren McNeal, 1946 (1957), *Professor of Accounting*  
B.A., 1939, M.B.A., 1943, Washington; C.P.A., 1943, State of Washington
- Walker, Richard Battson, 1948 (1956), *Associate Professor of Botany*  
B.S., 1938, Illinois; Ph.D., 1948, California
- Walter, Edward D., 1953 (1957), *Associate Professor of Social Work*  
B.A., 1940, Carleton College; M.S.W., 1951, Southern California
- Walter, John Harris, 1954 (1956), *Assistant Professor of Mathematics*  
B.S., 1948, California Institute of Technology; M.S., 1953, Ph.D., 1954, Michigan
- Ward, Arthur Allen, Jr., 1948 (1955), *Professor of Surgery; Head of the Division of Neurosurgery*  
B.A., 1938, M.D., 1942, Yale
- Warner, Daniel S., 1954 (1955), *Associate Professor of Journalism*  
B.A., 1928, Michigan; M.A., Oregon, 1958
- Waters, Ellen Harriet, 1946, *Assistant Professor of Physical Education*  
B.S., 1927, Washington; M.A., 1940, Columbia; R.P.T., 1946, Stanford
- Watson, James Bennett, 1955, *Professor of Anthropology; Executive Officer of the Department of Anthropology*  
A.B., 1941, A.M., 1945, Ph.D., 1948, Chicago
- Watson, Walter, 1958 (1959), *Assistant Professor of Sociology*  
B.A., 1953, Southern Methodist; M.S., 1954, Ph.D., 1959, Wisconsin
- Webster, Donald Hopkins, 1939 (1948), *Professor of Political Science; Director of the Bureau of Governmental Research and Services*  
B.A., 1929, LL.B., 1931, Ph.D., 1933, Washington
- Weiner, Seymour S., 1953 (1959), *Associate Professor of Romance Languages and Literature*  
B.A., 1940, City College of New York; M.A., 1941, California; M.S. in L.S., Ph.D., 1952, Columbia
- Weiser, Russell Shivley, 1934 (1949), *Professor of Microbiology*  
B.S., 1930, M.S., 1931, North Dakota State; Ph.D., 1934, Washington
- Weiss, Daniel Aaron, 1955 (1958), *Assistant Professor of English*  
B.A., 1939, Northwestern; M.A., 1950, Columbia; Ph.D., 1955, Northwestern
- Welander, Arthur Donovan, 1937 (1958), *Professor of Fisheries, Professor in Laboratory of Radiation Biology*  
B.S., 1934, M.S., 1940, Ph.D., 1946, Washington
- Welman, Valentine S., 1954 (1957), *Assistant Professor of Art*  
B.F.A., 1952, Denver; M.F.A., 1954, Colorado
- Wessman, Harold Everett, 1948, *Professor of Civil Engineering; Dean of the College of Engineering*  
B.S., 1924, M.S., 1925, C.E., 1929, Ph.D., 1936, Illinois
- West, Theodore Clinton, 1949 (1959), *Associate Professor of Pharmacology*  
B.S., 1948, M.S., 1949, Ph.D., 1952, Washington
- Wheeler, Bayard O., 1948 (1953), *Professor of General Business*  
A.B., 1928, California; M.A., 1930, Washington; Ph.D., 1942, California
- Wheeler, Harry Eugene, 1948 (1951), *Professor of Geology*  
B.S., 1930, Oregon; A.M., 1932, Ph.D., 1935, Stanford
- Wheeler, Sara H., 1955, *Assistant Professor of Librarianship*  
B.A., 1936, Nebraska; B.S., (L.S.), 1940, Columbia; M.A., 1954, Chicago
- Whiteley, Arthur Henry, 1947 (1959), *Professor of Zoology*  
B.A., 1938, Kalamazoo College; M.A., 1939, Wisconsin; Ph.D., 1945, Princeton

- Wiberg, Kenneth Berle, 1950 (1958), *Professor of Chemistry*  
B.S., 1948, Massachusetts Institute of Technology; Ph.D., 1950, Columbia
- Wilcox, Philip E., 1952 (1957), *Associate Professor of Biochemistry*  
B.S., 1943, California Institute of Technology; Ph.D., 1949, Wisconsin
- Wilets, Lawrence, 1958 (1959), *Associate Professor of Physics*  
B.S., 1948, Wisconsin; M.S., 1950, Ph.D., 1952, Princeton
- Wilhelm, Hellmut, 1948 (1953), *Professor of Chinese History and Literature*  
Ph.D., 1932, Berlin (Germany)
- Wilkie, Richard Francis, Jr., 1937 (1948), *Assistant Professor of Germanic Literature*  
B.A., 1934, M.A., 1936, Washington; Ph.D., 1953, California
- Williston, Frank Goodman, 1943 (1949), *Professor of Far Eastern History*  
A.B., 1922, Ohio Wesleyan; M.A., 1926, Ph.D., 1935, Chicago
- Wilsing, Weston C., 1953 (1956), *Lecturer in Secretarial Training and Business Education*  
B.Ed., 1943, Wisconsin Teachers College; M.A., 1946, Columbia; D.B.A., 1959, Washington
- Wilson, Clotilde, 1929 (1937), *Assistant Professor of Romance Languages*  
B.A., 1926, M.A., 1927, Ph.D., 1931, Washington
- Wilson, Ruth Marian, 1936 (1945), *Associate Professor of Physical Education; Executive Officer of the Department of Physical Education for Women*  
B.S., 1931, Utah; M.S., 1936, Wisconsin
- Wilson, William Charles Eade, 1926 (1947), *Professor of Romance Languages*  
B.A., 1922, Montana; M.A., 1925, Ph.D., 1928, Washington
- Wilson, William Ronald, 1929, *Professor of Psychology*  
B.A. 1917, M.S., 1920, Ph.D., 1925, Washington
- Winans, Edgar V., 1957, *Instructor in Anthropology*  
B.A., 1952, M.A., 1954, California (Los Angeles)
- Wingate, Marcel E., 1957, *Assistant Professor of Speech*  
B.A., 1948, Grinnell; M.S., 1952; Ph.D., 1956, Washington
- Winther, Sophus Keith, 1925 (1940), *Professor of English*  
B.A., 1918, M.A., 1919, Oregon; Ph.D., 1926, Washington
- Wolfe, Myer Richard, 1949 (1958), *Professor of Urban Planning*  
B.S., 1940, New Hampshire; M. Regional Planning, 1947, Cornell
- Woodburne, Lloyd Stuart, 1950, *Professor of Psychology; Dean of the College of Arts and Sciences*  
A.B., 1929, M.A., 1930, Ph.D., 1932, Michigan
- Woodbury, J. Walter, 1950 (1957), *Associate Professor of Physiology and Biophysics*  
B.S., 1943, M.S., 1947, Ph.D., 1950, Utah
- Woodcock, Edith, 1930 (1945), *Associate Professor of Music*  
B.M., 1925, Rochester; M.M., 1936, Washington
- Woolf, Harry, 1955 (1958), *Associate Professor of History*  
B.S., 1948, M.A., 1949, Chicago; Ph.D., 1955, Cornell
- Worcester, Dean Amory, Jr., 1946 (1951), *Associate Professor of Economics*  
B.A., 1939, M.A., 1940, Nebraska; Ph.D., 1943, Minnesota
- Wykhuis, Walter A., 1956, *Associate Professor of Prosthodontics*  
B.A., 1932, Calvin College; D.D.S., 1936, Chicago College of Dental Surgery
- Wylie, Turrell Verl, 1958 (1959), *Assistant Professor of Tibetan Culture and Literature*  
B.A., 1952, Ph.D., 1958, Washington
- Young, Allan Charles, 1949 (1955), *Associate Professor of Physiology and Biophysics*  
B.A., 1930, M.A., 1932, British Columbia; Ph.D., 1934, Toronto
- Young, Harry Allen, 1948, *Professor of Prosthodontics; Executive Officer of the Department of Prosthodontics*  
D.D.S., 1919, Indiana

Zellner, Arnold, 1955 (1959), *Associate Professor of Economics*

A.B., 1949, Harvard; Ph.D., 1957, California

Zetlin, Emanuel Roman, 1947, *Professor of Music*

B.A., 1916, Imperial Conservatory (Petrograd); D.Mus. (Hon.), 1936, Washington College of Music, Washington, D. C.

Zillman, Lawrence John, 1932 (1953), *Professor of English*

B.A., 1928, Ph.D., 1936, Washington

Zuckerman, Herbert Samuel, 1939 (1952), *Professor of Mathematics*

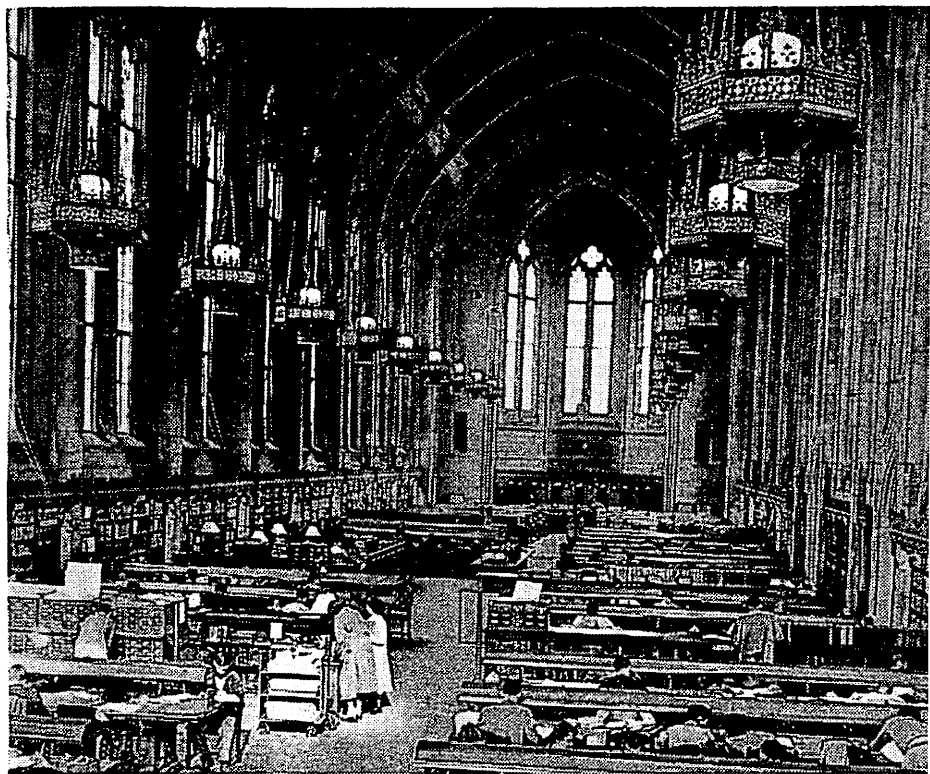
B.S., 1932, California Institute of Technology; M.S., 1934, Chicago; Ph.D., 1936, California

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#### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*



## GRADUATE SCHOOL ORGANIZATION

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# GRADUATE SCHOOL ORGANIZATION

## ADMINISTRATION

THE GRADUATE SCHOOL of the University of Washington is administratively in charge of graduate study in whatever division of the University such study is undertaken. This involves the supervision of student programs which go beyond formal undergraduate work or work of the professional schools into areas of advanced training, research, and scholarship.

Programs for the master's and doctor's degrees are offered in fifty-eight departments within twelve schools and colleges in the University. The graduate faculty is composed of faculty members in these divisions who are engaged in graduate instruction or in directing the research of graduate students.

The Graduate School is administered through the Office of the Dean, the Executive Committee of the Graduate School, Group Operating Committees, and the Graduate Faculty Council. The Graduate Faculty Council is composed of representatives elected to eight Group Operating Committees by the departments and colleges that offer graduate work and it serves as the legislative and policy-making body of the graduate faculty. The Executive Committee consists of the Dean of the Graduate School and the elected chairman of each of the eight group Operating Committees; it acts as an advisory group to the Dean and as an administrative committee for the Graduate Faculty Council.

## RESEARCH

Research is of particular concern to the Graduate School, and instruction at the graduate level is largely guidance in research. Almost every phase of the graduate student's career is dominated by the research ideal: his thesis is an exercise in research; he acquires languages as research tools; his seminars are for training in research methods; and he obtains the doctor's degree for demonstrated proficiency in research.

The volume of research activity at the University is impressive and adds to the richness of graduate instruction and study. Through contract research, for both private sources and government agencies, the work of the University has been greatly expanded. This work not only brings greater research results but also provides more opportunities for the training and support of future scholars.

### RESEARCH COMMITTEE OF THE GRADUATE SCHOOL

The administration of research interests in the Graduate School is carried out through the assistance of a special research committee, appointed by the Dean, which reviews proposals for research support, formulates regulations concerning personnel and the use of funds, and stimulates interest in investigative activities. It advises on expenditures from the Initiative 171 Fund, which helps to support research in medicine and biology, and from the Research Fund of the Graduate School, which supports research primarily in the fields of the arts, humanities, and social sciences.

### AGNES H. ANDERSON RESEARCH FUND

The Agnes H. Anderson Research Fund for the support of creative research was formed from the proceeds of a very generous gift donated by two anonymous friends of the University. Accepted by the Board of Regents in 1943, the fund is named in memory of the donor of Alfred H. Anderson Hall and the Agnes Healy Anderson Forestry Trust Fund. The selection of research projects and allocation of funds for their support are recommended to the President of the University by the Dean of the Graduate School after consultation with a committee of the University Research Society.

## SPECIAL FEATURES

### FRIDAY HARBOR LABORATORIES

Acting Director: ROBERT L. FERNALD, 201 Johnson Hall

The Friday Harbor Laboratories, the marine laboratories of the University of Washington, are administered by the Dean of the Graduate School. The staff of the Laboratories is made up of professors from various Departments of the University (Botany, Fisheries, Meteorology, Oceanography, and Zoology) and visiting professors from other institutions.

The Friday Harbor Laboratories are located approximately eighty miles north of Seattle near the town of Friday Harbor on San Juan Island. This island is one of the largest of the 172 which make up the San Juan Archipelago located in the northwest section of the state of Washington between Vancouver Island and the United States mainland.

The islands of the San Juan Archipelago are, in general, rocky, wooded, and with precipitous shores. Many are deeply indented by narrow, fjord-like inlets. They have been strongly glaciated leaving valleys filled with drift and occasional lakes, swamps, and sphagnum and peat bogs. The Laboratories are located on a state game preserve of 484 acres of wooded land with about two miles of shore line. This is an admirable location for the study of various aspects of marine science and for many types of investigations.

Within a relatively short distance from the Laboratories are sea waters varying from oceanic to those highly diluted by streams, with depths to 1,000 feet, bottoms varying from mud to rock, and water movements ranging from those of quiet bays and lagoons to those of swift tideways.

The waters about the San Juan Archipelago have exceptionally abundant and varied marine flora and fauna. The area is rich in both phytoplankton and zooplankton. Brown, green, blue-green, and red algae are present in quantity.

Representatives of all major and most minor phyla of invertebrates can be collected within a reasonable distance from the Laboratories. Shore collecting and dredging in the many diverse ecological situations provide an abundance of forms for ecological, experimental, morphological, and systematic work.



The biological laboratory buildings are provided with aquaria and running sea water supplied through either polyethylene or glass pipes and fittings which deliver water free from metallic contamination.

During the summer the Laboratories offer an opportunity for independent and supervised research as well as a varied program of instruction primarily for graduate students (exceptional, advanced undergraduates are occasionally admitted). The program of courses usually includes work in algology, oceanographic meteorology, oceanography, invertebrate zoology, invertebrate physiology or embryology. An annual bulletin is published describing the summer program and the facilities available. Throughout the year, the use of the facilities of the Laboratories for research in various areas of marine science is encouraged.

All requests for information concerning the program, availability of facilities, and admission to the Laboratories should be submitted to: Director, Friday Harbor Laboratories, Department of Zoology, University of Washington, Seattle 5.

## **LABORATORY OF RADIATION BIOLOGY**

**Director: LAUREN R. DONALDSON, 110 Fisheries Center**

The University of Washington Board of Regents, in January, 1958, established the Laboratory of Radiation Biology to expand University studies of the biological effects of atomic radiation. (The Laboratory absorbed and supplanted the Applied Fisheries Laboratory established in 1943.) The Laboratory is a division of the Graduate School.

The program is planned to meet the need for trained specialists in the field of radiation biology, in which the physical and biological sciences join forces to combine the skills of the two areas of learning.

Graduate students wishing to enter the field of radiation biology should hold degrees in the biological sciences with supporting course work in physics, chemistry, and mathematics, or in the physical sciences of chemistry or physics with supporting courses in the biological sciences.

A research training program, which is integrated with the courses in radiation biology, is carried on by the Laboratory of Radiation Biology, under contract with the Atomic Energy Commission, at the Pacific Proving Ground, the Fern Lake Research Station, and in the laboratories at the University of Washington.

## **RESEARCH COMPUTER LABORATORY**

**Director: DAVID B. DEKKER, 400A Bagley**

The Research Computer Laboratory, established in September, 1956, as an agency of the Graduate School, provides electronic calculating facilities and auxiliary punched-card equipment for use by faculty and research personnel of the University. The facilities of the Research Computer Laboratory are also available to neighboring institutions which do not have their own computers.

The IBM 650 is now operated as the chief facility of the Laboratory. The University plans, however, to expand the facilities to include an IBM 704 Computer and necessary auxiliary equipment.

The Research Computer Laboratory is administered by a faculty advisory committee under the chairmanship of the Dean of the Graduate School.

## UNIVERSITY OF WASHINGTON CENTER FOR GRADUATE STUDY AT HANFORD

**Director:** KERMIT B. BENGTON, Richland, Washington

One of the newest facilities available for study through the University of Washington is the Center for Graduate Study at Hanford, located at Richland, Washington. Formerly the General Electric School of Nuclear Engineering, the operation of the School was assumed by the University July 1, 1958. It is administered by the Graduate School at the University of Washington in Seattle.

The School serves the professionally trained people working at the Hanford Atomic Products Operation and in the general area, who wish to obtain advanced degrees. In addition to the courses which have been offered in previous years, the University will broaden the programs to approximate more closely the advanced degree programs available on the Seattle campus. Currently upper-division and graduate-level courses are available in business administration, chemistry, mathematics, physics, radiology, and in chemical, electrical, mechanical and metallurgical engineering. Classes at the Center are presently held only in the evening and most of the students and staff are employees of the Atomic Energy Commission's prime contractor, the General Electric Company. As the program is expanded, greater utilization will be made of the Hanford facilities and faculty members from the University and other institutions.

Oregon State College and the State College of Washington recognize and allow, under certain conditions, application of credits earned at the University of Washington Center for Graduate Study in degree programs on their respective campuses. Students affiliated with these two institutions should consult the bulletin of their institution regarding degree requirements.

Courses available at the Center are not listed in this catalog because the offerings are presently undergoing extensive revision. Persons interested in studying at the Center should write to the Director, University of Washington Center for Graduate Study, Richland, Washington, for details. Such persons should be employed or be considering employment in the Richland area.

## UNIVERSITY OF WASHINGTON PRESS

**Director:** WILLIAM M. READ, Helen Ardelle Building, East 41st Street and University Way

The University of Washington Press, a division of the Graduate School, is the publishing arm of the University. It publishes scholarly books of both specialized and general interest, and original works in the arts, whether written by members of the faculty or by qualified persons outside the University. It also handles textbooks and the publications of certain University laboratories and bureaus. The Press manages all details of editing and design of its products, and buys its printing and binding on a contract basis.

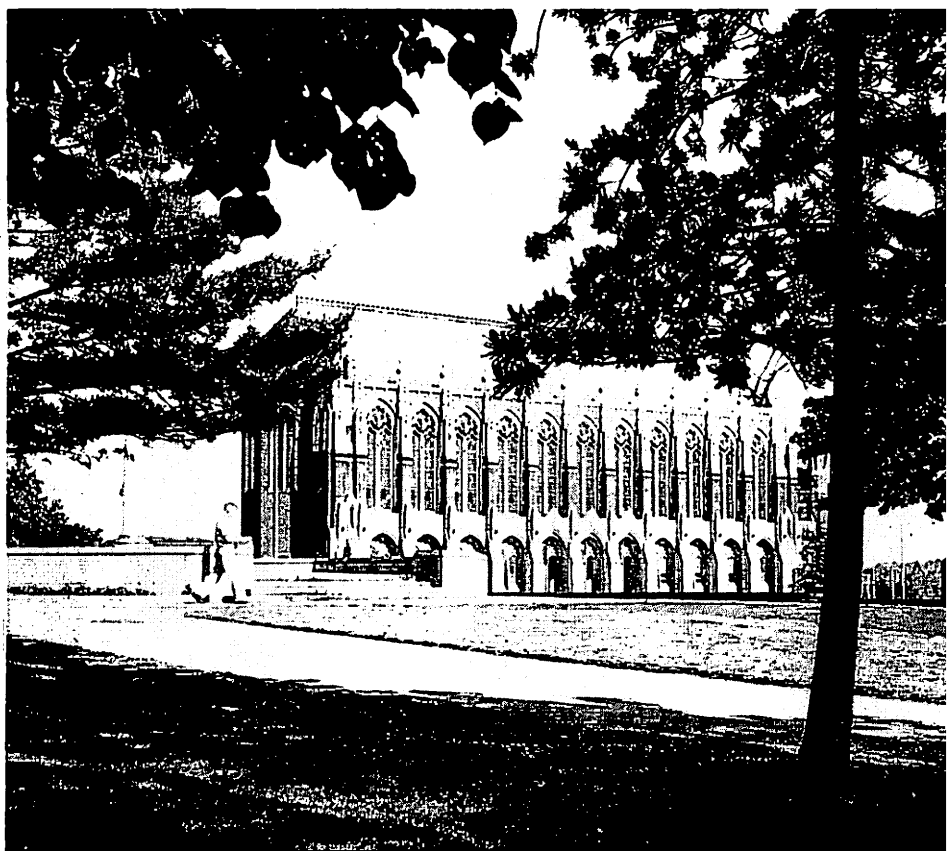
The Administrative Committee of the Press assists the Dean of the Graduate School in general administration of the Press. This Committee also screens the manuscripts offered to the Press and recommends to the Publications Council selected manuscripts for publication. The Publications Council passes upon the recommendations of the Administrative Committee and promotes the interests of the Press. Individually, the members of the Council represent the various publishing interests of the University and encourage their colleagues to submit manuscripts to the Press.

The Press invites members of the faculty to bring to it publications problems at an early stage in the development of a project.

### **WALKER-AMES VISITING PROFESSORSHIPS**

The Walker-Ames Fund was founded in 1931 by Maud Walker and her husband, Edwin Gardner Ames. Its purpose was to enable the University of Washington "to guarantee to the state of Washington the scholarly and educational services of the most distinguished minds available in this and other countries . . ." Since the first Walker-Ames visiting professor was appointed in 1936, well over one hundred notable scholars have come to the University as temporary members of the faculty and have enriched the intellectual life of the University community.

In 1956 there was created within the Walker-Ames Fund an annual All-University Lectureship designed to bring to the campus each year, for a single lecture, a person equipped by experience and learning to discuss a topic of importance to modern society.



## GENERAL INFORMATION

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## ADMISSION

**P**ROPERLY QUALIFIED STUDENTS who are graduates of the University of Washington or of other colleges or universities of recognized rank may be admitted to the Graduate School in one of the following classifications:

**FULL STANDING.** The requirement for full standing is a grade-point average of 2.75 (3.00 effective Autumn Quarter, 1960) during the senior year, with the necessary prerequisites for work in the chosen graduate field.

**PROVISIONAL STANDING.** A student with a grade-point average of less than 2.75 (3.00 effective Autumn Quarter, 1960) but above 2.50 (2.75 effective Autumn Quarter, 1960) in his senior year may apply for admission with provisional standing in the Graduate School. No student with a grade point lower than 2.50 (2.75 effective Autumn Quarter, 1960) for the senior year may be admitted to the Graduate School except on written recommendation of the major department at this University, and the approval of the Dean of the Graduate School. An undergraduate deficiency in preparation for advanced work will result in provisional standing if accepted.

Graduates of nonaccredited colleges, if they present standard Bachelor of Arts or Bachelor of Science degrees and the required scholarship standing, may also apply for provisional standing provided the institutions attended are of similar organization to this University and offer a standard program of study which may eventually lead to accreditation by the Regional Accrediting Association. Such applicants require special approval by the Dean of the Graduate School.

Provisional standing may be changed to full standing upon the successful completion of two quarters of acceptable graduate work and such work is fully applicable toward advanced degrees. Students may not, however, become candidates for advanced degrees while on provisional standing.

*University of Washington graduates* must be officially admitted to the Graduate School. Admission application forms may be obtained in the Registrar's Office.

*Graduates of other schools* may obtain admission application forms by writing to the Registrar's Office.

*Foreign students* must apply for admission to the Graduate School in the same manner and satisfy the same requirements as those from American schools. They must demonstrate a satisfactory command of the English language.

Applications for admission must be submitted by prescribed deadlines and must be substantiated by certain credentials and reports submitted in accordance with University rules and practices. All applicants must submit *two* official transcripts of all undergraduate work and of any graduate work. It is important that the student's application be submitted by the proper time, for the University will assume no responsibility for applicants who come to the campus before their credentials have been forwarded or before they have been notified of acceptance.

It is the student's responsibility to make sure that complete credentials covering all his previous college education are submitted to the University before the published deadlines. To be official they must be forwarded by the registrars of institutions previously attended, direct to the Registrar of the University. These records become part of the official file and cannot be returned to the student nor duplicated for any purpose whatsoever, as the University does not issue or certify copies of transcripts from other institutions. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University. A student should obtain an additional copy of his official credentials to keep in his possession for advisory purposes.

To be assured of admission in Autumn Quarter, it is imperative that complete required credentials are forwarded no later than July 15. The July 15 deadline also applies to applicants desiring to transfer from other colleges and universities. Applications, with complete credentials, postmarked between July 15 and August 31 will be accepted in order of receipt only as long as additional new students can be accommodated. No applications postmarked after August 31 will be considered. For admission in the other quarters, applications and credentials should be submitted by published deadlines. (For specific dates see Calendar, pages 4-9.) This applies to *all* new students seeking admission. *It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.* Telegraphed or airmailed messages or requests will *not* be given precedence over other material already received by regular mail.

Before notice of admission is given, a medical questionnaire, on a form supplied by the Registrar, is issued to new out-of-state students. This should be completed by a doctor of medicine and returned by him to the Registrar's Office.

Students applying for fellowships and assistantships should make certain that complete transcripts and applications are on file. Usually departments make awards and appointments about March 15. Students wishing preliminary information regarding acceptance into graduate study, without reference to fellowships or assistantships, may also submit credentials in the spring term preceding their graduation. Subject to satisfactory completion of their work, they will be notified of the possibility of acceptance or nonacceptance in accordance with their own past performance and the limitations of the department in which they expect to study.

#### ADMISSION OF SENIORS

University of Washington students who are within 6 credits of completing their undergraduate work, and who otherwise meet the requirements for admission to the Graduate School with full standing, may register the quarter just prior to admission to the Graduate School for as much as 6 credits in graduate courses, in addition to the 6 credits of undergraduate work, but will remain in the undergraduate classification until the bachelor's degree is granted. Such registration and arrangements must receive *prior* approval by the Graduate School. *Only under these circumstances may work taken as an undergraduate be counted toward a graduate degree.* Further registration in the Graduate School is contingent upon completion of the requirements for the bachelor's degree.

#### SECOND BACHELOR'S DEGREES

Students who wish to obtain a second bachelor's degree register in the college from which they expect to obtain the degree, not in the Graduate School.

## KOREAN VETERANS

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a certificate for education and training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. Veterans Administration regulations specify that the veteran's ultimate goal must be stated on his application for a certificate. Only one change of course is allowed on the Korean Bill. If the veteran has any questions regarding application for a certificate, he should contact the Veterans Division, 1B Administration Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

### GRADUATE CREDIT REQUIREMENTS (Public Law 550)

#### 500-Level or Above Courses

9 credits	Full subsistence
7 to 8 credits	Three-fourths subsistence
5 to 6 credits	One-half subsistence
4 credits or less	Tuition and fees

or credits  $\div 14 \times \$110.00$ , whichever is the lesser

*If a graduate is combining 400-level courses with 500-level courses he should check with the Veterans Division, 1B Administration, to determine his scale of pay.*

### KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to registration for the quarter the veteran wishes to enter the University. If the veteran is eligible, the Veterans Administration will issue him a certificate for education and training which should be presented, along with his program of studies, to the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses, as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

There are restrictions for veterans returning to training following an interruption in excess of twelve months. Korean Veterans should consult with Veterans Division, 1B Administration, or the nearest Veterans Administration office to see if they are eligible for further benefits.

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

### DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

## CHILDREN OF DECEASED VETERANS

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or

disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented along with his program of studies to the Veterans Division, 1B Administration Building, on the date of registration.

## **WORLD WAR I OR II VETERANS**

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 55).

## **REQUIRED EXAMINATIONS**

### **MEDICAL EXAMINATION**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, is required to pass a medical examination as a condition of registration. A definite appointment is made for the examination at the time of registration. This appointment takes precedence over all others scheduled for that hour. Students who fail to appear for the medical examination at the appointed time will be excluded from classes on notice to the Registrar. For a second appointment, a special fee of \$5.00 is assessed.

## **REGISTRATION**

### **REGULAR STUDENTS**

A regular student is a student who fulfills the following requirements: (1) he has been granted regular admission to a school or college of the University; (2) his current schedule for credit is satisfactory to the dean of his school or college; (3) he has completed registration, including paying tuition and fees.

### **PROCEDURE**

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration procedures, dates, and deadlines which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to or telephoning the Registrar's Office at the time specified in the Calendar but in *no case* later than the stated deadline (see page 50).

### **ADVISING**

After notification of admission and before registration, the student should confer with his departmental adviser, not only about the program for his current registration, which must be approved by the adviser before it is presented to the Graduate School Office, but also about plans for his entire graduate work. It is primarily to his major department that the student must look for individual counsel, guidance, and instruction in the scholarly study and research which characterize graduate work.

### **REGISTERED CREDITS ALLOWED EACH QUARTER**

The maximum load for graduate students is regarded as 15 credits per quarter; 12 credits constitute a normal load. The programs of students employed in the



University or elsewhere will be limited. Students who are employed full time cannot register for more than 6 credits.

Only courses numbered 400, 500, and 600 can be applied to credit in the major field for advanced degrees. Courses numbered 300 are not applicable to credit toward advanced degrees except when applied by permission toward the graduate minor or supporting courses.

#### **CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the Dean of the Graduate School. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean of the Graduate School and of the instructor whose class the student wishes to enter.

#### **WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first 15 calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first 15 calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval of both the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first 15 calendar days of a quarter, as W; (2) a withdrawal after the first 15 calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

#### **WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the Dean of the Graduate School the Request for Withdrawal From the University form. The same system of grading applies as that prescribed under Withdrawal From a Course.

#### **ASSISTANTSHIPS, FELLOWSHIPS, AND SCHOLARSHIPS**

The Graduate School provides for the employment of many graduate students as research and teaching assistants and predoctoral associates. Such appointments give students opportunities for self-support and for valuable experience. More than 750 such appointments were made during the past year.

Appointments are granted only to graduate students of high intellectual competence and attainment whose educational goals are clearly defined. An appointment shall be made only when it is reasonably certain that it will help the student toward the attainment of his goal. Succeeding appointments may be made if the student's progress toward the degree is satisfactory. Maintenance of high scholarship shall also be a condition of reappointment.

Students holding appointments are required to render an average of 20 hours of service per week to the department. The appointments may be on a nine-month basis and ordinarily cover the period running from September 16 through June 15. Predoctoral associate appointments and other student assistantships do not provide for paid vacation or sick leave.

Students who accept appointments as predoctoral associates, and/or teaching and research assistants must confine their employment to such appointments and **MUST BE REGISTERED FOR A MINIMUM OF 9 CREDITS OF RESEARCH, COURSE, OR THESIS WORK EACH QUARTER DURING THE PERIOD OF THEIR APPOINTMENTS.**

Students holding appointments may not also hold foreign student tuition scholarships.

**PREDOCTORAL ASSOCIATES.** Persons holding such appointments shall hold a master's degree or its equivalent and shall give evidence of teaching and/or research ability. They must be actively pursuing the doctor's degree. Such persons may be appointed to either teaching or research responsibilities in the department; they shall not have faculty status. Appointments are ordinarily on a nine-month basis and may not be renewed for more than three years. The current stipend for a nine-month appointment is \$2,106.

**TEACHING ASSISTANTS.** The services of teaching assistants shall be limited to the supervision and leadership of quiz sections, discussion sections, or laboratory sections, service as class assistants, and other services strictly comparable to these. No assistant shall be given the reading and grading of papers as his whole assignment, but reading may be combined with the duties enumerated. Teaching assistants shall not be permitted to be in charge of a course, but shall be given some degree of responsibility in the supervision of laboratory or classroom work so that they may be introduced to teaching activities gradually and effectively. The current stipend for a nine-month appointment is \$1,845.

**RESEARCH ASSISTANTS.** Recipients of research assistantships shall engage in systematic research as assistants in research projects for which the department or a faculty member is responsible. The current stipend for a nine-month appointment is \$1,845.

**OTHER STUDENT ASSISTANTSHIPS.** Graduate students may be hired on an hourly basis to assist faculty members in teaching and research. Readers are so classified, as are students who give routine assistance in research.

**RESEARCH FELLOWSHIPS.** In many departments special fellowships are available from private, industrial, foundation, government, and other sources. Examples of these are the Standard Oil Company of California Fellowship in chemical engineering, the RCA Scholarship in electrical engineering, and the Family Society Fellowships in social work. Application must be made directly to the appropriate academic department.

**SCHOLARSHIPS AND LOANS.** In addition to assistantships and fellowships, the University offers a variety of financial aids to graduate students. These include special fellowships, scholarships, loans, and a wide range of work opportunities.

Scholarship grants are usually available only after a student has earned a good record at the University of Washington. Some graduate scholarships are awarded by academic departments from funds available only to their students. The Schools of Drama and Music have such funds. Most University scholarships, such as the Memorial Scholarships, may be awarded to students in any department. Others are limited to students in specific departments. Inquiries and applications should be sent to the Scholarship Secretary in the Office of the Dean of Students.

Emergency and long-term loans are available through the Office of the Dean of Students. Application for a loan should be made at least six weeks before the money is needed.

**FOREIGN STUDENT SCHOLARSHIPS.** Each year the University offers a number of tuition scholarships to students from other countries. These awards are made on the basis of the student's academic record, his need for assistance, and the number of openings in the department in which he expects to study. Application for such a scholarship should be made to the University of Washington Exchange Scholarships Committee by April 1 for the following academic year. At present the committee funds are the only ones available to students from abroad.

**TUITION AND FEES**

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

**Tuition**

Resident students, per quarter \$35.00

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter 105.00

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter 12.00

Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II or any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office.

Nonresident students who meet one of these requirements pay one-half the nonresident tuition.

This exemption is not granted to Summer Quarter students.

**Advanced Degree Fees, dentistry and surgery**

Resident students, per quarter, tuition, incidental, and ASUW fees \$146.00

Nonresident students, per quarter, tuition, incidental, and ASUW fees 256.00

Students working toward advanced degrees in dentistry and surgery (but not in basic sciences departments) pay the regular tuition of the Schools of Dentistry and Medicine and miscellaneous fees.

**Incidental Fee, per quarter**

Full-time resident students 27.50

Part-time resident students (registered for 6 credits or less) 10.00

Full-time nonresident students 52.50

Part-time nonresident students (registered for 6 credits or less) 35.00

Auditors do not pay an incidental fee; there are no other exemptions.

**ASUW Fees**

Membership, per quarter 8.50

Optional for auditors, part-time students, and persons registered for thesis only or degree final only.

Athletic admission ticket (optional for ASUW members) 3.50-6.50

Autumn, Winter, and Spring Quarters, \$6.50; Winter and Spring Quarters, \$3.50; Spring Quarter, \$3.50.

**Thesis Only Fee 27.50**

Those registered for thesis only (for credit or final) must be certified by the Dean of the Graduate School and are required to pay this fee and any laboratory breakage charge. ASUW fee, optional.

**Degree Final Only Fee 27.50**

Nonthesis students registered for degree final only must be certified by the Dean of the Graduate School and are required to pay this fee and any laboratory breakage charge. ASUW fee, optional.

<i>Language Examination Fee</i>	1.00
This fee is charged for a foreign language reading examination.	
<i>Breakage Ticket Deposit</i>	3.00
Required in some laboratory courses; ticket is returnable for full or partial refund.	
<i>Grade Sheet Fee</i>	.25
One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.	
<i>Transcript Fee</i>	.50
One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.	
<i>Thesis Binding and Publication Fee</i>	
Master's degree candidates	2.00
The fee covers the cost of binding one copy for the University Library.	
Doctor's degree candidates	25.00
The fee covers the cost of binding manuscript copies for the University Library and the cost of microfilm publication.	
<i>Diploma Fee</i>	5.00

#### SPECIAL FEES

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Permits to register by In-Person Registration. A late registration fee of \$15.00 is charged students eligible for In-Person Registration who fail to register before the first day of instruction Autumn, Winter, and Spring Quarters. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. A fee of \$5.00 is charged for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00 and for removal of an Incomplete, \$2.00.

#### REFUND OF FEES

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one-half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

#### ESTIMATE OF YEARLY EXPENSES

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

<i>Tuition, Incidental, and ASUW Membership Fees</i>	
Full-time resident student	\$213.00
Full-time nonresident student	498.00
<i>Athletic Admission Ticket (optional)</i>	3.50-6.50
<i>Accident and Sickness Insurance (optional)</i>	12.90
<i>Books and Supplies</i>	90.00

**Board and Room**

Room and meals in Men's Residence Halls	630.00
Room and meals in Women's Residence Halls	540.00-660.00

**Personal Expenses**

200.00

**STUDENT ACTIVITIES AND SERVICES****ASSOCIATED STUDENTS**

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

**OFFICE OF THE DEAN OF STUDENTS**

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and social problems. The Office of the Dean of Students also provides current information on Selective Service regulations.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, employment, and home hospitality should be referred to this Adviser. Students who are interested in studying abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

**COUNSELING CENTER**

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors and psychologists, works closely with other student services and supplements the academic advisory program.

**HOUSING**

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under 21 years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

Teaching and research assistants and other part-time sub-faculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted

for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Handbook of University Regulations* and the *Housing Bulletin*.

#### WORK PLACEMENT

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence has been established in Seattle.

There are many job opportunities on the campus for graduate students. For example, dormitory counselorships are available in the Men's Residence Halls, and skilled technicians are employed in nearly every University activity. Students may apply directly to the department in which they hope to work or to the Personnel Department.

Working students must be sure to correlate their employment with Graduate School regulations governing study loads (see Registration, page 52).

#### HEALTH SERVICES

The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health. The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.



## THE GRADUATE PROGRAMS

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## THE GRADUATE PROGRAMS

THE GRADUATE SCHOOL offers programs leading to the master's degree through the following schools and colleges: *Architecture and Urban Planning*; *Arts and Sciences*: anthropology, art, botany, chemistry, classics, communications, drama, economics, English (including general and comparative literature), Far Eastern and Slavic languages and literature, geography, geology, Germanic languages and literature, history, home economics, mathematics, meteorology and climatology, music, oceanography, philosophy, physical education, physics, political science (including public administration), psychology, Romance languages and literature, Scandinavian languages and literature, sociology, speech, and zoology; *Business Administration*; *Dentistry*; *Education*; *Engineering*: aeronautical, chemical, civil, electrical, mechanical, and mineral engineering; *Fisheries*; *Forestry*; *Librarianship*; *Medicine*: anatomy, biochemistry, microbiology, pharmacology, physiology and biophysics, and surgery; *Nursing*; *Pharmacy*; and *Social Work*. An interdepartmental program in *Linguistics* is administered by a special committee.

Programs leading to the Doctor of Philosophy degree are offered through the following schools and colleges: *Arts and Sciences*: anthropology, botany, chemistry, economics, English (including general and comparative literature), Far Eastern and Slavic languages and literature, geography, geology, Germanic languages and literature, history, mathematics, meteorology and climatology, music, oceanography, philosophy, physics, political science, psychology, Romance languages and literature, sociology, speech, and zoology; *Education*; *Engineering*: aeronautical, chemical, civil, electrical, and mechanical engineering; *Fisheries*; *Forestry*; *Medicine*: anatomy, biochemistry, microbiology, pharmacology, and physiology and biophysics; and *Pharmacy*. An interdepartmental program in *Linguistics* is administered by a special committee.

A program leading to the degree of Doctor of Business Administration is offered through the College of Business Administration. This is a professional degree primarily for students preparing for teaching and research positions in business administration and for administrative and policy-making positions in business.

A program for the degree of Doctor of Education, a professional degree primarily for teachers and school administrators, is offered through the College of Education.



## RESIDENCE

The residence requirement for the master's degree is one year (three quarters). The requirement for the doctor's degree is three years, two of them at the University of Washington. Since one of the two years must be spent in continuous full-time residence (three out of four consecutive quarters), the residence requirement for the doctor's degree cannot be met solely with summer study.

Although the normal load in graduate work is 12 credits, full residence credit is granted for any quarter in which at least 9 credits in graduate course, research, or thesis work are acceptably completed. Courses numbered below 300 are not applicable to residence or course credit for advanced degrees.

Residence credit for part-time students is figured on the basis of 12 credits per quarter, and students who carry less than the number required for full residence will increase proportionately the amount of time necessary to obtain a graduate degree.

All work for a master's degree must be completed within six years; for the doctor's degree, within ten years. This includes applicable work from the master's degree and work transferred from other institutions.

Students who are doing research or thesis work must register for this work in order to obtain residence credit. The number of research or thesis credits for which students register should be the proportion of the normal load which they are devoting to research or thesis. For example, if a student is on a half-time basis and is concentrating exclusively on thesis preparation, registration for thesis should be one-half the normal load or 6 credits. Registration for thesis should always be indicated separately from registration for research; in other words, registration for graduate research courses (those numbered 600) must be for work other than that covered by registration for thesis.

Theses may be written *in absentia* only if all course and residence requirements have been completed. In exceptional cases, however, residence credit may be given when a thesis is prepared *in absentia* because necessary data cannot be obtained at the University. Arrangements for writing theses *in absentia* must be approved in advance by the Graduate School and the department which is supervising the work.

All students, whether *in absentia* or in residence, must be registered with the University the quarter in which they receive their degrees.

## SCHOLARSHIP

If students are to make satisfactory progress toward advanced degrees, success in their courses of study must be assumed. Grades as such are not matters of emphasis in graduate work; the student should see his grades merely as an indication of whether his general progress is satisfactory or unsatisfactory. For this reason, there is no calculation of the grade-point average in graduate study. However, in the major field no grade of less than B is acceptable, and in related fields a grade of C may occasionally be accepted only if the student's record is of generally high quality. Students whose work is not of approved quality may be asked to withdraw from the Graduate School.

## MASTER'S DEGREES

To qualify for a master's degree, the candidate must meet these requirements:

1. Present at least 27 credits of course work successfully completed. Half of the work for the master's degree, including the thesis, must be in courses numbered 500 and above.
2. Present a minimum of three full-time quarters of residence credit. (Part-time quarters may be accumulated to meet this requirement.)
3. Present a certificate of proficiency in a foreign language (unless specifically excepted for a particular degree).
4. Prepare a thesis which is approved by the department (unless specifically

excepted in a particular program). Credit for the thesis ordinarily should be one fourth of the total credit for the degree. Students must register for thesis. The number of credits indicated in such registration should be the proportion of the normal load which the student is devoting to the thesis.

5. Satisfy any additional requirements the major department imposes.

While every candidate is expected to take some work outside his major department, the major department determines the requirements for supporting courses and should consult with the minor department in planning requirements for the minor.

Students must satisfy the requirements for the degree which are in force at the time the degree is to be awarded.

Candidates are expected to attend Commencement exercises.

#### ADMISSION TO CANDIDACY

The student must make application for the master's degree at the Graduate School Office *within the first two weeks of the quarter in which he expects the degree to be conferred*. When the application is received, the Graduate School will review the student's record and his current registration and will notify him and his department promptly as to whether he will have satisfied the requirements for the degree at the end of the quarter. The previous work taken by the student together with his current registration as planned with the approval of his department, must meet the requirements for the degree if the application is to be approved. Failure to meet the requirements of the Graduate School or of the department will necessarily prolong the student's candidacy for his degree. The student and his departmental adviser should be thoroughly acquainted with the requirements for the particular degree.

#### TRANSFER AND EXTENSION CREDIT

Up to 9 graduate credits taken while a graduate student in the Graduate School of another accredited institution may be applied toward the master's degree. Six credits of extension work may be similarly applied but only if taken at the University of Washington and only if taken after the student has been officially admitted to the Graduate School here. A combination of transfer and extension work not exceeding 9 credits may be applied to the master's degree. The minimum residence requirement of three quarters at the University of Washington may not be reduced by transfer or extension credits. Neither correspondence credit nor credit by examination is acceptable.

#### EXAMINATION

Not later than the time when the student's application for the degree has been approved, his major department appoints a committee consisting of not less than three members, including a member from the minor department, if any. The chairman of this committee arranges the time and place of the final examination, the results of which must be reported to the Graduate School Office at least two weeks before the date on which the degree is to be conferred. The examination may be oral or written, and all members of the committee must certify its results. If the examination is not satisfactory, the committee may recommend to the Graduate School that the candidate be allowed to take another examination after an interval of further study.

#### THESIS

The thesis should be evidence of the candidate's ability to do independent investigation and to present the results in clear and systematic form. Two copies of the thesis, with forms signed by the members of the examining committee from the major department, must be deposited in the library at least two weeks before the degree is to be conferred. The department may require the candidate to present an additional copy for its own use. Instructions for the preparation of theses in acceptable form may be obtained from the University Library.

### **NONTHESIS PROGRAMS**

Some departments have arranged programs for the master's degree which do not require the preparation of a thesis. These programs normally include a more comprehensive plan of course work or more extensive examinations than thesis programs, or they may include some approved research activity in lieu of a thesis. Nonthesis programs must be approved by the department and indicated in the student's registration not later than the beginning of the second quarter of his work.

### **DOCTOR'S DEGREES**

The doctor's degree is by nature and tradition the highest certificate of membership in the academic community. As such it is meant to indicate the presence of superior qualities of mind and intellectual interests and of high attainments in a chosen field. It is not conferred merely as a certificate to a prescribed course of study and research, no matter how long or how faithfully pursued. All requirements and regulations leading to the doctor's degree are devices whereby the candidate may demonstrate his present capacities and future promise for scholarly work.

In order to qualify for the doctor's degree, the candidate must meet the following minimum requirements:

1. Complete a program of study and research as planned by the major department or college, of which half, including the thesis, must be in courses numbered 500 or above.

2. Present a minimum of three academic years of resident study, two of them at the University of Washington with at least one year in continuous full-time residence. (The continuous year may be satisfied with three out of four consecutive full-time quarters.)

3. Demonstrate a reading knowledge of two foreign languages related to the major field of study. (Language requirements for the Doctor of Business Administration and the Doctor of Education degrees are slightly different.)

4. Prepare a thesis which is a significant contribution to knowledge and which clearly indicates training in research. Credit for the thesis ordinarily should be one third of the total credit for the degree. Students must register for thesis. The number of credits indicated in such registration should be the proportion of the normal load which the student is devoting to the thesis.

5. Pass creditably a general examination in the major field and, when a part of the program, in the minor field or supporting courses.

6. Pass creditably a final examination, which is usually devoted to the thesis and the field with which it is concerned.

While every candidate is expected to take some work outside his major department, the department itself determines the requirements for minors and supporting courses.

Students must satisfy the requirements which are in force at the time the degree is to be awarded.

Candidates are expected to attend Commencement exercises.

### **ADMISSION TO CANDIDACY**

Not later than the end of the second year of the student's graduate work, the major department will request the Graduate School to appoint a supervisory committee, which will include a graduate faculty representative, to assume general sponsorship of the prospective candidate. At the end of two full years of graduate study as approved by the major department, and after a successful demonstration of proficiency in two foreign languages, the chairman of the supervisory committee may present to the Graduate School for approval a warrant permitting the student to take the general examination for admission to candidacy. This is taken by the Graduate School to mean that, in the opinion of the committee, the student's back-

ground of study and preparation is sufficient to justify his undertaking the examinations. The warrant should indicate the time, place, and manner of the examination and must be received at least two weeks prior to the proposed examination date. The warrant is approved by the Graduate School only after the prescribed requirements of residence and study have been met.

If the examination is oral, a majority of the examining committee must be present during the entire examination. No student is regarded by the Graduate School as a candidate for the doctor's degree until after the warrant certifying the successful completion of the general examinations has been filed with the Graduate School Office by the chairman of his supervisory committee. After his admission to candidacy, the student ordinarily devotes his time to the completion of his research work as embodied in the thesis, and to preparation for his final examination.

#### THESIS AND FINAL EXAMINATION

The candidate must present a thesis representing original and independent investigation; it should reflect not only his mastery of research techniques but also his ability to select an important problem for investigation and to deal with it competently. Instructions for the preparation of theses in acceptable form may be obtained from the University Library.

When the supervisory committee believes that the doctoral candidate is prepared to take his final examination, the Graduate School is asked to designate a thesis-reading committee from among the members of the supervisory committee. Using forms provided by the Graduate School, the reading committee prepares a report briefly summarizing the distinctive work of the thesis, the methods used, and the results. If the report is favorable and is presented to the Graduate School two weeks before the final examination date, and if the candidate has met all other requirements, a warrant authorizing the final examination is issued by the Graduate School.

The thesis report is not binding upon the examining committee, but is intended to insure that, except for minor alterations, the dissertation is ready for final presentation. The Graduate School returns the thesis report to the supervisory committee together with the warrant for the final examination, and upon approval by the examining committee at the time of the final examination, it is bound with the dissertation.

If the final examination is satisfactory, the supervisory committee signs the Graduate School's warrant and returns it at least two weeks before the end of the quarter in which the degree is to be conferred. If the examination is unsatisfactory, the supervisory committee may recommend that the Dean of the Graduate School permit a second examination after a period of further study.

#### PUBLICATION OF DOCTORAL DISSERTATIONS

All doctoral dissertations are published in full on microfilm. Two weeks before the end of the quarter in which the degree is to be conferred, the candidate must present two copies of his dissertation to the University Library. Each copy is to be accompanied by a copy of the thesis report and an abstract, not exceeding six hundred words in length, which has been approved by the supervisory committee at the time of the final examination. A receipt for the \$25.00 publication fee must be shown when the dissertation is presented.

Abstracts are published in full in the publication *Microfilm Abstracts*, and the manuscript copies of the dissertations are kept on file in the University Library. A positive of each microfilmed dissertation is sent to the Library of Congress to be entered in its subject and author file, and the negative is retained by University Microfilms, of Ann Arbor, Michigan, which provides additional microfilm copies on order.

The candidate signs the necessary publication agreement at the time he presents his dissertation to the University Library, and if he wishes he may apply for a copyright. Publication in microfilm does not preclude other forms of publication.

## COURSE-NUMBERING SYSTEM

Courses numbered 500 and above are intended for and restricted to graduate students. Some courses numbered in the 300's and 400's are open both to graduates and to upper-division undergraduates. Such courses are listed in this Bulletin and, when acceptable to the major department and the Graduate School, may be part of the graduate program. The Graduate School accepts credit in approved 300 courses for the minor or supporting fields only; approved 400 courses are accepted as part of the major.

Undergraduate students of senior standing who wish to register for a 500 course must obtain permission from both the instructor of the class and the Dean of the Graduate School.

Hyphens between course numbers mean that credit is not granted until the series of courses is completed. The number in parentheses following the course title indicates the amount of credit each course carries. In most lecture courses, a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## COLLEGE OF ARCHITECTURE AND URBAN PLANNING

Dean: ARTHUR P. HERRMAN, 204 Architecture

**Advisory Committee:** EDGAR M. HORWOOD, Associate Professor of Civil Engineering; CALVIN F. SCHMID, Professor of Sociology; JOHN C. SHERMAN, Associate Professor of Geography; DONALD H. WEBSTER, Professor of Political Science; BAYARD O. WHEELER, Professor of Business Administration; MYER R. WOLFE, Professor of Urban Planning

The professional degree Master of Urban Planning is awarded for demonstrated competence in urban studies and urban planning methodology. The program is administered by the College of Architecture and Urban Planning, but also involves a number of other academic departments which are represented in the Advisory Committee listed above.

Candidates are admitted to the curriculum after meeting general admission requirements of the Graduate School and the requirements of the College of Architecture and Urban Planning and the Advisory Committee. Applicants may come from undergraduate areas in the social sciences, humanities and applied arts and sciences or professions. The curriculum is also oriented toward offering a minor in urban planning to graduate students in related fields.

The degree will be awarded upon satisfactory completion of specified courses, a thesis, and an oral examination. The varying background of training and experience found among candidates for this degree permits some adjustment of the student's program to meet individual needs and objectives. Courses are divided into *foundation* courses, which include urban study and background courses, and *professional* courses, the core of the program. The Urban Planning Curriculum Prospectus (available upon request) lists in detail the *foundation* course requirements, some of which may be satisfied before entrance to the graduate curriculum. The required *professional* courses are listed below. No foreign language is required.

Further inquiries regarding the program should be addressed to: M. R. Wolfe, Professor of Urban Planning, College of Architecture and Urban Planning.

## REQUIRED PROFESSIONAL COURSES

Urban Planning 479 The Urban Form (2)

Urban Planning 480, 481 Urban Planning Analysis I and II (3,3)

Wolfe

Koski, Wolfe

Urban Planning 482 Urban Community Facilities (2)	Koski
Urban Planning 590, 591, 592 Urban Planning Problems (7,7,7)	Koski, Wolfe
Typical planning problems using the city as a laboratory. Emphasis on urban research, evaluation of basic data, planning proposals, and presentation techniques.	
Civil Engineering 521 Seminar in Urban Transportation (2)	Horwood
Political Science 581, 582 Seminar in Metropolitan and Urban Planning Problems (3,3)	Webster
Work in the area of urban land economics or economic geography at the graduate level (3) (to be determined in consultation with adviser)	Staff
Work in the area of urban population characteristics and problems at the graduate level (3) (to be determined in consultation with adviser)	Staff
Urban Planning 700 Thesis (9)	Staff

## COLLEGE OF ARTS AND SCIENCES

Dean: LLOYD S. WOODBURN, 122 Thomson Hall

### ANTHROPOLOGY

Executive Officer: JAMES B. WATSON, 345 Savery

The Department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

Requirements for both advanced degrees include demonstration of competence in the field of general ethnology and two other fields selected from the following: archaeology, linguistics, physical anthropology, and social anthropology. The thesis will always be in one of the three fields. Part of the graduate work may, in addition, be devoted to a minor in a related field, such as psychology, sociology, geography, history, or Far Eastern studies.

Students whose previous work in anthropology is inadequate may be required to complete indicated undergraduate courses before being admitted to graduate courses.

**MASTER OF ARTS.** Candidates must complete an approved program in advanced anthropology courses.

**DOCTOR OF PHILOSOPHY.** A candidate may work directly toward the doctorate without taking a master's degree only with the express permission of the Department. The language requirements must be satisfied at least three quarters before the general examination. Field work is normally required of all candidates.

The requirements for a minor in anthropology for a doctor's degree are the same as for the master's degree with a minimum of 12 credits in courses numbered 500 or above.

### COURSES

311 Indian Cultures of the Pacific Northwest (3)	Garfield
314J Peoples of Central and Northern Asia (3) Offered jointly with the Far Eastern and Russian Institute.	Posch
315 Peoples of the Far North (3)	Garfield
317 Ethnology of Southeast Asia (3)	Staff
320 Primitive Technology (5)	Greengo
332 The Religions of Primitive Peoples (3)	Ray, Read
350 Basis of Civilization (3)	Watson
370 Methods and Problems of Archaeology (5)	Greengo
371 Analysis of Archaeological Data (3)	Greengo
380 Primate and Human Evolution (3)	Staff

- 415 **The Character of Eskimo Life (3)** Ray
- 417 **Middle American Civilization (2)** Greengo
- 418 **Ethnology of Meso-America (3)** Staff
- 425 **Applied Anthropology (3)** Ottenberg
- 431 **Primitive Literature (3)** Garfield
- 432 **Magic, Religion, and Philosophy (3)** Ray, Read, Spiro
- 433 **Primitive Art (3)** Gunther
- 434 **Comparative Morals and Value Systems (3)** Read
- 435, 436 **Primitive and Peasant Economic Systems (3,3)** Crans, Staff
- 437 **Primitive Political Institutions (3)** Gearing, Ray, Read
- 438 **The Analysis of Kinship Systems (3)** Read
- 441 **Culture and Personality (5)** Jacobs, Spiro
- 442 **Childhood and Society (3)** Spiro
- 450J **Introduction to General Linguistics (5)** Jacobs, Reed  
Offered jointly with the Department of Germanic Languages and Literature.
- 451 **American Indian Languages (3)** Jacobs
- 452 **Phonetics and Phonemics (5)** Mayers
- 453 **Morphology and Syntax (5)** Elson
- 460 **History of Anthropological Theory (3)** Jacobs
- 480 **Physical Anthropology: Anatomy (3)** Staff
- 481 **Physical Anthropology: Anthropometry (3)** Staff
- 482 **Physical Anthropology: Genetics (3)** Staff
- 500, 501, 502 **Preceptorial Reading (3,3,3)** Staff  
A "core" course for the beginning graduate student in which the fields and problems of contemporary anthropology are systematically surveyed.
- 505 **Field Techniques in Ethnography (3)** Gunther, Ray  
The techniques of collecting, recording, ordering, and utilizing ethnographic data in the field. Problems of rapport, sample, interview, observation, and interpretation.
- 510 **Seminar in Areal Ethnology (3, maximum 9)** Staff  
An intensive analysis of the cultural problems of a selected area in their spatio-temporal context.
- 511 **Cultural Problems of the Northwest Coast (3, maximum 6)** Garfield  
The major ethnological questions of the region are examined.
- 519J **Seminar on Asia (3, maximum 6)** Posch, Wilhelm, Staff  
The large cultural regions of the continent are studied in succession with special reference to anthropological problems. (Offered jointly in alternate years, with the Far Eastern and Russian Institute; offered 1960-61.)
- N520 **Departmental Seminar (0)** Staff  
A seminar dealing with topics of importance in the field and presented by students and faculty on the basis of current research.
- 521 **Native American Culture History (4)** Ray  
An historical interpretation of the geographical distribution of critical aspects of North and South American Indian cultures.
- 522 **Cultural Problems of Western America (3)** Ray  
Analysis of the components of representative Indian cultures west of the Rocky Mountains and research on selected problems.
- 523 **Colloquium on Arid America (5)** Ray  
The historical, material, and social factors involved in Indian occupancy of arid regions and the ethos of such cultures.
- 524 **Seminar in Cultural Problems of Arctic and Sub-Arctic (3, maximum 6)** Garfield  
Problems of cultural relationships across the North Pacific, from Asia to the New World and vice versa.
- 525 **Seminar in Culture Processes (3, maximum 6)** Staff  
The concept of process and its application to the study of culture.
- 527 **Acculturation (3)** Watson  
Systematic analysis of psychological, social, and cultural implications of the contact of peoples.
- 531 **Analysis of Oral Literature (3, maximum 6)** Garfield  
Various approaches to the study of folklore and myth.
- 541 **Seminar in Psychological Aspects of Culture (3)** Jacobs, Spiro  
Selected problems in the relation of culture and personality types.

<b>542J Personality Patterns in Japanese Culture (3)</b>	<b>Passin</b>
The nature and content of Japanese social life as it bears upon Japanese character. Offered jointly with the Far Eastern and Russian Institute.	
<b>551 Field Techniques in Linguistics (3)</b>	<b>Jacobs</b>
<b>553J Analysis of Linguistic Structures (3)</b>	<b>Jacobs, Li</b>
Offered jointly with the Far Eastern and Russian Institute.	
<b>561 Seminar in Methods and Theories (3, maximum 9)</b>	<b>Ray, Staff</b>
<b>565-566-567 History of Anthropological Sciences (3-3-3)</b>	<b>Staff</b>
A "core" course for beginning graduate students, in which the growth and development of anthropological science is analyzed.	
<b>570 Seminar in Archaeology (3)</b>	<b>Greengo</b>
<b>571 Field Course in Archaeology (5)</b>	<b>Greengo</b>
Study of prehistoric cultures through archaeological excavation and analysis. Work will be largely in the state of Washington, but other areas may be included.	
<b>580 Anthropology in Contemporary Problems (3)</b>	<b>Gunther</b>
<b>581 Anthropological Migration and Population Study (3)</b>	<b>Staff</b>
<b>582 Seminar in Race and Genetics (3)</b>	<b>Staff</b>
<b>600 Research (*)</b>	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

## ART

**Director: BOYER GONZALES, 102 Art Building**

The School of Art offers courses leading to the degree of Master of Fine Arts. In addition to Graduate School general admission requirements (see page 49), students desiring to pursue a course of study leading to the Master of Fine Arts degree must have a grade average of B or better in the undergraduate art major and must have completed the equivalent of our undergraduate degree requirements. The applicant must also prepare a student show indicating the scope and proficiency of his undergraduate work, which will be voted upon by the faculty before his admission is fully approved.

The student's program of studies will be determined by his committee from the direction of work needed for his thesis and from the needs indicated by his background and his level of achievement in graduate study. The committee may require additional work beyond the basic minimum if it feels it is necessary for the student to make up deficiencies or inadequacies.

Students accepted for admission will be required to complete a program of a minimum of 36 credits of scheduled class work and 9 credits of thesis for a total of 45 credits for the degree. A maximum of 9 credits (if approved) may be transferred from other schools. An acquaintance with the general field of art and proficiency in performance will be expected of each recipient of the degree of Master of Fine Arts.

The thesis is of the nature of a project, such as a series of paintings, prints, sculpture, or ceramic objects, the illustration of a book, designs in metal, fabric, or other equivalent project executed with a background of research. In most cases the thesis is not finished during the one year of residence, as more time is often required for its satisfactory completion. The thesis must be in a form suitable to the committee. It should consist of photographs, color transparencies, and the like, together with research material, a written statement of goals and background of the thesis, which is to be kept by the School of Art. It must be filed in the Art Library two weeks before the end of the quarter in which the degree is to be received. The degree will not be awarded until the thesis in approved form is filed in the Art Library. A selection from the student's thesis may be reserved for inclusion in the Annual Exhibit of Masters' Theses of the School of Art at the Henry Art Gallery.

## COURSES

**307, 308, 309 Portrait Painting (3,3,3)**  
**310, 311, 312 Interior Design (5,5,5)**

**Brazeau**  
**Foote**



316, 317, 318	Design for Industry (3,3,3)	Del Giudice
322, 323, 324	Sculpture (3,3,3)	Du Pen
332, 333, 334	Advanced Sculpture (3,3,3)	Du Pen
340	Design for Printed Fabrics (3)	Penington
341J	Greek Archaeology and Art (2)	Lenardon
342J	Roman Archeology and Art (2)	Lenardon
343J	Greek Sculpture (2)	Lenardon
350	Introduction to Printmaking (3)	Alps
351	Printmaking—Etching (3)	Alps
352	Printmaking—Serigraph (3)	Alps
357	Metal Design (3)	Penington
358	Jewelry Design (3)	Penington
359	Enameling (3)	Penington
360, 361, 362	Life (3,3,3)	Staff
366, 367, 368	Commercial Design (3,3,3)	Erickson
369, 370, 371	Costume Design (2,2,2)	Rand
375, 376, 377	Advanced Painting (3,3,3)	Staff
382	Art of India (3) (Offered alternate years; offered 1960-61.)	Rogers
383	Art of China (3) (Offered alternate years; offered 1960-61.)	Rogers
384	Art of Japan and Korea (3) (Offered alternate years; offered 1960-61.)	Rogers
386	The Art of the Ancient Near East (3) (Offered alternate years; offered 1959-60.)	Rogers
387	Islamic Art (3) (Offered alternate years; offered 1959-60.)	Rogers
388	Medieval Art (3) (Offered alternate years; offered 1959-60.)	Rogers
390	Oriental Ceramic Art (2)	Rogers
391	The Origins of Modern Art (2)	Rogers
392	Art Since Cezanne (2)	Rogers
410	Illustration (5)	Erickson
423, 424, 425	Art History and Criticism (2,2,2)	Rogers
436, 437, 438	Sculpture Composition (5,5,5)	Du Pen
445, 446, 447	Advanced Industrial Design (5,5,5)	Del Giudice
450, 451, 452	Advanced Printmaking (5,5,5)	Alps
457, 458, 459	Advanced Metal and Jewelry (3,3,3)	Penington
463, 464, 465	Composition (3,3,3)	Brazeau, Hixson
466, 467, 468	Commercial Design (5,5,5)	Welman
472, 473, 474	Advanced Interior Design (5,5,5)	Footo
479, 480, 481	Fashion Illustration (2,2,2)	Caplan
485, 486, 487	Advanced Ceramic Art (5,5,5)	Sperry
490	Art Education in the Schools (3)	Staff
498	Individual Projects (3-5, maximum 15)	Staff
500, 501, 502	Seminar in Art Education (3-5,3-5,3-5)	Staff
507, 508, 509	Advanced Portrait Painting (3,3,3)	Brazeau
510	Advanced Illustration (3 or 5)	Staff
522, 523, 524	Advanced Sculpture (3 or 5, 3 or 5, 3 or 5)	Du Pen
530, 531, 532	Advanced Design (3 or 5, 3 or 5, 3 or 5)	Staff
550, 551, 552	Advanced Printmaking (3 or 5, 3 or 5, 3 or 5)	Alps
553, 554, 555	Advanced Ceramic Art (3 or 5, 3 or 5, 3 or 5)	Sperry
560, 561, 562	Advanced Life Painting (3 or 5, 3 or 5, 3 or 5)	Staff
563, 564, 565	Composition (3 or 5, 3 or 5, 3 or 5)	Staff
600	Research (*)	Staff
700	Thesis (*)	Staff

## BOTANY

**Executive Officer: C. L. HITCHCOCK, 342 Johnson Hall**

The Department of Botany requires that all candidates for the degrees of Master of Science and Doctor of Philosophy have organic chemistry.

### COURSES

#### BIOLOGY

<b>401 Cytology (3)</b>	<b>Hsu</b>
<b>401L Cytology Laboratory (2)</b> Must be accompanied by 401.	<b>Hsu</b>
<b>451 Genetics (3 or 5)</b>	<b>Roman</b>
<b>452 Cytogenetics (3 or 5)</b>	<b>Roman</b>
<b>453 Topics in Genetics (2, maximum 6)</b>	<b>Roman, Stadler</b>
<b>454 Evolutionary Mechanisms (3)</b> (Offered alternate years; offered 1959-60.)	<b>Kruckeberg</b>
<b>472 Principles of Ecology (3)</b>	<b>Edmondson</b>
<b>472L Ecology Laboratory (2)</b> Must be accompanied by 472.	<b>Edmondson</b>
<b>473 Limnology (5)</b>	<b>Edmondson</b>
<b>501 Advanced Cytology (5)</b> (Offered alternate years; offered 1959-60.)	<b>Hsu</b>
<b>508 Cellular Physiology (3)</b> Functional aspects of protoplasmic structures. Prerequisite, Zoology 400 or permission.	<b>Whiteley</b>
<b>508L Cellular Physiology Laboratory (2)</b> Must be accompanied by 508. Prerequisite, permission.	<b>Whiteley</b>
<b>551 Genetics of Microorganisms (3)</b> Prerequisite, 451 or permission.	<b>Stadler</b>
<b>552 Genetics of Microorganisms Laboratory (3)</b> Methods of studying inheritance in fungi, bacteria, and viruses. Prerequisite, Biology 551 or permission.	<b>Stadler</b>
<b>573 Topics in Limnology (2)</b> May be repeated for credit.	<b>Edmondson</b>

#### BOTANY

<b>331 Ornamental Plants (3)</b>	<b>Kruckeberg</b>
<b>332 Taxonomy Field Trip (*, maximum 12)</b> (Offered alternate Summer Quarters; offered 1961.)	<b>Staff</b>
<b>361 Forest Pathology (5)</b>	<b>Stuntz, Walker</b>
<b>371 Elementary Plant Physiology (5)</b>	<b>Meeuse</b>
<b>431, 432 Taxonomy (5,5)</b> (Offered alternate years; offered 1959-60.)	<b>Hitchcock</b>
<b>441, 442, 443 Morphology (5,5,5)</b> (Offered alternate years; offered 1960-61.)	<b>Blaser</b>
<b>444 Plant Anatomy (5)</b> (Offered alternate years; offered 1959-60.)	<b>Blaser</b>
<b>445 Algology (6)</b> (Offered at Friday Harbor Summer Quarter only.) Prerequisites, 112 and permission.	<b>Staff</b>
<b>461 Yeasts and Molds (5)</b>	<b>Stuntz</b>
<b>462, 463 Mycology (5,5)</b>	<b>Stuntz</b>
<b>471 Mineral Nutrition (5)</b> (Offered alternate years; offered 1960-61.)	<b>Walker</b>
<b>472 Plant Physiology (5)</b>	<b>Meeuse, Walker</b>
<b>473 Plant Physiology (5)</b> (Offered alternate years; offered 1960-61.)	<b>Meeuse</b>
<b>474 Plant Physiology (5)</b> (Offered alternate years; offered 1959-60.)	<b>Walker</b>
<b>475 Problems in Algal Physiology (6)</b> (Offered at Friday Harbor, Summer Quarter only.)	<b>Meeuse</b>

<b>498</b>	<b>Special Problems in Botany (1-15)</b> Prerequisite, permission.	<b>Staff</b>
<b>520</b>	<b>Seminar (1)</b> Prerequisite, permission.	<b>Staff</b>
<b>521</b>	<b>Seminar in Plant Physiology (1, maximum 5)</b> Modern methods and trends in plant physiology. Prerequisite, 371 or 472, or permission.	<b>Mecuse, Walker</b>
<b>522</b>	<b>Seminar in Morphology and Taxonomy (*, maximum 5)</b> Current research and trends in morphology and taxonomy of higher plants. Comparison of classical with modern approaches and concepts. Prerequisite, permission.	<b>Staff</b>
<b>600</b>	<b>Research (*)</b> Original investigations of special problems in genetics, morphology, mycology, taxonomy, or plant physiology.	<b>Staff</b>
<b>700</b>	<b>Thesis (*)</b>	<b>Staff</b>

## CHEMISTRY

**Executive Officer: PAUL C. CROSS, 101 Bagley Hall**

The Department of Chemistry offers courses leading to the degrees of Master of Science and Doctor of Philosophy. Candidates for advanced degrees are expected to take the qualifying and cumulative examinations. The qualifying, or entrance, examinations are designed to assess the student's knowledge and understanding of the material normally contained in an undergraduate program with a major in chemistry. These examinations are usually given Thursday and Friday preceding the opening of Autumn Quarter and may be repeated during the first week of Winter Quarter and toward the end of Spring Quarter. All parts of this examination should be passed within a year. The cumulative examinations, given six times during each academic year, are general examinations in the student's area of specialization (analytical, inorganic, organic, or physical chemistry) and are designed to stimulate independent study and thought. They attempt to evaluate the breadth of knowledge gained from courses, seminars, literature, and the student's ability to apply this knowledge to diverse problems.

**MASTER OF SCIENCE.** Candidates for this degree usually present German as their foreign language.

**DOCTOR OF PHILOSOPHY.** The cumulative examination requirement for this degree is satisfied when six examinations have been passed. The language requirement may be satisfied by passing examinations in German and in either Russian or French.

## COURSES

<b>333</b>	<b>Intermediate Organic Chemistry (3)</b>	<b>Staff</b>
<b>335, 336, 337</b>	<b>Organic Chemistry (3,3,3)</b>	<b>Staff</b>
<b>345, 346, 347</b>	<b>Organic Chemistry Laboratory (1,1,2)</b>	<b>Staff</b>
<b>355, 356, 357</b>	<b>Physical Chemistry (4,3,3)</b>	<b>Staff</b>
<b>358</b>	<b>Physical Chemistry Laboratory (4)</b>	<b>Staff</b>
<b>395</b>	<b>Radiochemical Techniques and Radioactivity Measurements (3)</b>	<b>Staff</b>
<b>415</b>	<b>The Chemical Bond (3)</b>	<b>Staff</b>
<b>416</b>	<b>Inorganic Chemistry (3)</b>	<b>Staff</b>
<b>418</b>	<b>Radiochemistry (3)</b>	<b>Fairhall</b>
<b>419</b>	<b>Radiochemistry Laboratory (2)</b>	<b>Fairhall</b>
<b>425</b>	<b>Quantitative Analysis (3)</b>	<b>Robinson</b>
<b>426</b>	<b>Instrumental Analysis (3)</b>	<b>Crittenden</b>
<b>427</b>	<b>Advanced Quantitative Theory (3)</b>	<b>Crittenden</b>
<b>428</b>	<b>Chemical Microscopy (3)</b>	<b>Robinson</b>
<b>429</b>	<b>Microquantitative Analysis (3)</b>	<b>Robinson</b>
<b>445</b>	<b>Qualitative Organic Analysis (3)</b>	<b>Staff</b>

- 446 Advanced Organic Analysis (3)** **Staff**
- 447 Organic Synthesis (3)** **Staff**
- 511 Advanced Inorganic Chemistry (2)** **Ritter**  
Acid-base theory; mechanism of certain reactions; compounds of nonmetals of groups 3, 4, and 5. Prerequisite, 416 or permission.
- 512 Advanced Inorganic Chemistry (2)** **Cady**  
Halogens; less familiar metals; chelate, clathrate, interstitial and non-stoichiometric compounds; other selected topics. Prerequisite, 416 or permission.
- 513 Advanced Nuclear Chemistry (2)** **Fairhall**  
Nuclear reactions, fission, complex radioactive decay, absolute counting techniques, radiochemical separations, low-level techniques, geochemistry, cosmochemistry, chemistry of the synthetic elements. Prerequisite, 418 or permission.
- 526 Advanced Instrumental Analysis (3)** **Crittenden**  
Absorption and emission spectroscopy, polarography, potentiometry, and dielectric properties as applied to problems in analytical chemistry. Prerequisite, 426 or permission.
- 530, 531, 532 Advanced Organic Chemistry (3,3,3)** **Staff**  
Consideration of synthetic methods, structure determinations, and reaction mechanisms for acyclic, alicyclic, and aromatic compounds of synthetic and natural origin, with emphasis on modern theory and practice. Prerequisites, 337 and 445, or permission.
- 543 Natural Organic Products (3)** **Anderson**  
Structure determination, properties and synthesis of steroids and other natural organic products of current importance. Prerequisite, 532 or permission.
- 544 Theoretical Organic Chemistry (3)** **Wiberg**  
Application of the theories of chemical bonding and equilibria to the structures and reactions of organic compounds. Prerequisite, 532 or permission.
- 545 Organic Synthetic Methods (3)** **Dauben**  
Consideration of carbon skeleton synthetic methods, with emphasis on Diels-Alder, organometallic and basecatalyzed condensation reactions. Prerequisite, 532 or permission.
- 546 Organic Radical Reactions (3)** **Dauben**  
Survey of reactions in solution involving radical intermediates. Prerequisite, 532 or permission.
- 547 Organic Heterocycles (3)** **Stout**  
Synthesis and reactions of organic heterocycles, with emphasis on those of natural origin. Prerequisite, 532 or permission.
- 548 Physical Organic Chemistry (3)** **Schubert**  
Interpretation and application of data obtained by combined methods of organic and physical chemistry to the problems of structures of organic compounds and mechanisms of organic reactions. Prerequisite, 532 or permission.
- 550, 551, 552 Advanced Physical Chemistry (3,3,3)** **Staff**  
Thermodynamics and statistical mechanics, atomic and molecular structure, kinetic theory, and chemical kinetics. Prerequisite, 357 or permission.
- 555 Quantum Chemistry (3)** **Staff**  
Calculation of energy levels for simple systems, approximation methods. Prerequisite, 551 or permission.
- 550 Chemical Kinetics (3)** **Rabinovitch**  
Consideration of reaction rate theory and applications including specialized aspects of topical interest. Prerequisite, 552 or permission.
- 551 Thermodynamics of Solutions (3)** **Gregory**  
The chemical potential and related partial molar thermodynamic properties, activity, thermodynamics of ions, electrochemical phenomena, theories of solutions. Prerequisite, 550 or permission.
- 552 Chemical Crystallography (3)** **Lingafelter**  
Crystal structure of diffraction of X rays, electrons, neutrons; crystal chemistry; spectra of crystals; theory of metals. Prerequisite, 551 or permission.
- 553 Electron Dynamics (3)** **Simpson**  
Chemical binding, dispersion forces, spectroscopy. Prerequisite, 555 or permission.
- 554 Molecular Dynamics (3)** **Eggers**  
Molecular dynamics, force constants, symmetry, selection rules, and polar properties. Prerequisite, 555 or permission.
- 555 Statistical Mechanics (3)** **Halsey**  
Phase integral, quantum statistics, cooperative phenomena. Prerequisite, 555 or permission.
- 581 Topics in Inorganic Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.
- 582 Topics in Analytical Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.
- 583 Topics in Organic Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.
- 585 Topics in Physical Chemistry (3, maximum 18)** **Staff**  
Open only to students accepted for doctoral work in chemistry.

590 Seminar in General Chemistry (1-5, maximum 18)	Staff
591 Seminar in Inorganic Chemistry (1-5, maximum 18)	Staff
592 Seminar in Analytical Chemistry (1-5, maximum 18)	Staff
593 Seminar in Organic Chemistry (1-5, maximum 18)	Staff
595 Seminar in Physical Chemistry (1-5, maximum 18)	Staff
600 Research (*)	Staff
700 Thesis (*)	Staff

## CLASSICS

Executive Officer: JOHN B. McDIARMID, 218 Denny Hall

The Department of Classics offers courses leading to the degree of Master of Arts. Candidates may elect a thesis or a nonthesis program. Syllabi for these programs may be obtained from the Department. A reading knowledge of French or German is required. Latin and Greek courses to be applied toward this degree must be numbered 400 and above.

## COURSES

### GREEK

309 Advanced Grammar and Composition (1, maximum 4)	McDiarmid
N391 Sight Reading (0)	Staff
413 The Pre-Socratic Philosophers (3) (Offered alternate years; offered 1960-61.)	McDiarmid
414 Plato (3) (Offered alternate years; offered 1960-61.)	Rosenmeyer
415 Aristotle (3) (Offered alternate years; offered 1960-61.)	McDiarmid
420 Greek Epic (3) (Offered alternate years; offered 1959-60.)	Rosenmeyer
422 Herodotus and the Persian Wars (3) (Offered alternate years; offered 1959-60.)	Rosenmeyer
424 Thucydides and the Peloponnesian War (3) (Offered alternate years; offered 1959-60.)	Rosenmeyer
442, 443, 444 Greek Drama (3,3,3) (Offered alternate years; offered 1959-60.)	McDiarmid
451 Lyric Poetry (3) (Offered alternate years; offered 1960-61.)	Rosenmeyer
453 Pindar: The Epinician Odes (3) (Offered alternate years; offered 1960-61.)	McDiarmid
455 Hellenistic Poetry (3) (Offered alternate years; offered 1960-61.)	Rosenmeyer
490 Supervised Study (3-5, maximum 15)	Staff
520 Seminar (3-5, maximum 15)	Staff
599 Graduate Reading (3, maximum 18) Supervised reading in selected fields.	Staff
600 Research (3-5, maximum 15)	Staff
700 Thesis (*)	Staff

### LATIN

300 Latin Language, Accelerated (3)	Grummel
309 Advanced Grammar and Composition (1, maximum 4)	Grummel
N391 Sight Reading (0)	Staff
401 Medieval Latin (3)	Pascal
404 Comparative Grammar of Latin and Greek (3)	Grummel
412 Lucretius (3) (Offered alternate years; offered 1960-61.)	Grummel

413	<b>Cicero's Philosophical Works (3)</b> (Offered alternate years; offered 1960-61.)	Grummel
414	<b>Seneca (3)</b> (Offered alternate years; offered 1960-61.)	Grummel
422	<b>Livy (3)</b> (Offered alternate years; offered 1960-61.)	Lenardon
424	<b>Tacitus (3)</b> (Offered alternate years; offered 1960-61.)	Pascal
426	<b>Roman Biography (3)</b> (Offered alternate years; offered 1960-61.)	Pascal
430	<b>Latin Novel (3)</b> (Offered alternate years; offered 1959-60.)	Grummel
442	<b>Roman Drama (3)</b> (Offered alternate years; offered 1959-60.)	Pascal
451	<b>Roman Satire (3)</b> (Offered alternate years; offered 1959-60.)	Pascal
455	<b>Catullus (3)</b> (Offered alternate years; offered 1959-60.)	Grummel
456	<b>Horace (3)</b> (Offered alternate years; offered 1959-60.)	Pascal
458	<b>Roman Epic (3)</b> (Offered alternate years; offered 1959-60.)	Grummel
475LJ	<b>Improvement of Teaching: Latin (5)</b> Offered jointly with the College of Education. (Offered Summer Quarter only.)	Grummel, Pascal
475XJ	<b>Caesar for High School Teachers (2½)</b> Offered jointly with the College of Education. (Offered Summer Quarter only.)	Grummel
490	<b>Supervised Study (3-5, maximum 15)</b>	Staff
520	<b>Seminar (3-5, maximum 15)</b>	Staff
599	<b>Graduate Reading (3, maximum 18)</b> Supervised reading in selected fields.	Staff
600	<b>Research (3-5, maximum 15)</b>	Staff
700	<b>Thesis (*)</b>	Staff

# CLASSICS COURSES IN ENGLISH

341J	<b>Greek Archaeology and Art (2)</b> Offered jointly with the School of Art.	Lenardon
342J	<b>Roman Archaeology and Art (2)</b> Offered jointly with the School of Art.	Lenardon
343J	<b>Greek Sculpture (2)</b> Offered jointly with the School of Art.	Lenardon
422	<b>Greek Historians and Philosophers in English (3)</b>	Rosenmeyer
426	<b>Greek and Roman Epic in English (3)</b>	Rosenmeyer
427	<b>Greek and Roman Drama in English (3)</b>	McDiarmid
430	<b>Greek and Roman Mythology (3)</b>	Grummel
440	<b>Greek and Roman Critics in English (3)</b>	Grummel

## COMMUNICATIONS

**Director: HENRY LADD SMITH, 129 Communications Building**

The School of Communications offers courses leading to the degree of Master of Arts in Communications. Graduate students elect up to three fields of study and research, including society and mass communications, history and communications, communications and law, propaganda, theory and research in mass communications, advertising, and radio-television.

Students who wish to utilize courses in the School of Communications as a minor in graduate study leading to the degree of Doctor of Philosophy should consult the Director of the School.

## COURSES

Although other courses may be substituted on approval, those for which credit customarily is given toward the degree of Master of Arts in Communications include the following from the Communications sequence: 402, 406, 411, 414, 415, 480, 498, 502, 506, 511, 514, 580, 598, and 600.

Students taking courses in Communications toward an advanced degree in some other division or department may earn credit in any of the following courses in the School of Communications:

### ADVERTISING

340 Advertising Procedures (5)	Denis
440 Advertising Campaigns (3)	Warner

### COMMUNICATIONS

303 Public Relations (3)	Christian
316 Contemporary Affairs (3, maximum 6)	Staff
402 Freedom of the Press and Communications Law (3)	Benson
403 Problems in Public Relations (3)	Christian
406 Press and Society (3)	Ames
411 Introduction to Mass Communications Research (3)	Edelstein
414 History of Journalism (3)	Smith
415 Comparative Communications (3)	Staff
416 Press and World Affairs (3)	Staff
480 Propaganda (3)	Edelstein
498 Problems of Communications (1-5, maximum 10)	Staff
502 Government and Mass Communications Seminar (3)	Benson
506 Press and Society Seminar (3)	Ames
511 Mass Communications Research Seminar (3)	Edelstein
514 Journalism and History Seminar (3)	Smith
580 Seminar in Propaganda (3)	Edelstein
598 Selected Readings (1-5, maximum 5)	Staff
600 Research (3-5)	Staff
700 Thesis (*)	Staff

### JOURNALISM

320 Legal Aspects of Journalism (3)	Benson
347 Newspaper Operation (3)	Irwin
404 Magazine Article Writing (3)	Brier, Smith
413 Editorial Writing, Policies, and Research (3)	Benson

### RADIO-TELEVISION

352 Radio and Television Advertising (5)	Cranston
360 Advanced Radio Production (2)	Cranston
372 Radio Dramatic Writing (3)	Adams
373 Television Writing (3)	Cranston
376 Radio and Television News Writing (3)	Cranston
450 Television Programming (3)	Ryan
451 Television Performance (2)	Mally
455 Television Film Techniques (2 or 3)	Staff
456 Television Staging and Graphics (2 or 3)	Staff
460 Television in the Schools (2½) (Offered Summer Quarter only.)	Adams
461 Television Production (3)	Ryan

465	Television Workshop Laboratory (2-4, maximum 8)	Ryan
475	Station Organization (3) Prerequisite, permission.	Adams
476	Advanced Radio News Laboratory (2, maximum 6)	Cranston

## DRAMA

**Director: GLENN HUGHES, 113 Drama-TV Building**

The School of Drama offers courses leading to the degree of Master of Arts. Normally, although not necessarily, a major in drama is supported by a minor in English.

For the Master of Arts degree the requirement is 36 credits, 9 of which are earned by the thesis. In addition to the thesis credits, 9 credits must be earned in courses numbered 500 or above.

The course of study for the master's degree will vary individually, depending upon the training and objectives of the student. A student's course of study must be approved in conference before he begins the work.

Students transferring from other institutions must make up any courses required for the Bachelor of Arts degree in drama if they have not had the equivalent. If such courses are numbered 400 or above, they may be applied toward the Master of Arts degree. Transfer students are also required to pass the senior comprehensive examination in drama at the University of Washington.

Although the required minimum of work in residence for the master's degree is three quarters, it is advisable to count on four quarters, and in the case of transfer students from institutions with a limited curriculum in drama, even five quarters.

For students who qualify in the field of direction, a thesis production is permitted, although it must be accompanied by a written thesis allied to the production.

The requirement for students from other departments desiring to earn a minor in drama for the Master of Arts degree is 12 credits of work in courses accepted for graduate credit in drama.

## COURSES

307, 308, 309	Puppetry (2,2,2)	Valentinetti
403	Scene Construction (3)	Lounsbury
404	Scene Design (3)	Conway
405	Historic Costume for the Stage (3)	Crider
406	Make-up (3)	Davis
407	History of Theatrical Costume (2)	Crider
408	Stage Costume Construction (2)	Crider
409	Stage Lighting (3)	Conway, Lounsbury
410, 411, 412	Playwriting (3,3,3)	Hughes
413	Advanced Scene Construction (2, maximum 6)	Lounsbury, Staff
414	Applied Scene Design (2, maximum 4)	Conway
415	Costume Projects (2, maximum 6)	Crider, Staff
416	History of Masks and Mask Making (2)	Davis
417	History of Wigs and Wig Making (2)	Crider
418	Scene Painting (2, maximum 6)	Davis, Staff
419	Advanced Stage Lighting (3)	Staff
421, 422, 423	Advanced Acting (3,3,3)	Harrington, Gray, Carr
426	High School Play Production (3)	Gray, Harrington
427, 428, 429	History of the Theatre (2,2,2)	Conway
434, 435, 436	Children's Theatre (3,3,3)	Carr



437, 438, 439	Creative Dramatics with Children (3,3,3)	Haaga, Siks, Staff
451, 452, 453	Representative Plays (3,3,3)	Hughes
461, 462, 463	Musical Comedy Production (3,3,3)	Pepperdine
481, 482, 483	Directing (3,3,3)	Harrington
497	Theatre Organization and Management (2)	Hughes
504	Advanced Stage Design (3) Prerequisites, 404 and 414 and permission.	Conway
505	Advanced Stage Costume Construction and Design (3) Prerequisites, 405 and 408, or permission of instructor.	Crider
509	Scenic Projection (3) Theories and experiments with various methods of scenic projection. Prerequisites, 409 and 419, or permission.	Conway
513	Technical Direction (3, maximum 9) Prerequisites, 403 and either 417, or 418, or 419, and permission.	Lounsbury
519	Lighting Research and Development (3, maximum 9) Prerequisites, 409 and permission.	Lounsbury
551-552-553	Teaching of Acting (2-2-2) Prerequisites, 422 and permission of instructor.	Harrington
581	Advanced Directing (3) Prerequisites, 483 and permission of instructor.	Harrington
601, 602, 603	Research (5,5,5) Prerequisite, permission.	Hughes
700	Thesis (*)	Staff

## ECONOMICS

**Executive Officer: J. RICHARD HUBER, 331 Savery Hall**

The Department of Economics offers courses leading to the degrees of Master of Arts and Doctor of Philosophy. Requirements for both advanced degrees include work in some of these fields of specialization: economic theory; history of economic thought; money, banking, and cycles; government regulation and public utilities; labor economics; public finance; economic history; international trade; national economies; and statistics and econometrics.

**MASTER OF ARTS.** Candidates must complete a program in economic theory and two other fields, one of which must be in economics. Those who choose three fields in economics will be expected to complete a minimum of 15 credits in 500-level courses (9 in economic theory). Those who take a field in a related subject will be expected to take a minimum of 12 credits in economics in 500-level courses (9 in economic theory). All candidates must meet the Graduate School's general requirement of 27 credits in graduate-course work in addition to the thesis and language requirements.

The requirement for a minor in economics for a master's degree is 9 credits in advanced economics courses (400 and 500 level).

**DOCTOR OF PHILOSOPHY.** Candidates must complete a program in five fields, four of which must be in economics including the field of economic theory. A candidate may offer a minor in another department related to his fields of major interest, or, with permission of his committee, he may offer a program of selected courses outside of economics as the fifth field.

Through the cooperation of the Far Eastern and Russian Institute, a candidate may offer, together with a minor in Far Eastern, a Far Eastern area study program as a substitute for one field. In such a case, the fields offered will include three in economics (one of which must be economic theory), one joint economics and Far Eastern, and the Far Eastern minor. When this option is allowed, the candidate normally chooses a thesis subject related to his Far Eastern specialty, and the thesis is jointly supervised by the Institute and the Department.

Doctoral candidates offering a minor in economics must demonstrate competence in two fields, including economic theory. While normally 25 credits in 400- or 500-

level courses will be required, candidates with an adequate background may offer less. In any case, a minimum of 12 credits in 500-level courses must be offered. Normally 9 of these credits will be in economic theory.

## COURSES

### ECONOMIC THEORY

- 301 National Income Analysis (5)** Cartwright, Crutchfield, Gordon  
**302 Intermediate Economics (5)** Mund, Worcester, Zellner  
**306 Development of Economic Thought (5)** Gordon  
**404 Advanced Price Analysis (5)** Crutchfield  
**503 Economics of the Firm (3)** Worcester  
 Analysis of the operation of the economy as affected by the decisions of individual firms and consumers under conditions of pure competition, imperfect competition, oligopoly, and monopoly.  
**505 Value and Distribution Theory (3)** Mund  
 Systematic review of the theories of value, price, costs, and supply. The capital concept. Income and its functional distribution.  
**506 Income and Employment Theory (3)** Cartwright  
 Theories of employment, output, and income of the Keynesian and neo-Keynesian groups. Prerequisite, 301 or permission.  
**507 Neo-Classical Economics and Its Critics (3)** Gordon  
 Prerequisite, permission.  
**510 Contemporary Developments in Income and Employment Theory (3)** Cartwright  
 Review of current literature on income theory with primary emphasis on dynamic income theory. Prerequisite, 506.  
**511 Introduction to the Use of Mathematics in Economic Theory (3)** Gordon  
 Elementary mathematical analysis used in economics. The course is designed to develop ability to read the literature most relevant to developments in general economic theory for those who already have some grounding in theory.  
**512 Advanced Theory of the Firm (3)** Worcester  
 Current literature and research in market structure and business motivation. Prerequisite, 503.  
**515 History of Economic Thought (3)** Gordon  
 Marxian, classical, and earlier economic thought.

### MONEY, BANKING, AND CYCLES

- 320 Money and Banking (5)** Crutchfield  
**421 Money, Credit, and the Economy (5)** Crutchfield  
**422 Economic Cycles (5)** Staff  
**521 Monetary Theory (3)** Crutchfield  
 Recent developments in monetary theory. Prerequisite, permission.  
**522 Cycle Theory (3)** Staff  
 Leading theories of economic cycles, with emphasis upon recent developments. Prerequisite, permission.

### GOVERNMENT REGULATION AND PUBLIC UTILITIES

- 330 Government and Business (5)** Mund  
**432, 433 Economics of Public Utilities (5,5)** Hall  
**530 Public Control of Industry (3)** Mund  
 Public policy in the United States on industrial combinations, pricing practices, and monopoly control. Recent issues in the public control of business. Prerequisite, permission.  
**532 Public Utilities (3)** Hall  
 Critical consideration of recent developments in the study of public utilities. Special emphasis on electrical utilities and public power projects of federal and local governments. Prerequisite, permission.

### LABOR ECONOMICS

- 340 Labor in the Economy (5)** Staff  
**345 Social Security (5)** Hopkins  
**441 Union-Management Relations (5)** Gillingham, Hopkins, McCaffree  
**442 American Labor History (5)** Gillingham  
**443 Labor Market Analysis (3)** McCaffree

- 541 **Theory of Trade-Unionism (3)** Gillingham  
Prerequisite, permission.
- 542 **Labor Economics (3)** Hopkins  
Prerequisite, permission.

#### **PUBLIC FINANCE AND TAXATION**

- 350 **Public Finance and Taxation I (5)** Hall
- 451 **Public Finance and Taxation II (5)** Hall
- 550 **Public Finance (3)** Hall  
Fiscal policy instrumentalities and comparative effects on income and employment; limitations of fiscal policy; review of current literature. Prerequisite, permission.
- 551 **Public Finance (3)** Hall  
Special problems in the fields of taxation and public debt; review of current literature. Prerequisite, permission.

#### **ECONOMIC HISTORY**

- 460J **Economic History of Europe (5)** Morris  
Offered jointly with the Department of History.
- 462 **Development of American Commercial Capitalism (5)** North
- 463 **Development of American Industrial Capitalism (5)** North
- 561 **European Economic History (3)** Morris  
Emphasis on the period since 1750. Prerequisite, permission.
- 562 **American Economic History (3)** North  
Emphasis on the theoretical issues involved in American economic development.

#### **INTERNATIONAL TRADE**

- 370 **Economic Principles of Foreign Trade (5)** Huber
- 471 **International Economics (5)** Holzman
- 472 **International Economic Problems (5)** Huber
- 571 **International Trade Theory (3)** Huber  
Modern developments in national income theory and welfare economics with relation to international trade. Prerequisite, permission.
- 572 **International Economic Policies (3)** Holzman  
Problems of foreign trade and exchange controls, and international monetary policies. Prerequisite, permission.

#### **NATIONAL ECONOMIES**

- 390 **Comparative Economic Systems (5)** Worcester
- 492 **Economic Problems of the Far East (5)** Staff
- 493 **Economic Problems of China (5)** Staff
- 495 **The Economy of Soviet Russia (5)** Holzman
- 595 **Soviet Economics (3)** Holzman  
Analysis of problems of economic measurement, economic development, optimum resource allocation, national income, and planning in the Soviet Union. Prerequisite, permission.

#### **STATISTICS AND ECONOMETRICS**

- 481 **Economic Statistical Analysis (5)** Zellner
- 580 **Econometrics (3)** Zellner  
Study of empirical significance of economic theory and related methodological problems.

#### **GENERAL**

- 600 **Research (\*)** Staff  
Prerequisite, permission.
- 700 **Thesis (\*)** Staff

## **ENGLISH**

**Executive Officer: ROBERT B. HEILMAN, 115 Parrington Hall**

The Department of English offers courses leading to the degrees of Master of Arts and Doctor of Philosophy. Candidates for advanced degrees must have the equivalent of an undergraduate major in English.

**MASTER OF ARTS.** Candidates must complete a program of 45 credits, includ-

ing 10 credits in one period or type of literature and a maximum of 10 credits for thesis. Not more than 10 credits may be in 400-level courses. Those who wish to take a minor may, with the permission of the Department, include in the total credit requirement a maximum of 10 credits in a related field; these credits must be at the 400 or 500 level. Courses required for a major in literary history are: 505, 507, and either 509 or 547; in literary criticism: 505, 507, 508, and 509; in rhetoric: 505, 509, 547, and 530 or equivalent; in language: 505, 530, and 10 credits in Old or Middle English; in advanced writing: 505 or 507, 509, and 10 credits in advanced writing.

Candidates in the fields of literary history, literary criticism, or language may elect a thesis or nonthesis program. However, they must register initially for a nonthesis program; they can transfer to a thesis program by having a prospectus for a thesis approved by the Graduate Studies Committee. Candidates in rhetoric must secure permission for the nonthesis program. Candidates in advanced writing must either present a thesis or submit a piece of original writing.

The requirement for a minor in English for a master's degree is 20 credits in undergraduate and graduate work combined, plus 10 credits in graduate courses earned in residence.

**DOCTOR OF PHILOSOPHY.** Candidates must show a reading knowledge of two foreign languages (usually French and German, though upon approval of the Graduate Studies Committee and the Graduate School a substitute for either may be offered). One language requirement must be met before the completion of 45 credits; no student who has completed 60 credits may proceed faster than 5 credits per quarter if both language requirements have not been fulfilled.

A minimum of 90 credits must be completed before the general examination. Not more than 10 credits may be in 400-level courses. A maximum of 20 credits may be taken in courses given by other departments. Courses required for a major in literary history are: 505, 507, either 508 or 509, 530, and 531; in literary criticism: 505, 507, 508, 509, 530, and 531; in rhetoric: 505, 507, 509, 530, 547, and 553; in language: 505, 530, 531, 532, 10 credits in one field of language study, and 10 credits in linguistics in one language other than English. A Ph.D. in advanced writing is not offered, but Ph.D. candidates in other curricula are allowed 10 credits in advanced writing and may petition for 10 additional credits.

The general examination includes an oral examination and three days (six to eight hours each) of written examinations on (1) Chaucer, Shakespeare, and Milton; (2) one literary genre; and (3) twelve major figures from three of the following fields (four from each of three fields): (a) English literature to 1550, (b) 1550-1660, (c) 1660-1800. (d) 1800-present, (e) American literature.

In the oral examination, questions are based on (1) the written examination and related topics, and (2) a 5,000-word critical essay in the candidate's field of specialization, which is to be written and submitted in the first three weeks of the quarter in which he takes the examination. The essay must be a study of an assigned literary work or problem in the candidate's field; any approach or technique, critical or scholarly, may be used, but a reasoned judgment is required. It will be read before the oral examination by all members of the examining committee and will be evaluated for its style and organization as well as its content.

The candidate should not rely entirely on formal course work in preparation for this general examination but should do a considerable amount of preparation in private study. At least six months before the beginning of the quarter in which he will take the examination, the candidate must announce in writing to the Graduate Studies Committee his intention of taking the examination. Candidates are expected to present themselves for the examination within three regular quarters after the completion of their course work, unless they have been granted a postponement by the Graduate Studies Committee. The subject of the dissertation must be approved by the Graduate Studies Committee of the Department before the candidate begins work on it.

The requirement for a minor in English for the doctor's degree is 20 credits in undergraduate and graduate work combined, plus 20 credits in graduate courses. At least half the credits must be in courses numbered 500 or above and at least 10 must be earned in residence.

Courses leading to the degrees of Master of Arts and Doctor of Philosophy with specialization in general and comparative literature are offered through the General and Comparative Literature program (see page 90).

## COURSES

361, 362, 363	American Literature (5,5,5)	Blankenship, H. Burns, Davis, Hilén, Phillips
367, 368, 369	Seventeenth-Century Literature (5,5,5)	Ethel, Leggett, Stein
370, 371, 372	Shakespeare (5,5,5)	Adams, Hamilton, Pellegrini, Stirling
374, 375, 376	Late Nineteenth-Century Literature (5,5,5)	Brown, W. Burns, Korg, Winther
377, 378, 379	Early Nineteenth-Century Literature (5,5,5)	Bostetter, Zilman
380, 381, 382	Old English Language (5,5,5)	Staff
387	English Grammar (3)	Emery
388	Current English Usage (3)	Perrin
401	The Popular Ballad (5)	Fowler
404	Modern European Literature (5)	Hall
406	Modern English Literature (5)	Hall
410, 411, 412	Advanced Verse Writing (5,5,5)	Roethke
413, 414, 415	Types of Contemporary Poetry (5,5,5)	Roethke
417	History of the English Language (5)	Person
424, 425	Types of Dramatic Literature (5,5) (Offered alternate years; offered 1960-61.)	Heilman
431, 432	Advanced Factual Writing (5,5)	Harris
437, 438	Advanced Short Story Writing (5,5)	Gould, Harris, Redford
440, 441	Social Ideas in Literature (5,5) (Offered alternate years; offered 1959-60.)	Adams
447, 448, 449	The English Novel (5,5,5)	W. Burns, Hall, Heilman, Winther
456, 457, 458	Novel Writing (5,5,5)	Staff
466	Modern American Literature (5)	Blankenship, Davis, Hall, Phillips
484, 485	Advanced Writing Conference (3-5, 3-5)	Staff
489	English Prose Style (5)	Perrin
505	Graduate English Studies (5)	Davis, Stirling, Taylor
507, 508	Literary Criticism (5,5)	Brown, H. Burns, Jones, Winther
509	Methods of Contemporary Criticism (5)	Bostetter, Hall, Jones, Stein
510, 511, 512	The Renaissance and Spenser (5,5,5)	Adams, Hamilton, Stirling
513	Shakespeare's Dramatic Contemporaries (5)	Adams
515, 516	Chaucer (5,5) 515: poems; 516: <i>Canterbury Tales</i> .	Fowler
517, 518, 519	Shakespeare (5,5,5) 517: comedies; 518: tragedies; 519: histories.	Hamilton, Stirling, Matchett
521, 522, 523	Seventeenth-Century Literature (5,5,5) 521: studies in poetry or prose; 522: Donne; 523: Milton.	Stein
524, 525, 526	American Literature (5, maximum 10) (5, maximum 10)	Blankenship, Davis, Eby, Hilén, Phillips
527, 528	Studies in Medieval Literature (5,5) 527: poetry; 528: Arthurian romance.	Fowler
530	The English Language (5) An historical and descriptive survey.	Reed
531	Introductory Reading in Old English (5)	Person
532	Advanced Reading in Old English (5)	Person
533	Foundations of American English (3) History and present state of American English.	Reed

534	American English Dialectology (3) Research methods, history, and analysis.	Reed
538, 539, 540	Early Nineteenth-Century Literature (5,5,5)	Bostetter, Zillman
541, 542, 543	Victorian Literature (5, maximum 10) (5, maximum 10) (5, maximum 10)	Brown, W. Burns, Winther, Korg
544, 545, 546	Eighteenth-Century Literature (5,5,5)	Cornu, Hoover
547	Rhetoric (5)	Perrin
548	Twentieth-Century Literature (5)	Hall
553	Current Rhetorical Theory (5)	Perrin
586	Graduate Writing Conference (5)	Harris, Redford
599	Special Studies in Literature (5, maximum 15)	Staff
600	Research (*)	Staff
700	Thesis (*)	Staff

## FAR EASTERN AND RUSSIAN INSTITUTE

Director: **GEORGE E. TAYLOR, 406 Thomson Hall**

The Far Eastern and Russian Institute administers programs of undergraduate and graduate studies and research on Asiatic Russia, China, Japan, Inner Asia, and the Far East in general. It is closely associated with the Department of Far Eastern and Slavic Languages and Literature, through which Far Eastern studies in the humanities are organized (see page 86). The Institute is responsible to the University, through the Dean of the Graduate School, for its research and graduate programs and is assisted by an advisory board consisting of the Deans of the Graduate School, the College of Arts and Sciences, the College of Business Administration, and the School of Law; the Director of the Library; and the executive officers of the cooperating departments.

The Institute itself does not grant degrees. It arranges the programs in Far Eastern studies for the Bachelor of Arts and Master of Arts degrees given through the Department of Far Eastern and Slavic Languages and Literature. That Department has programs of study in the fields of Chinese language and literature and Slavic languages and literature leading to the Doctor of Philosophy degree. Graduate degrees in the social sciences (with Far Eastern and Russian emphasis) are sponsored by the Institute in cooperation with the Departments of Anthropology, Economics, History, Political Science, and others. In the joint programs leading to the advanced degree in these departments, graduate students receive training in their respective disciplines which they apply to their study of the Far East or Russia. These joint programs are described in the curricular announcements of the respective departments.

The Far Eastern and Russian Institute established three research projects: a Modern Chinese History project, which analyzes Chinese society in transformation from about 1800 to the present; an Inner Asia project, which studies the societies of Mongolia, Tibet, and Turkestan and the Chinese and Russian impact on these societies; and a Russia in Asia project, which studied the tsarist and Soviet development of Asiatic Russia and the Russian and Soviet impact on the Far East. The last project has terminated its work and at present a faculty Russia seminar is endeavoring to make new plans for future research on Russia and the U.S.S.R.

Faculty members from various disciplines work together in these cooperative research programs. A number of graduate students have the opportunity to participate in the research through special studies of their own and to profit from the advice and criticism of faculty members working on the projects. The Far Eastern and Russian Institute has a limited number of research fellowships which are given to especially qualified graduate students.

## COURSES

<b>303J Asia (5)</b> Offered jointly with the Department of Geography.	<b>Earle, Kakiuchi</b>
<b>310 The Far East in the Modern World (5)</b>	<b>Maki, Michael, Taylor, Williston</b>
<b>314J Peoples of Central and Northern Asia (3)</b> Offered jointly with the Department of Anthropology.	<b>Posch</b>
<b>316 History of Southeastern Asia (3)</b>	<b>Williston</b>
<b>320 Chinese Literature in English (3)</b>	<b>Staff</b>
<b>329 Russia and the Moslem World (5)</b>	<b>Spector</b>
<b>332J Islands of the Pacific (3)</b> Offered jointly with the Department of Geography.	<b>Earle</b>
<b>333J The Soviet Union (3)</b> Offered jointly with the Department of Geography.	<b>Jackson</b>
<b>335J Japanese Foreign Policy in Asia (3)</b> Offered jointly with the Department of Political Science.	<b>Maki</b>
<b>345J Japanese Government (3)</b> Offered jointly with the Department of Political Science.	<b>Maki</b>
<b>378 Russia in Asia (3)</b> (Offered alternate years; offered 1960-61.)	<b>Posch</b>
<b>382J Civilization of India: Indian Thought (5)</b> Offered jointly with the Department of History. (Offered 1959-60.)	<b>Gokhale</b>
<b>383J Civilization of India: Impact of Islam and the West (5)</b> Offered jointly with the Department of History. (Offered 1959-60.)	<b>Gokhale</b>
<b>384J Civilization of India: Literature and Arts (5)</b> Offered jointly with the Department of History. (Offered 1959-60.)	<b>Gokhale</b>
<b>401 Marxism, Leninism, Stalinism, and "Maoism" (3)</b>	<b>Wittfogel</b>
<b>410 Far Eastern Workshop (3)</b> (Offered Summer Quarter only.)	<b>Staff</b>
<b>412J South Asia (5)</b> Offered jointly with the Department of Geography.	<b>Murphey</b>
<b>413J The Far East (5)</b> Offered jointly with the Department of Geography.	<b>Kakiuchi, Murphey</b>
<b>421J Kievan and Muscovite Russia, 850-1700 (5)</b> Offered jointly with the Department of History.	<b>Treadgold</b>
<b>422J Imperial Russia, 1700-1905 (5)</b> Offered jointly with the Department of History.	<b>Treadgold</b>
<b>423J Twentieth-Century Russia (5)</b> Offered jointly with the Department of History.	<b>Treadgold</b>
<b>424J Russian Revolutionary Movement (5)</b> Offered jointly with the Department of History.	<b>Treadgold</b>
<b>429 The Soviet Union and the Moslem World (5)</b>	<b>Spector</b>
<b>430 Survey of Mongol Culture (3)</b> (Offered alternate years; offered 1959-60.)	<b>Poppe</b>
<b>431 Tibetan Cultural History (5)</b>	<b>Staff</b>
<b>433J Problems in the Geography of the Soviet Union (3 or 5)</b> Lectures (3 credits); independent study (2 additional credits), optional with permission of instructor. Offered jointly with the Department of Geography. Prerequisite, 333J or permission.	<b>Jackson</b>
<b>434J Problems in the Geography of Southeast Asia (5)</b> Offered jointly with the Department of Geography.	<b>Earle</b>
<b>435J Problems in the Geography of China (5)</b> Offered jointly with the Department of Geography.	<b>Murphey</b>
<b>437J Problems in the Geography of Japan (5)</b> Offered jointly with the Department of Geography.	<b>Kakiuchi</b>
<b>443 Chinese Social Institutions (5)</b>	<b>Hsiao</b>
<b>444 Chinese History: Earliest Times to 221 B.C. (5)</b> (Offered alternate years; offered 1960-61.)	<b>Wilhelm</b>
<b>445 Chinese History: 221 B.C. to 906 A.D. (5)</b> (Offered alternate years; offered 1960-61.)	<b>Wilhelm</b>
<b>446 Chinese History: 906 A.D. to 1840 A.D. (5)</b> (Offered alternate years; offered 1960-61.)	<b>Wilhelm</b>
<b>447 Modern Chinese History (5)</b>	<b>Michael</b>

- 450 Survey of Turkic Culture of Central Asia (3)** **Posch**
- 451J History of Chinese-Japanese Relations (3)** **Staff**  
(Offered jointly, in alternate years, with the Department of History; offered 1959-60.)
- 452J Early Japanese History (5)** **Staff**  
Offered jointly with the Department of History.
- 453J Tokugawa Period (5)** **Staff**  
Offered jointly with the Department of History.
- 454J Modern Japanese History (5)** **Staff**  
Offered jointly with the Department of History.
- 455 Studies in Japanese Buddhism (3)** **Hurvitz**  
(Offered alternate years; offered 1960-61.)
- 482J History of India: Earliest Times to 647 A.D. (5)** **Gokhale**  
Offered jointly with the Department of History. (Offered 1959-60.)
- 483J History of India: 647 to 1525 (5)** **Gokhale**  
Offered jointly with the Department of History. (Offered 1959-60.)
- 484J History of India: 1525 to the Present (5)** **Gokhale**  
Offered jointly with the Department of History. (Offered 1959-60.)
- 504J Japan (3, maximum 6)** **Kakiuchi**  
Offered jointly with the Department of Geography.
- 505J China and Northeast Asia (3, maximum 6)** **Murphoy**  
Offered jointly with the Department of Geography.
- 506J Southeast Asia (3, maximum 6)** **Earle**  
Offered jointly with the Department of Geography.
- 507J Soviet Union (3, maximum 6)** **Jackson**  
Offered jointly with the Department of Geography.
- 519J Seminar on Asia (3, maximum 6)** **Posch, Wilhelm, Staff**  
The large cultural regions of the continent are studied in succession, with special reference to anthropological problems. (Offered jointly, in alternate years, with the Department of Anthropology; offered 1960-61.)
- 520J Seminar on the Foreign Policy of the Soviet Union (3)** **Reshetar**  
Offered jointly with the Department of Political Science. Prerequisite, permission.
- 521, 522, 523 Seminar on Modern Asian History (3,3,3)** **Taylor, Staff**
- 525, 526 Seminar on Far Eastern Diplomacy (3,3)** **Williston**
- 530, 531 Seminar on China (3,3)** **Wilhelm**
- 533 Seminar on Chinese Society (4)** **Wittfogel, Staff**  
Comparative institutional analysis of representative periods and key aspects of Chinese society. (Offered when demand is sufficient.)
- 534J Modern European History: Russia (3-6)** **Treadgold**  
Offered jointly with the Department of History.
- 535J-536J-537J Seminar in Russian History (3-6)-(3-6)-(3-6)** **Treadgold**  
Seminar in modern Russian history. (Offered jointly, in alternate years, with the Department of History; offered 1960-61.) Prerequisites, reading knowledge of Russian and permission.
- 538 Seminar on Modern China (3)** **Michael**  
Studies of problems in Chinese government, politics, ideology, and social and economic issues from 1911 to the present.
- 541J The Soviet Political System (4)** **Reshetar**  
Critical appraisal of the principal research methods, theories, and types of literature dealing with the government and politics of the Soviet Union. Offered jointly with the Department of Political Science. Prerequisite, permission.
- 542J Personality Patterns in Japanese Culture (3)** **Passin**  
The nature and content of Japanese social life as it bears upon Japanese character. Offered jointly with the Department of Anthropology.
- 543 Seminar on Russia in Asia (3)** **Posch**  
Selected topics on relations of Russia and the Soviet Union with Asia. Prerequisite, permission. (Offered alternate years; offered 1960-61.)
- 545J Seminar on Japanese Government and Diplomacy (3, maximum 6)** **Maki**  
Offered jointly with the Department of Political Science.
- 549J Japanese History (3-6)** **Staff**  
Field course in Japanese history. Offered jointly with the Department of History. (Offered alternate years; offered 1959-60.)
- 550J-551J-552J Seminar in Japanese History (3-6)-(3-6)-(3-6)** **Staff**  
Offered jointly with the Department of History. Prerequisite, reading knowledge of Japanese.
- 553J Analysis of Linguistic Structures (3)** **Jacobs, Li**  
Offered jointly with the Department of Anthropology.



- 598 Inner Asia Research Colloquium (5, maximum 15)** K. Chiang, Li, Murphy, Poppe, Posch, Wilhelm, Staff
- 599 Colloquium on Chinese History Research (5, maximum 15)** Hsiao, Michael, Shih, Taylor, Wilhelm
- Research seminar on the Modern Chinese History project dealing with various aspects of Chinese society of the nineteenth and twentieth centuries. Prerequisite, permission.
- 600 Research (\*)** Staff
- Prerequisite, permission.
- 700 Thesis (\*)** Staff

*The following courses may be used for credit toward a Far Eastern major.*

- Anthropology 317 Ethnology of Southeast Asia (3)**
- Art 382 Art of India (3)**
- Art 383 Art of China (3)**
- Art 384 Art of Japan and Korea (3)**
- Art 390 Oriental Ceramic Art (2)**
- Economics 492 Economic Problems of the Far East (5)**
- Economics 493 Economic Problems of China (5)**
- Economics 495 The Economy of Soviet Russia (5)**
- Economics 595 Soviet Economics (3)**
- Foreign Trade 350 Trade Problems of the Far East (5)**
- Philosophy 428 Chinese Philosophy (5)**
- Political Science 344 Chinese Government (5)**
- Political Science 414 Oriental Political Thought (5)**
- Political Science 420 Foreign Relations of the Soviet Union (5)**
- Political Science 429 International Relations in the Far East (5)**
- Political Science 432 American Foreign Policy in the Far East (5)**
- Political Science 441 Political Institutions of the Soviet Union (5)**

## FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE

**Executive Officer: GEORGE E. TAYLOR, 406 Thomson Hall**

The Department of Far Eastern and Slavic Languages and Literature offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

**MASTER OF ARTS.** The Department of Far Eastern and Slavic Languages and Literature offers the Master of Arts degree in Far Eastern and Slavic languages and literatures and in Far Eastern and Russian regional studies. For all degrees, 45 credits plus thesis are required.

A candidate for regional studies is usually expected to take course work in five disciplines, with a minimum of 12 credits in seminars. For example, in Russian regional studies, a candidate will take course work in any five of the following disciplines: anthropology, economics, geography, history, language and literature, and political science. The candidate will select one of the five as his principal discipline. A working knowledge of the Russian language is required for Russian regional studies.

**DOCTOR OF PHILOSOPHY.** The Department of Far Eastern and Slavic Languages and Literature offers a program leading to the Doctor of Philosophy degree with a specialization in any of the languages or literatures for which the Department is responsible and for which there are available the staff, curriculum, and library holdings necessary for research on the doctoral level.

Students interested in working for this degree must have, as a minimum requirement for beginning their programs, the equivalent of a strong undergraduate major in any language or literature or in Far Eastern or Russian area studies.

Each candidate must present a program covering four fields of study. The fields may be in a single language and literature for which the Department is responsible, or in a combination of such languages and literatures, or in a combination of

three fields within the Department plus a field in either linguistics or comparative literature.

All candidates are expected to be familiar with the history, society, and culture of the country in whose language or literature they are specializing. In cases where it would be appropriate, a field may be approved in another discipline dealing with the area involved.

## COURSES

### CHINESE

- 301 Chinese Language, Intensive C (10) K. Chang, Li  
 402, 403, 404 Advanced Modern Chinese (5,5,5) Yang  
 405, 406, 407 Classical and Documentary Chinese (5,5,5) Reifler  
 408 Chinese Reference Works and Bibliography (3) Wilhelm  
 (Offered alternate years; offered 1960-61.)  
 430 Readings in Chinese Philosophical Texts (5) Shih  
 Prerequisite, permission. (Offered alternate years; offered 1959-60.)  
 455, 456, 457 Chinese Literature (5,5,5) Wilhelm  
 (Offered alternate years; offered 1959-60.)  
 522, 523, 524 Readings in Classical Chinese (5,5,5) Reifler  
 525 Structure of Chinese Characters (5) Reifler  
 526, 527, 528 Studies in Chinese Literature (5,5,5) Shih  
 526: literature of the Chou and Han periods. 527: literature from Wei to T'ang times. 528: literature since the end of T'ang. (Offered alternate years; offered 1959-60.)  
 529 Chinese Phonology (3) Li  
 530 Studies in Chinese Prose (5) Wilhelm  
 (Offered alternate years; offered 1959-60.)  
 531 Studies in Chinese Poetry (5) Shih  
 (Offered alternate years; offered 1960-61.)  
 532 Studies in Chinese Drama and Novel (5) Shih  
 (Offered alternate years; offered 1960-61.)  
 535 Chinese Epigraphy (3, maximum 6) Roifler  
 Introduction to texts in ancient character forms; selected readings of inscriptions on bronzes and oracle bones.  
 536, 537, 538 Readings in Chinese Political Thought and Institutions (5,5,5) Hsiao  
 (Offered alternate years; offered 1960-61.)  
 550 Seminar on Chinese Literature (4, maximum 8) Shih, Wilhelm  
 555 Seminar on Chinese Linguistics (3, maximum 9) Li  
 Advanced phonology, problems of archaic Chinese, dialectology; descriptive and historical treatment of Sinitic languages. For advanced students of Chinese or of linguistics. Prerequisite, permission.  
 700 Thesis (\*)

### JAPANESE

- 301, 302, 303 Second-year Reading Japanese (5,5,5) Hurvitz  
 401, 402, 403 Advanced Reading Japanese (3,3,3) Hurvitz, McKinnon  
 460 Readings in Modern Japanese Literature (3-5, maximum 15) McKinnon, Staff  
 522, 523, 524 Readings in Documentary Japanese (5,5,5) McKinnon  
 (Offered when demand is sufficient.) Prerequisite, permission.  
 550 Readings in Classical Japanese Literature (3-5, maximum 15) Hurvitz, Staff  
 Readings in prose, poetry, and drama, antiquity to nineteenth century. Prerequisite, permission.  
 570 Seminar in Japanese Literature (3-5, maximum 15) McKinnon  
 Research and writing on problems of literary criterion. Prerequisite, permission.  
 700 Thesis (\*)

### KOREAN

- 302-303 Elementary Spoken Korean Language (5-5) Suh  
 304 Intermediate Korean (5) Suh  
 406, 407 Advanced Korean Reading (5,5) Suh  
 501, 502, 503 Seminar in Korean (3-5, 3-5, 3-5) Suh

**MONGOLIAN**

- 302 Introduction to Mongolian (5)** **Poppe**  
(Offered alternate years; offered 1960-61.)
- 303 Modern Mongolian Literary Language (5)** **Poppe**  
(Offered alternate years; offered 1960-61.)
- 304 Colloquial Mongolian (5)** **Poppe**  
(Offered alternate years; offered 1960-61.)
- 305 Classical Mongolian (5)** **Poppe**  
(Offered alternate years; offered 1960-61.)
- 521 Ancient Mongol: hPhagspa Script (3)** **Poppe**  
Script and grammar of hPhagspa texts; reading and translation. Prerequisite, 304. (Offered alternate years; offered 1959-60.)
- 522 Mongol: Ancient Texts (3)** **Poppe**  
Grammar and reading of Mongol texts of the fourteenth to seventeenth centuries. Historical texts are emphasized. (Offered alternate years; offered 1959-60.)
- 580 Comparative Grammar of the Altaic Languages (3)** **Poppe**  
Comparative phonology and morphology of Mongol and Turkic and other related languages. (Offered alternate years; offered 1960-61.)

**POLISH**

- 401, 402 Phonetics, Grammar, and Vocabulary (5,5)** **Micklesen**  
(Offered alternate years; offered 1960-61.)
- 411 Readings in Polish (5)** **Micklesen**  
(Offered alternate years; offered 1960-61.)

**RUSSIAN**

- 301 Russian Language, Intensive C (10)** **Novikow, Pahn**
- 302 Russian Grammar and Composition (5)** **Gershevsky**
- 303 Advanced Conversation and Composition (5)** **Staff**
- 304 Advanced Russian Language (5, maximum 10)** **Gershevsky**
- 306 Advanced Conversation and Composition (3)** **Gershevsky, Staff**
- 307, 308 Russian Reading (5,5)** **Staff**
- 309 Readings from the Current Soviet Press (5)** **Staff**
- 319 Advanced Russian for Social Scientists (10)** **Staff**  
(Offered Summer Quarter only.)
- 405, 406 Advanced Russian Reading (3,3)** **Staff**
- 410, 411 Advanced Russian Grammar and Composition (5,5)** **Erlich, Micklesen**
- 455 Modern Russian Poetry (3)** **Erlich**  
(Offered alternate years; offered 1959-60.)
- 458 Contemporary Russian Literary Criticism (3)** **Erlich**  
(Offered alternate years; offered 1960-61.)
- 485 History of Russian Standard Language (5)** **Micklesen**
- 521 Advanced Russian Syntax (3)** **Poppe**  
A detailed structural analysis of the sentence types in the Russian literary language with emphasis on grammatical categories and word classes. (Offered alternate years; offered 1960-61.)
- 525 Russian Eighteenth-Century Literature (5)** **Erlich**  
A discussion of representative works of Russian poetry, prose, fiction, and criticism in the formative period in the history of Russian letters. (Offered alternate years; offered 1959-60.) Prerequisite, 320 or permission.
- 526 Pushkin (4)** **Erlich**  
Analysis of the works of Alexander Pushkin. (Offered alternate years; offered 1960-61.)
- 527 Studies in Russian Prose (4)** **Erlich**  
Close analysis of representative works of the nineteenth-century Russian prose fiction in original texts. (Offered alternate years; offered 1959-60.)
- 557 Seminar in Russian Language (3)** **Staff**  
Examination and discussion of Russian masterpieces.
- 559 Russian Oral Epic Tradition (3)** **Erlich**  
Introduction to Russian folklore. (Offered every three years; offered 1960-61.)
- 560 Studies in Early Russian Literature (3)** **Erlich**  
(Offered alternate years; offered 1959-60.)
- 590 Seminar in Russian Literary History (4)** **Erlich**  
Close examination of selected periods or figures in Russian literature. (Offered alternate years; offered 1959-60.) Prerequisite, 10 graduate credits in Russian literature.
- 700 Thesis (\*)** **Staff**

## SERBO-CROATIAN

- 401-402 Phonetics, Grammar, and Vocabulary (5-5)** **Micklesen**  
(Offered alternate years; offered 1959-60.)
- 411 Reading in Serbo-Croatian (5)** **Micklesen**  
(Offered alternate years; offered 1959-60.)

## SLAVIC

- 491 Introduction to Slavic Philology (3)** **Micklesen**
- 522 Phonetic Structure of Slavic Languages (3)** **Micklesen**  
A detailed analysis of the phonological evolution of the various Slavic languages from the earliest period of the Common Slavic language. (Offered alternate years; offered 1959-60.)
- 523 Morphological Features of Slavic Languages (3)** **Poppe, Staff**  
A survey of the development of the various grammatical forms of the Slavic languages from the Common Slavic period. (Offered alternate years; offered 1959-60.)
- 531 Old Church Slavonic (3)** **Micklesen**  
The rise and development of the earliest Slavic literary language and a descriptive study of its orthography, phonology, morphology, and syntax. (Offered alternate years; offered 1960-61.)
- 532 Readings in Old Church Slavonic (3)** **Micklesen**  
Reading and grammatical interpretation of a selected group of Old Church Slavonic texts. (Offered alternate years; offered 1960-61.)

## TIBETAN

- 302 Introduction to Literary Tibetan (5)** **Staff**
- 403 Reading in Tibetan Literature (5)** **Staff**
- 404 Tibetan Historical Works (5)** **Staff**
- 410 Newspaper Tibetan (3)** **Staff**
- 430 Advanced Literary Tibetan (5)** **Staff**
- 502, 503, 504 Comparative Study of Chinese, Mongolian, Tibetan, and Sanskrit Texts (5,5,5)** **Li, Poppe, Staff**

## TURKIC

- 301, 302, 303 Introduction to Central Asian Turkic (3,3,3)** **Posch**
- 401, 402, 403 Comparative Grammar of Central Asian Turkic (3,3,3)** **Posch**
- 501, 502 Comparative Grammar of Central Asian Turkic (3,3)** **Posch**  
Prerequisites, Turkic 303, German, and Russian.
- 503 Seminar on Central Asian Turkic Literature (3)** **Posch**  
Prerequisites, Turkic 502, German, and Russian.

## LITERATURE COURSES IN ENGLISH

- Chinese 320 Chinese Literature in English (5)** **Shih**  
(Offered alternate years; offered 1960-61.)
- Japanese 420 Classical Japanese Literature in English (3)** **McKinnon**
- Japanese 421 Modern Japanese Literature in English (3)** **McKinnon**
- Japanese 422 Studies in Japanese Poetry in English (3)** **McKinnon**  
(Offered alternate years; offered 1960-61.)
- Japanese 423 Japanese Drama in English (3)** **McKinnon**  
(Offered alternate years; offered 1959-60.)
- Korean 320 Korean Literature in English (5)** **Suh**
- Mongolian 320 Mongolian Literature in English (5)** **Poppe**  
(Offered alternate years; offered 1959-60.)
- Russian 320 Russian Literature in English (5)** **Spector**
- Russian 421 Contemporary Russian Literature in English (5)** **Spector**
- Russian 422 Russian Plays in English (5)** **Spector**
- Russian 423 The Russian Novel in English (5)** **Erlich**
- Russian 424 The Russian Symbolists in English (3)** **Erlich**  
(Offered alternate years; offered 1960-61.)
- Russian 425 Dostoevski in English (5)** **Spector**  
Open only to majors in a language or literature.
- Slavic 320 Polish Literature in English (5)** **Erlich**  
(Offered alternate years; offered 1960-61.)

## GENERAL AND COMPARATIVE LITERATURE

Chairman: **FRANK W. JONES**, 119A Parrington Hall

This program is centered administratively in the Department of English. It leads to the degrees of Master of Arts and Doctor of Philosophy.

**MASTER OF ARTS.** This degree is offered with a major in General Literature. Students who do not intend to obtain a doctorate may earn this degree largely in courses in foreign literature in translation. Candidates must present an undergraduate major in English, general literature, or a foreign language, and must have a reading knowledge of two foreign languages, ancient or modern, with upper-division credit or the equivalent in one of these. Other requirements are: 10 credits in General Literature, 5 of which must be in course 510 or 511; English 507; 20 credits in a coherent program of courses in English and other literatures; and a thesis (10 credits), or 10 additional credits in literature.

The examination consists of three two-hour questions on (1) English or American literature, (2) a foreign literature, and (3) a comparative topic.

**DOCTOR OF PHILOSOPHY.** This degree is offered with a major in Comparative Literature, and it is awarded by the department in which the candidate does his major work. The following departments are authorized to award the degree: English, Romance Languages and Literature, Germanic Languages and Literature, and Far Eastern and Slavic Languages and Literature.

Candidates are concerned with problems common to two or more literatures. They must have a reading knowledge of at least two foreign languages, ancient or modern, and must take graduate courses in at least one of these. Other requirements are: General Literature 510, 511; 45 credits in English or the candidate's major foreign language, including English 505, 507, and 509, or equivalent courses in the major foreign language; and 35 credits in the candidate's minor field, or fields, chosen with the approval of the chairman of Comparative Literature and of the departments concerned. No more than 10 credits are allowed in English courses at the 400 level.

The general examination consists of three days of written examinations, each lasting six to eight hours, and an oral examination. The written examinations are: (1) on three major writers; (2) on a comparative problem in the field of the candidate's concentration; (3) examination by the department of the candidate's major field. The oral examination follows the pattern of the doctoral examination in English.

For the written examination on three major writers, candidates whose major field is English will prepare to write on two of the three major figures in the doctoral examination in English (Chaucer, Shakespeare, Milton), and will be assigned a question on one of these. Other candidates will offer one or two major writers in the major language, and one in each minor language.

### COURSES

450, 451 Romanticism and the Nineteenth Century in Europe (5,5)	Staff
480 The Symbolist Movement (5)	Staff
510, 511 Studies in General and Comparative Literature (5, maximum 10) (5, maximum 10)	Staff
700 Thesis (*)	Staff

### LITERATURE COURSES IN OTHER DEPARTMENTS

#### CLASSICS

- 426 Greek and Roman Epic in English (3)
- 427 Greek and Roman Drama in English (3)
- 440 Greek and Roman Critics in English (3)

**FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE**

- Russian 421 Contemporary Russian Literature in English (5)  
 Russian 422 Russian Plays in English (5)  
 Russian 423 The Russian Novel in English (5)  
 Russian 424 The Russian Symbolists in English (3)  
 Russian 425 Dostoevski in English (5)

**GERMANIC LANGUAGES AND LITERATURE**

- 462 Goethe in English (3)  
 464 Thomas Mann in English (3)

**ROMANCE LANGUAGES AND LITERATURE**

- French 418 Literature of the Enlightenment in English (3)  
 Italian 481, 482 Dante in English (2,2)  
 Romance 460 The Literature of the Renaissance in English (5)

**SCANDINAVIAN LANGUAGES AND LITERATURE**

- 480 Ibsen and His Major Plays in English (2)  
 481 Strindberg and His Major Plays in English (2)

**GEOGRAPHY**

**Executive Officer: G. DONALD HUDSON, 406 Smith Hall**

The Department of Geography offers courses leading to the degrees of Master of Arts and Doctor of Philosophy. Studies leading to these degrees are developed by the Department and the student, taking into account the student's preparation, professional objectives, and professional interests. On the graduate level, the Departmental program emphasizes work on the Far East and the Soviet Union, Anglo-America, economic geography, and cartography.

**COURSES****SYSTEMATIC GEOGRAPHY**

- |  |          |
|--|----------|
| 325 Historical Geography of America (3)  | Martin   |
| 370 Conservation of Natural Resources (5)  | Sherman  |
| 374 The Extractive Industries (5)  | Staff    |
| 441 Advanced Economic Geography I (3 or 5)<br>Lectures (3 credits); independent study (2 additional credits), optional with permission of instructor.                                    | Garrison |
| 442 Advanced Economic Geography II (3 or 5)<br>Lectures (3 credits); independent study (2 additional credits), optional with permission of instructor. Prerequisite, 441.                | Garrison |
| 444 Geography of Water Resources (3 or 5)<br>Lectures (3 credits); independent study (2 additional credits), optional with permission of instructor.                                     | Marts    |
| 448 Geography of Transportation (5)  | Ullman   |
| 475 Problems in Political Geography (3 or 5)<br>Lectures (3 credits); independent study (2 additional credits), optional with permission of instructor. Prerequisite, 275 or permission. | Jackson  |
| 477 Urban Geography (5)  | Ullman   |
| 510 Research Seminar: Settlement and Urban Geography (3, maximum 9)  | Ullman   |
| 537 Research Seminar: Quantitative Methods in Economic Geography (3, maximum 6)  | Garrison |
| 538 Research Seminar: Geography of Transportation (3, maximum 6)   | Ullman   |
| 539 Research Seminar: Utilization of Water Resources (3, maximum 6)  | Marts    |

**REGIONAL GEOGRAPHY**

- 303J Asia (5) Earle, Kakiuchi  
 Offered jointly with the Far Eastern and Russian Institute.

- 304 Europe (5) Martin
- 305 Latin America (5) Heath
- 306 Africa (5) Sherman
- 307 Australia and New Zealand (5) Earle
- 332J Islands of the Pacific (3) Earle  
Offered jointly with the Far Eastern and Russian Institute.
- 333J The Soviet Union (3) Jackson  
Offered jointly with the Far Eastern and Russian Institute.
- 400 Advanced Regional Geography (3) Hudson
- 402 United States (5) Martin
- 404 Problems in the Geography of Europe (3 or 5) Staff  
Lectures (3 credits); independent study (2 additional credits), optional with permission of instructor. Prerequisite, 304 or permission.
- 408 Canada and Alaska (3) Staff
- 412J South Asia (5) Murphey  
Offered jointly with the Far Eastern and Russian Institute.
- 413J The Far East (5) Kakiuchi, Murphey  
Offered jointly with the Far Eastern and Russian Institute.
- 433J Problems in the Geography of the Soviet Union (3 or 5) Jackson  
Lectures (3 credits); independent study (2 additional credits), optional with permission of instructor. Offered jointly with the Far Eastern and Russian Institute. Prerequisite, 333J or permission.
- 434J Problems in the Geography of Southeast Asia (5) Earle  
Offered jointly with the Far Eastern and Russian Institute.
- 435J Problems in the Geography of China (5) Murphey  
Offered jointly with the Far Eastern and Russian Institute.
- 437J Problems in the Geography of Japan (5) Kakiuchi  
Offered jointly with the Far Eastern and Russian Institute.
- 504J Research Seminar: Japan (3, maximum 6) Kakiuchi  
Offered jointly with the Far Eastern and Russian Institute.
- 505J Research Seminar: China and Northeast Asia (3, maximum 6) Murphey  
Offered jointly with the Far Eastern and Russian Institute.
- 506J Research Seminar: Southeast Asia (3, maximum 6) Earle  
Offered jointly with the Far Eastern and Russian Institute.
- 507J Research Seminar: Soviet Union (3, maximum 6) Jackson  
Offered jointly with the Far Eastern and Russian Institute.
- 508 Research Seminar: Anglo-America (3, maximum 6) Hudson, Marts

#### CARTOGRAPHY

- 360 Principles of Cartography (5) Heath, Sherman
- 361 Experimental Cartography (5) Heath, Sherman  
Prerequisite, 360.
- 363 Aerial Photographs as Source Materials (2) Heath, Sherman  
Prerequisite, 360.
- 425J Graphic Techniques in the Social Sciences (5) Schmid  
Offered jointly with the Department of Sociology. Prerequisite, Sociology 223 or permission.
- 458 Map Intelligence (3) Sherman
- 462 Problems in Map Compilation and Design (5) Heath, Sherman  
Prerequisite, 360.
- 464 Problems in Map Reproduction (3) Heath  
Prerequisite, 360.
- 520 Research Seminar: Cartography (3, maximum 6) Sherman

#### INTRODUCTION TO PROFESSIONAL TRAINING

- 426 Statistical Measurement and Inference (5) Garrison  
Prerequisite, an introductory course in statistics or permission.
- 490 Field Research (6, maximum 12) Staff
- 500 Research Seminar: Contemporary Geographic Thought (3) Ullman, Staff  
Growth of modern geographic thought, tests of significance in geography, and development of specific new conceptual schemes for analyzing geographic problems.

- 501 Research Seminar: Geographic Analysis (3)** **Garrison**  
Review of models used in regional and systematic fields; theoretical and empirical formulation of research and evaluation of results; identification of significant research problems. Prerequisite, 426 or permission.
- 502 Research Seminar: Professional Writing in Geography (\*, maximum 6)** **Hudson, Martin**  
The statement of research problems; the organization of research procedures and findings; the mechanics of professional manuscripts.
- 503 Research Seminar: Source Materials in Geographic Research (3)** **Staff**  
Survey of standard and other sources for documentary research; techniques of appraisal.
- NONTHESIS AND THESIS RESEARCH**
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## GEOLOGY

**Executive Officer: HOWARD A. COOMBS, 42 Johnson Hall**

The Department of Geology offers courses leading to the degrees of Master of Science and Doctor of Philosophy. All candidates for advanced degrees in geology must have completed essentially the same academic work as outlined in the undergraduate curriculum. Examinations for both the master's and doctor's degree will include subjects from the whole field of geology. All candidates must have an approved summer field course such as 500, or other field experience which is approved by the department.

**MASTER OF SCIENCE.** The language requirement for this degree must be met with either French or German.

**DOCTOR OF PHILOSOPHY.** Candidates must present French and German for the language requirement. All Ph.D. candidates must have a M.S. or M.A. degree.

## COURSES

- |   |                  |
|---|------------------|
| <b>308 Structural Geology (5)</b>   | <b>McKee</b>     |
| <b>310 Engineering Geology (5)</b>  | <b>McKee</b>     |
| <b>320 Sedimentary Petrology (4)</b>  | <b>Barksdale</b> |
| <b>330 General Paleontology (5)</b>   | <b>Mallory</b>   |
| <b>344 Field Methods (5)</b>  | <b>Barksdale</b> |
| <b>361 Stratigraphy (5)</b>   | <b>Wheeler</b>   |
| <b>400 Field Course (15)</b><br>(Offered Summer Quarter only.)  | <b>Staff</b>     |
| <b>412 Physiography of the United States (5)</b>  | <b>Mackin</b>    |
| <b>414 Map Interpretation (5)</b>   | <b>Mackin</b>    |
| <b>423 Optical Mineralogy (5)</b>   | <b>Vance</b>     |
| <b>424 Petrography and Petrology of Igneous Rocks (5)</b>   | <b>Vance</b>     |
| <b>425 Petrography and Petrology of Metamorphic Rocks (5)</b>   | <b>Vance</b>     |
| <b>427 Ore Deposits (5)</b>   | <b>Ellis</b>     |
| <b>436 Micropaleontology (5)</b><br>(Offered alternate years, offered 1961-62.)                                       | <b>Mallory</b>   |
| <b>443 Advanced Structural Geology (5)</b>  | <b>Misch</b>     |
| <b>450 Elements of Seismology (5)</b>   | <b>Neumann</b>   |
| <b>480 History of Geology (3)</b>   | <b>Barksdale</b> |
| <b>481 Preparation of Geologic Reports and Publications (3)</b>   | <b>Coombs</b>    |
| <b>500 Graduate Field Course (15)</b><br>(Offered Summer Quarter only.)   | <b>Staff</b>     |
| <b>503 Advanced Petrography and Petrology of Sedimentary Rocks (*)</b><br>Thin section study of sedimentary rocks.    | <b>Barksdale</b> |
| <b>510 Advanced Studies in Physiography (*, maximum 10)</b><br>Research projects in physiography and glacial geology. | <b>Mackin</b>    |



- 515 Fluvial Morphology (\*, maximum 5)** **Mackin**  
Advanced study of landforms in humid and arid regions.
- 516 Glacial Geology (5)** **Mackin**  
Systematic study of glacial landforms and deposits.
- 520 Seminar (\*)** **Staff**
- 521 Metamorphic Minerals (5)** **Misch**  
Nature and paragenesis of metamorphic minerals; physical, chemical, and geological interpretation of paragenesis.
- 522 Regional Metamorphism and Granitization (5)** **Misch**  
Deformation, crystallization, migmatization, and their mutual relations; metamorphic history; granitization, mobilization, and granitic intrusion.
- 524 Advanced Igneous Petrography and Petrology (3)** **Vance**  
The origin of the common igneous rocks with emphasis on the interpretation of textures.
- 530 Advanced Studies in Paleontology (4)** **Wheeler, Mallory**  
Selected work in paleontology. (Offered alternate years; offered 1961-62.)
- 531 Biostratigraphy (5)** **Mallory**  
The data and principles of stratigraphic paleontology and of chronologic biostratigraphy. (Offered alternate years; offered 1960-61.)
- 540 Advanced Studies in Structural Geology (\*)** **Misch, McKee**  
Selected readings and individual conferences on fundamental problems in structural geology.
- 545 Structure of Europe (5)** **Misch**  
Structural evolution of Precambrian, Caledonian, Hercynian, and Alpidic Europe; general geotectonic principles involved. (Offered alternate years; offered 1961-62.)
- 546 Structure of Asia and West Pacific Rim (5)** **Misch**  
(Offered alternate years; offered 1960-61.)
- 550 Advanced Studies in Geophysics (\*, maximum 9)** **Neumann**  
Individual research on specific problems in seismometry and seismic data analysis; group discussions of the broader aspects of fundamental geophysics and geophysical research.
- 560 Advanced Studies in Stratigraphy (\*)** **Mallory, Wheeler**  
Selected work in biostratigraphy or stratigraphy.
- 563 West Coast Cenozoic Stratigraphy (4)** **Mallory**  
The historical development, lithologic, and faunal content of West Coast Cenozoic formations. (Offered alternate years; offered 1960-61.)
- 565 Paleozoic Stratigraphy (4)** **Wheeler**  
Integration of North American Paleozoic stratigraphy as a basis for interpretation of regional geologic episodes and interregional historical synthesis. (Offered alternate years; offered 1960-61.)
- 568 Mesozoic Stratigraphy (4)** **Wheeler**  
Integration of North American Mesozoic stratigraphy as a basis for interpretation of regional geologic episodes and interregional historical synthesis. (Offered alternate years; offered 1959-60.)
- 570 Advanced Studies in Mineralogy, Petrography, and Petrology (\*)** **Coombs, Misch**  
Selected readings and individual conferences on fundamental problems regarding the origin and development of minerals and rocks.
- 571 Advanced Engineering Geology (3)** **Coombs**  
Geologic principles as applied to large engineering projects. Emphasis is on the physical properties of rocks and their relation to contemplated engineering structures.
- 572 Geochemistry (3)** **McKee**  
The chemistry of geologic processes and the study of the distribution and migration of elements in minerals and rocks. Prerequisite, graduate standing in geology.
- 580 Advanced Studies in Economic Geology (\*)** **Coombs**  
Selected readings and individual conferences on the application of Geology to deposits of economic significance.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## GERMANIC LANGUAGES AND LITERATURE

Acting Executive Officer: HERMAN C. MEYER, 340 Denny Hall

The Department of Germanic Languages and Literature offers courses leading to the degrees of Master of Arts and Doctor of Philosophy. To register for any graduate course in German, students must receive permission from the Executive Officer of the Department. All candidates for advanced degrees must take 410, 411, 412, 415, 416, 417, 500, 501, 502, 503, 550, 552, 556, and 557 (or equivalents) as

they are offered; 518 and 519 must be taken if twentieth-century literature is used as a major field.

**MASTER OF ARTS.** Two programs leading to the Master of Arts degree with a major in Germanics are available.

**THESIS PROGRAM.** For the M.A. degree, the student must, in addition to fulfilling general requirements of the Graduate School, take a minimum of 30 credits in Germanics. If the student minors in some other department, he may elect the 30 credits in literary or in philological courses or a combination of the two. If his entire program lies within the field of Germanics, he must elect 30 credits in literary courses and 15 credits in philological courses or vice versa. In addition, the candidate must submit in final form, at least one month prior to final examination, an acceptable thesis giving evidence of the mastery of scholarly procedure and worth at least 9 credits.

**NONTHESIS PROGRAM.** Students who wish to proceed directly toward the doctorate may elect to take a nonthesis program for the M.A. degree. In this case, the M.A. will be awarded after a minimum of two years of graduate residence, of which one year must be at the University of Washington, and after the student has satisfactorily passed his general examinations for the Ph.D. Students who elect this program should, on completion of the requirements stated above, notify the Department and the Graduate School of their intention.

A minor in Germanics for the M.A. degree must consist of a minimum of 15 credits in acceptable courses beyond an undergraduate minor in the field. In no instance, however, may a minor in Germanics for the master's degree be less than a major for the bachelor's degree.

**DOCTOR OF PHILOSOPHY.** For a major in Germanics, the student must complete all of the stated requirements of the Graduate School, pursue his studies for at least three graduate years, pass general examinations on the field, and submit a satisfactory dissertation which demonstrates a mastery of scholarly procedure and is a contribution to the sum total of knowledge. The general examinations, which are both written and oral, will not be confined to courses taken at the University or elsewhere, but will endeavor to demonstrate the student's grasp of the entire field of which his subject constitutes a part. The main burden of the examination will, of course, concern itself with the fields of Germanic philology and literature. The student may, at his option, major in Germanic literature and minor in Germanic philology or vice versa; or he may major in either of these two fields or a combination of them and minor in a different field.

For a minor in Germanics, a minimum of 15 credits in the field of Germanic literature or Germanic philology or a combination of the two is required. In no instance, however, may a minor in Germanics for the doctor's degree be less than the course requirements stated for the M.A. major under the thesis program.

## COURSES

<b>300</b>	<b>Phonetics (2)</b>	<b>Reed</b>
	(Offered 1960-61.)	
<b>310, 311</b>	<b>Introduction to the Classical Period (3,3)</b>	<b>Kahn, Sauerlander</b>
<b>312</b>	<b>Introduction to the German Novelle (3)</b>	<b>Sauerlander</b>
<b>401, 402, 403</b>	<b>Grammar and Composition (2,2,2)</b>	<b>Meyer, Rey, Wilkie</b>
<b>404</b>	<b>History of the German Language (5)</b>	<b>Meyer</b>
	(Offered 1959-60.)	
<b>410, 411, 412</b>	<b>History of German Literature (3,3,3)</b>	<b>Buck, Kahn, Wilkie</b>
	(Offered 1960-61.)	
<b>415, 416, 417</b>	<b>Nineteenth-Century Literature (3,3,3)</b>	<b>Rey, Sauerlander, Sommerfeld</b>
	(Offered 1959-60.)	
<b>418, 419</b>	<b>Naturalism, Expressionism, and Twentieth-Century Realism (3,3)</b>	<b>Rey</b>
	(Offered 1961-62.)	
<b>422</b>	<b>Analysis of German Poetry (3)</b>	<b>Sommerfeld</b>
	(Offered 1960-61.)	

<b>431</b>	<b>Lessing's Life and Dramatic Works (3)</b> (Offered 1959-60.)	<b>Buck</b>
<b>433</b>	<b>Goethe: The Early Years (3)</b> (Offered 1960-61.)	<b>Sauerlander</b>
<b>434</b>	<b>Goethe: Life and Works, 1775-88 (3)</b> (Offered 1960-61.)	<b>Buck</b>
<b>436</b>	<b>Goethe's Faust I (3)</b> (Offered 1959-60.)	<b>Sommerfeld</b>
<b>437</b>	<b>Goethe's Faust II (3)</b> (Offered 1959-60.)	<b>Sommerfeld</b>
<b>438</b>	<b>Schiller's Historical Dramas (3)</b> (Offered 1961-62.)	<b>Kahn</b>
<b>450J</b>	<b>Introduction to General Linguistics (5)</b> Offered jointly with the Department of Anthropology.	<b>Jacobs, Reed</b>
<b>497</b>	<b>Studies in German Literature (1-5, maximum 15)</b>	<b>Staff</b>
<b>498</b>	<b>Studies in the German Language (1-5, maximum 15)</b>	<b>Staff</b>

#### COURSES IN ENGLISH

<b>350</b>	<b>Masterpieces of German Literature in English (3)</b> (Offered 1960-61.)	<b>Sommerfeld</b>
<b>351</b>	<b>Contemporary German Literature in English (3)</b> (Not offered 1959-61.)	<b>Rey</b>
<b>462</b>	<b>Goethe in English (3)</b> (Offered 1959-60.)	<b>Sauerlander</b>
<b>464</b>	<b>Thomas Mann in English (3)</b>	<b>Rey</b>

#### LITERATURE COURSES

<b>500</b>	<b>Bibliography and Methodology (2)</b> (Offered 1959-60.)	<b>Sommerfeld</b>
<b>510</b>	<b>Literature of the Middle Ages (3)</b> (Offered 1960-61.)	<b>Buck</b>
<b>511</b>	<b>Reformation, Renaissance, and Baroque (3)</b> (Offered 1960-61.)	<b>Wilkie</b>
<b>512</b>	<b>Eighteenth-Century Movements (3)</b> (Offered 1960-61.)	<b>Kahn</b>
<b>515</b>	<b>The Romantic Movement (4)</b> (Offered 1959-60.)	<b>Sommerfeld</b>
<b>516</b>	<b>The Drama of the Nineteenth Century (4)</b> (Offered 1959-60.)	<b>Sauerlander</b>
<b>517</b>	<b>The Literature of the Later Nineteenth Century (4)</b> (Offered 1959-60.)	<b>Rey</b>
<b>518, 519</b>	<b>The Literature of the Twentieth Century (3,3)</b> (Offered 1961-62.)	<b>Rey</b>
<b>531</b>	<b>Lessing (3)</b> (Offered 1959-60.)	<b>Buck</b>
<b>534</b>	<b>Goethe: Life and Works, 1775-88 (3)</b> (Offered 1960-61.)	<b>Buck</b>
<b>535</b>	<b>Goethe: Life and Works, 1788-1832 (3)</b> (Offered 1960-61.)	<b>Sommerfeld</b>
<b>538</b>	<b>Schiller (4)</b> (Offered 1961-62.)	<b>Kahn</b>
<b>590, 591, 592</b>	<b>Seminar in Literary History (1-5,1-5,1-5)</b>	<b>Staff</b>
<b>600</b>	<b>Research (*)</b>	<b>Staff</b>
<b>700</b>	<b>Thesis (*)</b>	<b>Staff</b>

#### PHILOLOGY COURSES

<b>501, 502, 503</b>	<b>Advanced Syntax and Synonymy (2,2,2)</b>	<b>Staff</b>
<b>505</b>	<b>Introduction to Linguistics (3)</b> (Offered 1959-60.)	<b>Reed</b>
<b>550</b>	<b>Gothic (5)</b> (Offered 1959-60.)	<b>Meyer</b>
<b>552</b>	<b>Old High German (5)</b> (Offered 1959-60.)	<b>Reed</b>

<b>555 Old Saxon (3)</b> (Offered 1960-61.)	<b>Reed</b>
<b>556 Middle High German (5)</b> (Offered 1960-61.)	<b>Meyer</b>
<b>557 Middle High German Literature in the Original (5)</b> (Offered 1960-61.)	<b>Reed</b>
<b>560 Modern Dialects (3)</b> (Offered 1960-61.)	<b>Reed</b>
<b>570 Sanskrit (3-5)</b> (Offered 1959-60.)	<b>Reed</b>
<b>595, 596, 597 Seminar in Germanic Philology (1-5,1-5,1-5)</b>	<b>Staff</b>
<b>600 Research (*)</b>	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

## HISTORY

**Executive Officer: SOLOMON KATZ, 308 Smith Hall**

The Department of History offers courses leading to the degrees of Master of Arts and Doctor of Philosophy. Before beginning graduate work, students should have completed an undergraduate history major or the equivalent. It is expected that students specializing in Far Eastern history will have had sound undergraduate preparation in history.

The requirements for both advanced degrees include work in selected fields of history. Each field is a brief period or a restricted topic which is part of a general subject in one of the major divisions of history. Subjects within the first division are ancient history, medieval history, and Renaissance history; those within the second division are modern European history, United Kingdom, British Empire, and Commonwealth history; American history is the third division; subjects within the fourth division are the history of science, historiography, and the philosophy of history; subjects within a fifth division, Far Eastern history, may be selected by arrangement with the Department of History and the Far Eastern and Russian Institute.

**MASTER OF ARTS.** In History there are two programs leading to the degree of Master of Arts. The professional program is planned as the first year of a scholar's career, and the assumption is that the student expects to continue working for the degree of Doctor of Philosophy. The second or general program is designed to meet the interests and purposes of secondary school teachers and other students who think of the M.A. as a terminal degree. The major emphasis is placed upon reading and lecture courses which will enrich and broaden the student's knowledge of history rather than upon technical problems of research and original scholarship.

The candidate in the professional program must complete 501 and 502, one seminar, and graduate courses in three fields selected for special study. The subjects from which the candidate selects the fields should be in different divisions of history. In addition, he must have a reading knowledge of one foreign language and must submit an acceptable thesis, the writing of which should involve original research and the fundamentals of historical method.

The candidate in the general program must complete 501 and 502, four courses numbered in the 400's (two in each of two divisions of history), and one graduate course in a field selected for special study. In addition, he must have a reading knowledge of a foreign language and must submit an acceptable thesis, the emphasis of which may be on interpretation rather than on research.

Students majoring in Far Eastern history must meet the requirements for the professional program, except that they may take either 501 or 502. One field is arranged in cooperation with the Far Eastern and Russian Institute.

The prerequisite for a minor in history for the master's degree is an undergraduate program in history or such preparation as the Department deems satisfactory. For this minor, 15 credits in history are required, of which 10 must be in one historical subject and 5 in 501 or 502.

**DOCTOR OF PHILOSOPHY.** Candidates must complete 501, 502, and at least two years of seminar work, participate in the work of the advanced seminar, and prepare at least four fields from subjects in the five divisions of history described above. (In only a single division may the candidate choose two fields.) In addition, they must have a reading knowledge of two foreign languages related to their major fields of study and they are expected to complete a minor in another department.

Students majoring in Far Eastern history are expected to satisfy the same requirements except that only one year of seminar work in the Department of History is required. Two fields are arranged in cooperation with the Far Eastern and Russian Institute.

A history minor for the doctor's degree requires 501 and 502, and either a seminar or three fields selected from subjects in the different divisions of history named above.

## COURSES

### ANCIENT HISTORY

- |   |                |
|---|----------------|
| 401 Greece in the Age of Pericles (3)<br>(Not offered 1959-61.)           | Katz, Lenardon |
| 402 Alexander the Great and the Hellenistic Age (5)<br>(Offered 1959-61.) | Katz, Lenardon |
| 403 The Roman Republic (3)<br>(Offered 1959-61.)                          | Katz, Lenardon |
| 404 The Roman Empire (3)<br>(Not offered 1959-61.)                        | Katz, Lenardon |

### EUROPEAN HISTORY

#### Medieval Period

- |   |           |
|---|-----------|
| 408 Church and State in the Middle Ages (5)   | Kaminsky  |
| 410 The Byzantine Empire (3)  | Katz      |
| 411 Medieval History, 500-1100 (5)<br>(Not offered 1959-61.)  | Kaminsky  |
| 412 Medieval History, 1100-1300 (5)   | Kaminsky  |
| 413 Medieval History, 1300-1500 (5)<br>(Not offered 1959-61.)   | Kaminsky  |
| 421J Kievan and Muscovite Russia, 850-1700 (5)<br>Offered jointly with the Far Eastern and Russian Institute. | Treadgold |
| 426 Central Europe in the Middle Ages (5)   | Kaminsky  |

#### Early Modern Period

- |                                       |           |
|---------------------------------------|-----------|
| 414 Culture of the Renaissance (5)    | Griffiths |
| 415 The Reformation (5)               | Griffiths |
| 416 Monarchy in Europe, 1250-1750 (5) | Griffiths |
| 429 France, 1429-1789 (5)             | Lytle     |

#### Modern Period

- |  |                |
|--|----------------|
| 422J Imperial Russia, 1700-1905 (5)<br>Offered jointly with the Far Eastern and Russian Institute.     | Treadgold      |
| 423J Twentieth-Century Russia (5)<br>Offered jointly with the Far Eastern and Russian Institute.       | Treadgold      |
| 424J Russian Revolutionary Movement (5)<br>Offered jointly with the Far Eastern and Russian Institute. | Treadgold      |
| 427 History of Eastern Europe, 1918-55 (5)<br>(Not offered 1959-61.)                                   | Staff          |
| 430 The French Revolution and Napoleonic Era, 1789-1815 (5)  | Lytle          |
| 431 Europe, 1814-70 (5)  | Emerson, Lytle |
| 432 Europe, 1870-1914 (5)  | Emerson        |
| 433 Europe, 1914-45 (5)  | Emerson        |
| 436 Germany, 1648-1914 (5)<br>(Offered alternate years; offered 1960-61.)                              | Emerson        |

- 437 **Germany, 1914-45 (5)** Emerson  
(Offered alternate years; offered 1959-60.)
- 460J **Economic History of Europe (5)** Morris  
Offered jointly with the Department of Economics.

## UNITED KINGDOM, BRITISH EMPIRE, AND COMMONWEALTH

- 470 **England in the Seventeenth Century (5)** Staff  
(Not offered 1959-61.)
- 471 **England in the Eighteenth Century (5)** Costigan  
(Not offered 1959-61.)
- 472 **England in the Nineteenth Century (5)** Costigan
- 473 **England in the Twentieth Century (5)** Costigan
- 474 **Modern Irish History (5)** Costigan
- 475 **History of Canada (5)** MacKirdy
- 477 **History of Australia and New Zealand (5)** MacKirdy
- 480 **History of the British Empire Since 1783 (5)** MacKirdy  
(Offered alternate years; offered 1959-60.)
- 481 **History of the Commonwealth of Nations (5)** MacKirdy  
(Offered alternate years; offered 1960-61.)
- 482J **History of India: Earliest Times to 647 A.D. (5)** Gokhale  
Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)
- 483J **History of India: 647 to 1525 (5)** Gokhale  
Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)
- 484J **History of India: 1525 to the Present (5)** Gokhale  
Offered jointly with the Far Eastern and Russian Institute. (Offered 1959-60.)

## AMERICAN HISTORY

- 441 **American Revolution and Confederation (5)** Savelle  
(Offered every four years; offered 1959-60.)
- 442 **The Colonial Mind (5)** Savelle  
(Not offered 1959-61.)
- 443 **The Intellectual History of the United States (5)** Savelle  
(Not offered 1959-61.)
- 447 **History of the Civil War and Reconstruction (5)** Pressly
- 450 **Twentieth Century America (5)** Pressly  
Not open to students who have taken 343.
- 457 **The Diplomatic History of North America, 1492-1763 (5)** Savelle  
(Offered every four years; offered 1960-61.)
- 458 **The United States in World Affairs, 1776-1865 (5)** Holt
- 459 **The United States in World Affairs, 1865 to the Present (5)** Holt
- 461 **History of American Liberalism Since 1789 (5)** Burke, Pressly
- 463 **The Westward Movement (5)** Burke, Gates
- 464 **History of Washington and the Pacific Northwest (5)** Burke, Gates

## HISTORY OF SCIENCE

- 420 **Science and the Enlightenment (5)** Woolf

## JAPANESE HISTORY

- 451J **History of Chinese-Japanese Relations (3)** Staff  
Offered jointly with the Far Eastern and Russian Institute.
- 452J **Early Japanese History (5)** Staff  
Offered jointly with the Far Eastern and Russian Institute.
- 453J **Tokugawa Period (5)** Staff  
Offered jointly with the Far Eastern and Russian Institute.
- 454J **Modern Japanese History (5)** Staff  
Offered jointly with the Far Eastern and Russian Institute.

## HISTORIOGRAPHY

- 501 **Historiography: Ancient, Medieval, and Early Modern European (5)** Katz, Staff
- 502 **Historiography: Modern European and American (5)** Holt, Staff

**COURSES IN FIELDS OF SPECIALIZATION**

*These courses are introductions to advanced study. They are designed to show how important historical conclusions have been reached, to suggest further research, and particularly to give bibliographical guidance to students in their preparation for the examinations in the fields selected.*

510 Greek, Roman or Byzantine History (3-6)	Katz, Lenardon
514 Medieval and Renaissance History (3-6)	Kaminsky, Griffiths
520 History of Science (3-6)	Woolf
532 Modern European History: Germany (3-6)	Emerson
533 Modern European History: France (3-6)	Lytle
534J Modern European History: Russia (3-6) Offered jointly with the Far Eastern and Russian Institute.	Treadgold
541 American History: Early (3-6)	Saville
542 American History: Western (3-6)	Burke, Gates
543 American History: Civil War (3-6)	Pressly
544 American History: National Period (3-6)	Gates, Holt
545 American History: Twentieth Century (3-6)	Pressly
549J Japanese History (3-6) Offered jointly with the Far Eastern and Russian Institute.	Staff
575 English History (3-6)	Costigan
576 British Empire History (3-6)	MacKirdy

**SEMINARS**

503-504 Seminar in Philosophy of History (3-6)-(3-6) (Offered alternate years; offered 1959-60.)	Costigan
517-518-519 Seminar in Ancient or Medieval History (3-6)-(3-6)-(3-6)	Katz, Kaminsky
521-522-523 Seminar in Modern European History (3-6)-(3-6)-(3-6)	Emerson, Lytle
535J-536J-537J Seminar in Russian History (3-6)-(3-6)-(3-6) Offered jointly with the Far Eastern and Russian Institute. Prerequisites, reading knowledge of Russian and permission.	Treadgold
550J-551J-552J Seminar in Japanese History (3-6)-(3-6)-(3-6) Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.	Staff
553-554-555 Seminar in American History: Early (3-6)-(3-6)-(3-6)	Saville
563-564-565 Seminar in American History: Western (3-6)-(3-6)-(3-6)	Gates
590-591-592 Seminar in American History: National Period (3-6)-(3-6)-(3-6)	Staff
593-594-595 Advanced Seminar (3-6)-(3-6)-(3-6)	Holt
600 Research (*)	Staff
700 Thesis (*)	Staff

**HOME ECONOMICS**

**Director: MARY LOUISE JOHNSON, 201 Raitt Hall**

The School of Home Economics offers courses leading to the degrees of Master of Arts, Master of Science, Master of Arts in Home Economics, and Master of Science in Home Economics. A total of 45 credits are required for the master's degree. Half of the work, including the thesis, must be in courses numbered 500 or above.

**MASTER OF ARTS OR MASTER OF SCIENCE.** The Master of Arts is attained by work in textiles and clothing, the Master of Science, by work in foods and nutrition. Study in either area may be combined with home economics education or family economics. A minor in a field related to home economics is required.

**MASTER OF ARTS IN HOME ECONOMICS OR MASTER OF SCIENCE IN HOME ECONOMICS.** There is no foreign language requirement for these degrees. Candidates may take all their work in home economics or may take up to 15 credits in related fields, such as art, economics, education, public health, or the biological, physical, or social sciences. Candidates must present acceptable undergraduate preparation in home economics and basic fields.

**DIETETIC INTERNSHIPS.** Graduates in institution administration who wish to become hospital dietitians select a hospital training course, which is a dietetic internship, for their fifth year of study. Those who wish to become dietitians in lunchrooms, restaurants, or dormitories select an administration internship, such as the one offered by the School of Home Economics. Some of these internships carry graduate credit, and completion of all approved courses makes students eligible for membership in the American Dietetic Association.

## COURSES

307	Nutrition (3 or 5)	Johnson
315	Advanced Food Selection and Preparation (2 or 5)	Nielsen
316	Demonstration Cookery (3)	Nielsen
321	Needlecraft (2)	Payne
322	Needlecraft (2)	Payne
329	Hand Weaving (2)	Brockway
334	Costume Design and Construction (3)	Payne
338	Clothing for the Family (3)	Payne
354	Family Economics and Finances (5)	Turnbull
407	Advanced Nutrition (3)	Johnson
408	Diet Therapy (3)	Johnson
415	Experimental Cookery (3)	Nielsen
425	Advanced Textiles (3)	Brockway
429	Advanced Weaving (3)	Brockway
432, 433	History of Costume and Textiles (4,4)	Payne
434	Costume Design and Construction (3)	Payne, Shigaya
435	Advanced Costume Design and Construction (5)	Payne
436	Advanced Costume Design and Construction (5)	Payne
447	Advanced Home Furnishing (3)	Hosmer
454	Advanced Family Economics and Finances (2)	Turnbull
457	Child Nutrition and Care (3)	Johnson
472	Institution Food Purchasing (3)	Terrell
473	Institution Management (5)	Terrell
474	Institution Management (5)	Sandstrom
475	Institution Equipment (3)	Terrell
495	Special Problems in Home Economics (*, maximum 10)	Staff
507	Readings in Nutrition (*) Library research. Prerequisite, 407 or equivalent.	Johnson
515	Readings in Food Selection and Preparation (*) Professional literature on recent developments. Prerequisite, 315 or equivalent, or permission.	Nielsen
525	Seminar in Textiles (3) Readings and discussion of factors affecting economic utilization and technical development of textile products. Trends in current research and methods of investigation. For graduate students in textiles and clothing. Prerequisites, 125, 425 or equivalent.	Brockway
554	Social and Economic Problems of the Consumer (3-5) Selected topics in the family economics field. Prerequisites, 454 or equivalent, or permission.	Turnbull
562	Home Economics Education (*) Study of achievements, trends, functions, methods, and teaching materials.	McAdams
576, 577, 578	Supervised Field Work (4,4,4) Three quarters of practice and organized classwork for graduates in institution management and dietetics. An administrative dietetics internship approved by the American Dietetic Association. Fee, \$25.00 payable first quarter.	Terrell, Staff
600	Research (*) A. Costume design B. Institution administration C. Nutrition D. Textiles E. Family economics F. Foods G. Home economics education H. Family relations I. Home management K. Home furnishing	Staff
700	Thesis (*)	Staff



## LINGUISTICS

**Committee:** M. JACOBS, Anthropology; F.-K. LI, N. POPPE, Far Eastern;  
C. E. REED, Germanics

Linguistics is an interdepartmental program for graduate students only. The usual prerequisites for admission to study in this program are formal approval by the Linguistics Committee, and the equivalent of 45 quarter credits in undergraduate language courses other than English.

**MASTER OF ARTS.** Requirements include Anthropology 450J, 451 or 551, 553J, and other approved language courses; and a reading knowledge of both German and French.

**DOCTOR OF PHILOSOPHY.** Requirements include those listed for the master's degree; a strong supporting minor and breadth of background beyond narrowly linguistic matters; and independent, original research with a living informant or informants.

Further information about linguistics study may be obtained from the Graduate School or from a member of the Linguistics Committee.

## MATHEMATICS

**Executive Officer:** C. B. ALLENDOERFER, 243 Physics Hall

The Department of Mathematics offers courses leading to the degrees of Master of Arts, Master of Science, Master of Science in Mathematical Statistics, and Doctor of Philosophy.

The candidate's minimum undergraduate preparation for an advanced degree in mathematics must be equivalent to the requirements for a mathematics major for the Bachelor of Arts degree. Candidates presenting only the minimum amount of undergraduate mathematics cannot expect to earn a master's degree in less than two years.

The minor in mathematics for a master's degree requires at least 12 credits in approved courses numbered 400 or above. At least 9 of these are to be taken in residence.

The minor for the degree of Doctor of Philosophy requires a minimum of 33 approved credits in courses numbered 400 or above, including at least 6 credits in each of three of the four categories: algebra, analysis, geometry, and statistics.

**MASTER OF ARTS.** A minimum of 27 approved credits, with at least 9 credits in courses numbered 500 or above, is prescribed. These courses must include at least 6 credits in each of algebra, analysis, and one other field. The thesis for this degree, while demonstrating ability and aptitude, may be largely expository.

**MASTER OF SCIENCE.** A minimum of 27 approved credits, with at least 18 credits in courses numbered 500 or above, is prescribed. These courses must include at least 6 credits in each of algebra, analysis, and one other field. The thesis should demonstrate the student's ability to engage in independent research.

Under certain circumstances, this degree may also be awarded to a student who has passed the general examinations for the Ph.D. degree. In such cases, no thesis is required.

**MASTER OF SCIENCE IN MATHEMATICAL STATISTICS.** The undergraduate preparation should consist of courses in mathematical statistics through Chi-Tests or the equivalent. The candidate must present a minimum of 27 approved credits in mathematics. This work may include, on approval, some courses in mathematical statistics needed to make up deficiencies in undergraduate preparation and must include 15 credits in mathematical statistics courses numbered 500 or above.

**DOCTOR OF PHILOSOPHY.** The general examination of a candidate for this degree covers (1) the subject matter usually covered in first-year graduate courses in

algebra, real variable, and two other fields chosen by the candidate and approved by his supervisory committee; and (2) additional material related to the candidate's field of special interest, such as that included in second-year graduate courses.

# COURSES

321, 322	Differential Equations (3,3)	Staff
324, 325	Advanced Calculus I, II (3,3)	Staff
374	Principles of Digital Computers and Coding (5)	Staff
382, 383	Statistical Inference in Applied Research (5,5)	Staff
401	Linear Algebra (5)	Staff
402, 403	Introduction to Modern Algebra (3,3)	Staff
424, 425, 426	Fundamental Concepts of Analysis (3,3,3)	Staff
427, 428, 429	Topics in Applied Analysis (3,3,3)	Staff
441	Foundations of Geometry (3)	Staff
442	Advanced Analytic Geometry (3)	Staff
443	Differential Geometry (3)	Staff
444	Advanced Euclidean Geometry (5) (Offered Summer Quarter only.)	Staff
445	Non-Euclidean Geometry (2½) (Offered Summer Quarter only.)	Staff
464, 465, 466	Numerical Analysis I, II, III (3,5,5)	Staff
481	Calculus of Probabilities (5)	Staff
482	Classical Methods of Statistical Inference (5)	Staff
483	Theory of Correlation (5)	Staff
484	Chi-Tests (5)	Staff
498	Special Topics in Mathematics (2-5) (Offered when demand is sufficient.)	Staff
501, 502	Foundations of Mathematics (3,3) Fundamental concepts and methods of mathematics; the axiomatic method; the logical foundations of mathematics.	Staff
504, 505, 506	Modern Algebra (3,3,3) Theory of groups, rings, integral domains, and fields; polynomials; vector spaces, Galois theory, and theory of ideals. Prerequisite, 403 or equivalent.	Staff
510	Seminar in Algebra (*, maximum 5) Prerequisite, permission.	Staff
511, 512, 513	Special Topics in Algebra (2-3,2-3,2-3) Each may be repeated twice for credit. In recent years the following subjects have been covered: Group and Ring Extensions, Power-Associative Algebras, Lattice Theory, and Infinite Abelian Groups.	Staff
521, 522, 523	Topology (3,3,3) Theory of sets; ordinal and cardinal numbers; real numbers; topological spaces; homology; homotopy; fixed point theorems; and manifolds. Prerequisites, 426 or equivalent for 521; 521 for 522; 522 for 523.	Staff
524, 525, 526	Real Variable (3,3,3) Metric spaces; general measures and integration; differentiation of set functions; real valued functions on the line; Banach spaces. Prerequisites, 426 or equivalent for 524; 524 for 525; 525 for 526.	Staff
527, 528, 529	Methods of Mathematical Physics (3,3,3) Real and complex functions. Fourier analysis, Fuchsian differential equations, linear algebra, and eigenvalue theory. Special functions, second-order linear partial differential equations, and approximate solutions of Schrödinger equation. Prerequisite, 426 or 429, or equivalent.	Staff
530	Seminar in Analysis (*, maximum 5) Prerequisite, permission.	Staff
531, 532, 533	Special Topics in Analysis (2-3,2-3,2-3) Each may be repeated twice for credit. In recent years the following subjects have been covered: Functional Analysis, Abstract Harmonic Analysis, Linear Operators in Hilbert Space, Banach Spaces, Theory of Integration, and Convex Sets.	Staff
534, 535, 536	Complex Variable (3,3,3) Complex numbers; analytic functions; contour integration; power series; analytic continuation; sequences of analytic functions; conformal mapping of simply connected regions. Prerequisites, 524 for 534; 534 for 535; 535 for 536.	Staff

- 541, 542, 543 Algebraic Topology (3,3,3)** **Staff**  
 Classical and modern approaches to algebraic topology; complexes and their homology theory; applications: fixed points, primary obstruction; products and Poincaré duality; axiomatic approach; covering spaces. (Offered alternate years; offered 1959-60.)
- 544, 545, 546 Differential Geometry (3,3,3)** **Staff**  
 Differential geometry and curves and surfaces in ordinary space and in  $n$ -space. Riemannian geometry.
- 550 Seminar in Geometry (\*, maximum 5)** **Staff**  
 Prerequisite, permission.
- 551, 552, 553 Special Topics in Geometry (2-3,2-3,2-3)** **Staff**  
 Each may be repeated twice for credit. In recent years the following subjects have been covered: Tensor Analysis, Riemannian Geometry, Differentiable Manifolds, Complex Manifolds, and Advanced Algebraic Topology.
- 581, 582, 583 General Theory of Statistical Estimation and Testing Hypotheses (3,3,3)** **Staff**  
 Elements of decision theory; Neyman-Pearson theory; randomized tests; maximum likelihood statistics; confidence regions; distribution-free statistics; linear hypotheses; analysis of variance; block design. Prerequisites, 483 and 484.
- 590 Seminar in Probability and Statistics (\*, maximum 5)** **Staff**  
 Reports by students and staff on contemporary research. Prerequisite, permission.
- 591, 592, 593 Special Topics in Statistics (3,3,3)** **Staff**  
 Each may be repeated twice for credit. In recent years the following subjects have been covered: Advanced Probability Theory, Stochastic Processes, Distribution-free Inference, Game and Decision Theory, and Advanced Theory of Estimation (including Sequential Estimation).
- 600 Research (\*)** **Staff**  
 Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## METEOROLOGY AND CLIMATOLOGY

**Executive Officer: PHIL E. CHURCH, 201F Meteorology Building**

The Department of Meteorology and Climatology offers courses leading to the degrees of Master of Science and Doctor of Philosophy. The candidate's minimum preparation before embarking on a program leading to an advanced degree must include the equivalent of an undergraduate major in a physical science.

**MASTER OF SCIENCE.** The minimum course requirements are: 15 credits in lecture or laboratory courses in this Department numbered above 500, including 541, 542, and 546; in addition, 2 credits in a seminar must be earned. Supporting courses must include Physics 320 (Introduction to Modern Physics) or equivalent and Mathematics 321 (Differential Equations) (unless these courses were satisfactorily completed as an undergraduate). At least one course in applied mathematics must be taken.

Also required is a thesis which must be directed toward the solution of a problem of substantial importance and must demonstrate the candidate's ability to do independent research.

**DOCTOR OF PHILOSOPHY.** The minimum requirements are: 96 credits exclusive of research and thesis. Normally a student must complete a minimum of 12 credits in mathematics courses numbered 400 or above and 9 credits in physics courses numbered 400 or above beyond that required for entrance as a graduate student in the Department.

Admission to candidacy for the Ph.D. degree is granted on the basis of capability in general meteorology and climatology, theoretical meteorology and climatology, atmospheric analysis, and mathematical methods as demonstrated in written and oral examinations, and on comprehension of the fundamentals of physics and the important principles and concepts of meteorology.

## COURSES

- 321 Physical Climatology (5)** **Church**  
**322 Regional Climatology (5)** **Church**  
**329 Microclimatology (3)** **Buettner**

- 340, 341 Physical Meteorology (5,5)** Fleagle, Businger
- 350 Meteorological Laboratory (5)** Reed
- 360 Meteorological Instruments and Observations (5)** Badgley
- 414 Synoptic Meteorology (5)** Reed
- 441, 442 Introduction to Atmospheric Motions (5,5)** Fleagle, Reed
- 445 Atmospheric Thermodynamics (3)** Badgley
- 451, 452 Meteorological Laboratory (5,5)** Reed
- 462 Oceanographic Meteorology (6)** Fleagle  
(Offered at Friday Harbor Summer Quarter only.)
- 492 Readings in Meteorology or Climatology (\*)** Staff
- 493 Special Problems in Meteorology or Climatology (\*)** Staff
- 494 Meteorological Statistics (\*)** Staff
- 520 Seminar (2-5)** Staff
- 522 Advanced Regional Climatology (3)** Church  
Intensive study of the characteristics of climatic elements for a selected region or climatic type and a statistical analysis of the elements studied. Prerequisite, 322 or permission.
- 528 Applied Meteorology and Bioclimatology (3)** Buettner  
Interrelationship of meteorology and climatology to: human heat balance, aviation medicine, air pollution, agriculture, forestry, transportation, etc. Prerequisites, 322 and 341 or permission.
- 531 The Upper Atmosphere (3)** Buettner  
Structure, composition, and dominant physical and photochemical processes. Sound propagation, aurora, air glow, and ionosphere. Role of the sun. Exosphere and planetary atmospheres. Prerequisites, Mathematics 322 and Physics 320, or permission.
- 532 Atmospheric Electricity (3)** Buettner  
Formation and disappearance of atmospheric ions. Normal air electrical field. Lightning and its causes. Earth magnetic field. Prerequisite, 531 or permission.
- 533 Atmospheric Radiation (3)** Buettner  
Solar spectrum. Atmospheric scattering, spectra of water vapor and other gases. Albedo of earth and atmosphere. Radiative heat balance. Prerequisites, Physics 320 and Mathematics 322. (Formerly 571.)
- 541, 542 Dynamic Meteorology (3,3)** Fleagle  
541: basic equations of dynamic meteorology, circulation and potential vorticity theorems, barotropic and baroclinic atmospheres, divergenceless and irrotational flows, large and small scale approximations. Prerequisite, Mathematics 325 or Aeronautical Engineering 571 or equivalent. 542: particle dynamics applied to large scale motions and to stability criteria, linearized barotropic wave, numerical forecasting equations, baroclinic, diabatic and topographic effects. Prerequisites, 541 and Mathematics 421.
- 543, 544 Atmospheric Wave Theory (3,3)** Fleagle  
543: perturbation equations in Eulerian and Lagrangian form, wave motions in incompressible and compressible fluids, wave theory of cyclones; flow over mountains. Prerequisites, 442, Mathematics 322, or permission. 544: structure of baroclinic wave, baroclinic instability, general circulation, dispersion of waves, associated Legendre equation, wave motion on spheres, atmospheric tides. Prerequisite, 543.
- 546, 547, 548 Atmospheric Turbulence (3,3,3)** Badgley, Businger  
546: laminar and turbulent flow; analogy between kinetic theory of gases and turbulence theory; Reynolds averaging; dissipation of energy; statistical descriptions of turbulent flow. Prerequisite, 442 or permission. 547: diffusion of matter in the atmosphere; application of Fickian and statistical theories of diffusion; use of Lagrangian and Eulerian correlation functions. Prerequisite, 546. 548: turbulent flux of heat, momentum, and moisture in the layer of the atmosphere next to the earth; Richardson's stability criterion; free convection. Prerequisite, 546.
- 551 Advanced Meteorological Laboratory (5, maximum 10)** Reed  
Selected advanced nonroutine types of analysis. Exercises in objective map analysis and numerical weather prediction. Prerequisite, 442 or permission.
- 560 Theory of Meteorological Instruments (3)** Badgley  
The physical theory of the operation of meteorological instruments. Emphasis on new and specialized research instruments and on more difficult problems involving standard instruments. Prerequisites, one year of calculus and permission.
- 570 Seminar on Cloud Physics (2)** Staff  
The physical processes in the formation and modification of clouds and the formation of precipitation in the atmosphere are examined. Prerequisite, permission.
- 572 Seminar on Polar Meteorology (3)** Staff  
Critical examination of source materials and original papers on selected topics applicable to polar meteorology. Prerequisite, permission.

- 593 Laboratory in Experimental Meteorology (3, maximum 6)** **Badgley**  
 The role of controlled-model experiments in meteorology. Laboratory study of cloud formation and modification; convection cells, turbulent air motion; thermally-induced air drainage; flow over obstacles; wave motion; surface of discontinuity; atmospheric circulation. Prerequisite, 542.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## MUSIC

**Director: STANLEY CHAPPLE, 103 Music Building**

The School of Music offers courses leading to the degrees of Master of Arts in Music and Doctor of Philosophy.

**MASTER OF ARTS IN MUSIC.** All candidates must demonstrate proficiency in general musicianship, including piano, and show a satisfactory knowledge of music theory and music literature. The minimum requirements are: for a major in composition, music education, musicology, or opera, 36 credits and a 9-credit thesis; for a major in music performance (piano, violin, voice, organ, conducting), 39 credits and a 6-credit thesis. The candidate's committee may require additional work beyond the basic minimum, depending upon the student's previous preparation, level of accomplishment in graduate studies, and educational objectives. Information leaflets, "Graduate Studies," may be obtained from the School of Music showing undergraduate prerequisites and sample graduate programs for each of the majors offered. Musicology is the only major which requires a reading knowledge of either French or German.

**DOCTOR OF PHILOSOPHY.** Candidates must have a broad knowledge of music literature and music theory and a reading knowledge of French and German. A minimum of 90 credits is required, of which 20 to 30 will normally represent supporting courses in other departments such as languages and literature, history, philosophy, psychology, or anthropology. The candidate may concentrate in musicology (18 credits required from 500, 547, 568, 569, 577, 578, 579, 600) or in theory and composition (18 credits required in 591). All candidates must complete 18 credits in 507, 508, 509 and such supplementary work in music history, theory, performance, conducting, or music education as may be determined by the supervisory committee in considering the individual program.

## COURSES

- |   |                        |
|---|------------------------|
| <b>301 Contemporary Idioms (3)</b>  | <b>McKay</b>           |
| <b>303 Keyboard Harmony (3)</b>   | <b>Staff</b>           |
| <b>304 Choral Literature (1)</b>  | <b>Terry</b>           |
| <b>307, 308 Music History (2,2)</b>   | <b>Woodcock, Terry</b> |
| <b>317 Music Appreciation: Chamber Music (2)</b>  | <b>Heinitz</b>         |
| <b>321 Modal Counterpoint (3)</b>   | <b>Babb</b>            |
| <b>322 Tonal Counterpoint (3)</b>   | <b>Verrall</b>         |
| <b>330 Vocal or Instrumental Instruction (2-3, maximum 18)</b>  | <b>Staff</b>           |
| <b>331, 332, 333 Keyboard Transposition and Improvisation (2,2,2)</b>   | <b>Beale</b>           |
| <b>334, 335, 336 Accompanying (2,2,2)</b>   | <b>Hokanson</b>        |
| <b>337, 338, 339 Repertoire (2,2,2)</b>   | <b>Staff</b>           |
| <b>340 University Concert Band (1, maximum 6)</b>   | <b>Welke</b>           |
| <b>344 Elementary School Music (4)</b>  | <b>Swanson</b>         |
| <b>345 The General Music Class (2)</b>  | <b>Swanson</b>         |
| <b>346J Teachers' Course in Secondary School Music (4)</b><br>Count 2 credits as education and 2 as music. Offered jointly with College of Education. | <b>Normann</b>         |
| <b>347, 348 Music in the Americas (3,3)</b>   | <b>Clarke</b>          |
| <b>350 Vocal or Instrumental Instruction (2-3, maximum 18)</b>  | <b>Staff</b>           |

352 Musical Form (3)	Woodcock
353 Orchestration (3)	Verrall
354 Band Arranging (2)	Welke
355 Music Calligraphy (1)	Verrall
357 Church Music (3)	Woodcock
360 University Symphony Orchestra (1, maximum 6)	Chapple
367 History of Chamber Music (3)	Irvine
377, 378, 379 Score Reading (2,2,2)	Irvine
380 Advanced Chamber Music (1, maximum 6)	Staff
384 Instrumental Conducting (1)	Welke
385 Choral Conducting (2)	Munro
401 Contemporary Idioms (3)	McKay
407 Renaissance Music (2)	Irvine
408 Baroque Music (3)	Terry
409 Contemporary Music (3)	McKay
414, 415 School Choral Materials (1,1)	Staff
417 Medieval Music (2) Prerequisite, 307 or permission.	Irvine
421 Modal Counterpoint (3)	Babb
422 Tonal Counterpoint (3)	Verrall
424, 425 School Instrumental Materials (1,1)	Normann, Cole
427 Haydn and Mozart (3)	Terry
428 Beethoven (3)	Woodcock
430 Vocal or Instrumental Instruction (2-3, maximum 18)	Staff
434, 435, 436 Piano Teaching (2,2,2)	Woodcock, Moore
437 Rococo and Preclassic Music (3)	Terry
440 Wind Sinfonietta (2, maximum 6) (Offered Summer Quarter only.)	Welke
447 Schumann and Brahms (3)	Woodcock
449 Late Nineteenth-Century Music (3)	Irvine
450 Vocal or Instrumental Instruction (2-3, maximum 18)	Staff
452 Musical Form (3)	Woodcock
453 Orchestration (3)	Beale
460 Sinfonietta (1, maximum 9)	Chapple
464, 465 Opera Direction and Production (4,4)	Rosinbum
467 History of Keyboard Music (3)	Woodcock
474 The Curriculum in Music Education (3)	Normann
480 Opera Theatre (2, maximum 6)	Chapple, Rosinbum, Babb
481 Harmonic Analysis (3)	Beale
484 Instrumental Conducting (1)	Cole
485 Choral Conducting (2)	Munro
486 Instrumental Conducting (1)	Chapple
487, 488 History of Opera (3,3)	Munro, Irvine
490 Collegium Musicum (1-2, maximum 6)	Bostwick, Heinitz, Terry
491 Composer's Laboratory (3, maximum 18)	McKay, Verrall
495 Advanced Choral Conducting (3)	Munro
497, 498 History of Choral Music (3,3)	Munro, Terry
500 Methods of Musical Research (3) Bibliography and research techniques. Designed to prepare students for their work in seminars, individual research, and the writing of theses.	Irvine
507 Seminar in Renaissance and Baroque Music (3, maximum 6) Prerequisite, one or more undergraduate courses in the same field.	Munro
508 Seminar in Classic and Romantic Music (3, maximum 6) Prerequisite, one or more undergraduate courses in the same field.	Woodcock

- 509 Seminar in Modern Music (3, maximum 6)** **Irvine**  
Prerequisite, one or more undergraduate courses in the same field.
- 514 Psychological Foundations of Music (3)** **Normann**  
The nature of musical effects; growth and development of musical powers; factors influencing musical taste; applications of music to therapy and industry.
- 524, 525, 526 Seminar in Music Education (3,3,3)** **Normann**  
Special problems in the teaching and supervision of music in the elementary grades, junior and senior high school, and junior college. Prerequisite, one year of teaching experience.
- 547 Seminar in American Music (3, maximum 6)** **Clarke**  
History and literature of music in the United States from 1600 to the present.
- 550 Vocal or Instrumental Instruction (3, maximum 12)** **Staff**  
Fee, \$37.50. Prerequisite, 30 credits in the same branch of performance.
- 561 Problems in Choral and Orchestral Scoring (2-5)** **Verrall**  
Special techniques of choral, orchestral, and dramatic composition. Original composition and research with emphasis on the evolution of ensemble types and forms.
- 566 Opera Direction and Production (4 or 6, maximum 12)** **Rosinbum**  
Practical experience with problems of the opera theatre.
- 568, 569 Historiography and Criticism (3,3)** **Irvine**  
An approach to critical scholarship through the review and evaluation of the writings of music historiographers and music critics with main emphasis on the period since 1770.
- 577, 578 Early Notation (2,2)** **Irvine**  
577: Gregorian notation; ars antiqua; ars nova. 578: white mensural notation; lute and organ tablatures. Prerequisites, 417 for 577, 407 for 578, or permission.
- 579 Seminar in Musicology (3, maximum 6)** **Irvine**  
Selected topics in music history, literature, and theory. Prerequisite, permission.
- 584, 585, 586 Advanced Conducting (1-3, 1-3, 1-3)** **Chapple**  
Analysis of scores leading to rehearsal and preparation of musical groups.
- 590 Recital (2, maximum 6)** **Staff**  
Public performance in one solo recital and in chamber music, cantata, concerto, opera, or oratorio.
- 591 Graduate Composition (\*)** **McKay, Verrall**
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## OCEANOGRAPHY

**Executive Officer: RICHARD H. FLEMING, 202 Oceanography Building**

The Department of Oceanography offers courses leading to the degrees of Master of Science and Doctor of Philosophy. Applicants must have completed the equivalent of an undergraduate major in oceanography or in one of the physical or biological sciences. For those without an undergraduate major in oceanography, a broad training in the exact and natural sciences is desirable. Students who have not majored in oceanography will be accepted only if their qualifications meet those of the department responsible for the field of their undergraduate major.

Specialization is in either physical, chemical, geological, or biological oceanography. Students will be expected to attain a general knowledge of oceanography in addition to their specialty.

German, Russian, and French are the most valuable foreign languages in the study of oceanography.

Instruction and training during the Autumn, Winter, and Spring Quarters are given in the Department of Oceanography on the campus. Summer Quarter instruction is conducted only at the Friday Harbor Laboratories in the San Juan Islands. In many courses, work at sea is performed on board the M.V. "Brown Bear" and other vessels which are attached to the Laboratories.

## COURSES

- 390 General Oceanography (5)** **Barnes, Richards**
- 401 Physical Oceanography (5)** **Barnes**
- 403 Biological Oceanography (5)** **Staff**

405	<b>Geological Oceanography (5)</b>	<b>Creager</b>
410	<b>General Physical Oceanography (3)</b>	<b>Barnes</b>
411	<b>Ocean Tides and Waves (3)</b>	<b>Rattray</b>
412	<b>Ocean Currents (3)</b>	<b>Barnes</b>
421-422	<b>Chemical Oceanography (3-3)</b>	<b>Richards</b>
431	<b>Biological Oceanography of the Plankton (4)</b>	<b>Staff</b>
433	<b>Plankton Ecology (6)</b> (Offered Summer Quarter only in alternate years.)	<b>Staff</b>
452	<b>Sedimentary Processes (3)</b>	<b>Creager</b>
453	<b>Sedimentary Techniques (2)</b>	<b>Creager</b>
461	<b>Applications of Oceanography (3)</b>	<b>Fleming</b>
511, 512, 513	<b>Marine Hydrodynamics (3,3,3)</b> Methods for solving problems in physical oceanography. Prerequisite, a major in a physical science or permission.	<b>Rattray</b>
514	<b>Field Work in Marine Hydrodynamics (6)</b> Application of marine hydrodynamics principles to field measurements. (Offered Summer Quarter when demand is sufficient.) Prerequisite, a major in a physical science or permission.	<b>Rattray</b>
515	<b>Waves (2)</b> Application of marine hydrodynamics principles to the wave motion in the oceans. Prerequisites, 511, 512, and 513.	<b>Rattray</b>
516	<b>Ocean Circulation (2)</b> Hydrodynamic theories concerning the origin and characteristics of the major ocean currents. Prerequisites, 511, 512.	<b>Rattray</b>
517	<b>Oceanography of Inshore Waters (5)</b> Theories and techniques of investigation and interpretation of conditions existing in inshore waters with particular reference to mixing and flushing and to areas adjacent to the state of Washington; use of dynamic models. Prerequisites, 411, 412, 511, 512, and 513.	<b>Barnes, Rattray</b>
518	<b>Seminar in Physical Oceanography (3, maximum 9)</b> Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisites, 410, 411, and 412.	<b>Staff</b>
519	<b>Interaction of the Sea and Atmosphere (5)</b> The interchange of heat, water, and energy; study of budgets and of the mechanisms of exchange. Prerequisites, 410 and Meteorology 462.	<b>Staff</b>
520	<b>Seminar (*, maximum 6)</b>	<b>Staff</b>
521	<b>Seminar in Chemical Oceanography (3, maximum 9)</b> Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisite, 421-422.	<b>Richards</b>
531	<b>Seminar in Biological Oceanography (3, maximum 9)</b> Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisites, 403 and 431.	<b>Staff</b>
532	<b>Marine Microbiology (1-4)</b> Ecology and biochemistry of marine bacteria. Prerequisites, Microbiology 300 and permission.	<b>Ordal</b>
551	<b>Seminar in Geological Oceanography (3, maximum 9)</b> Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisites, 452 and 453.	<b>Creager</b>
553	<b>Research Techniques in Marine Geology (3)</b> Planning field programs; selection of equipment and survey procedures; collection, analysis, compilation, and presentation of bathymetric and sediment data; evaluation of techniques and results. Prerequisites, 405 and 453.	<b>Creager</b>
555, 556	<b>Advanced Marine Geology (3,3)</b> Contemporary problems in marine geology; concepts supporting or at variance with the accepted hypotheses; discussion of recent advances. Prerequisite, 553.	<b>Creager</b>
600	<b>Research (*)</b>	<b>Staff</b>
700	<b>Thesis (*)</b>	<b>Staff</b>

## PHILOSOPHY

**Acting Executive Officer: ARTHUR F. SMULLYAN, 264 Savery Hall**

The Department of Philosophy offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

**MASTER OF ARTS.** The Department requires the candidate to take a written general qualifying examination, of three hours' duration, to test the student's fitness



for candidacy for the M.A. degree. This examination should be taken as early as possible and no later than the first quarter of the second year of graduate study.

Only after qualifying for candidacy by passing the general examination may the student register for thesis credit and thus formally undertake work on his dissertation as a candidate for the M.A. degree.

Residence and credit requirements include a full year of residence, 9 credits per quarter plus 9 thesis credits (36 credits). In addition to the 9 thesis credits, 9 others must be in 500-level courses.

The candidate is required to write a thesis acceptable to his committee, and must pass a final oral examination on his thesis.

**DOCTOR OF PHILOSOPHY.** Candidates are required by the Department to pass four general examinations covering the fields of logic, history of philosophy, metaphysics and epistemology, and ethics. The candidate is expected to have taken courses and seminars in these fields and his program must be approved by the departmental adviser. In addition, he must prepare an acceptable thesis and pass an oral examination on it.

## COURSES

320 History of Ancient and Medieval Philosophy (5)	Keyt
321 History of Modern Philosophy (5)	Miller
322 History of Recent Philosophy (5)	Staff
347 Philosophy in Literature (5)	Staff
424 Recent American Philosophy (3)	Staff
428 Chinese Philosophy (5)	Shih
431 Philosophy of Plato (3) (Not offered 1959-60.)	Keyt
433 Philosophy of Aristotle (3)	Keyt
436 British Empiricism (3)	Melden
437 Philosophy of Hume (3) (Not Offered 1959-60.)	Melden
438 Philosophy of Kant (3)	Dietrichson
440 Advanced Ethics (3)	Melden
445 Philosophy of Art (5)	Rader
448 Philosophy in Nineteenth-Century Literature (5)	Rader
450 Epistemology (3)	Smullyan
453 Semantics (5)	Miller
456 Metaphysics (5)	Smullyan
460 Introduction to the Philosophy of Science (5) (Not offered 1959-60.)	Miller
463 Philosophy of Mind (3) (Not offered 1959-60.)	Melden
465 Philosophy of History (5)	Rader
467 Philosophy of Religion (5) (Not offered 1959-60.)	Dietrichson
469 Existentialist Philosophy (3)	Dietrichson
470 Advanced Logic (5)	Smullyan, Keyt
484 Reading in Philosophy (1-4, maximum 12) Prerequisite, permission of Executive Officer.	Staff
490 Philosophy of Leibniz (3) (Not offered 1959-60.)	Melden
491 Philosophy of Spinoza (3)	Miller
520 Seminar in Ancient Philosophy (2) (Not offered 1959-60.)	Keyt
521 Seminar in Modern Philosophy (2) (Not offered 1959-60.)	Staff
522 Seminar in Recent Philosophy (2) (Not offered 1959-60.)	Staff

540 Seminar in Ethics (2)	Melden
545 Seminar in Philosophy of Art (2)	Rader
550 Seminar in Epistemology (2)	Smullyan
555 Seminar in Metaphysics (2)	Dietrichson
565 Seminar in Philosophy of History (2)	Rader
567 Seminar in Philosophy of Religion (2) (Not offered 1959-60.)	Dietrichson
570 Seminar in Logic (2)	Smullyan, Keyt
584 Reading in Philosophy (1-4) Intensive reading in philosophical literature. Prerequisite, permission of Executive Officer.	Staff
587 Contemporary Analytic Philosophy (3)	Melden
600 Research (1-6) Prerequisite, permission.	Staff
700 Thesis (*)	Staff

## PHYSICAL AND HEALTH EDUCATION

**Executive Officer for Women: RUTH M. WILSON, 105 Hutchinson Hall**

**Executive Officer for Men: R. K. CUTLER, 210 Edmundson Pavilion**

The School of Physical and Health Education offers courses leading to the degrees of Master of Science and Master of Science in Physical Education. Candidates for the degree of Doctor of Philosophy in other departments may obtain a minor in physical education.

There is no foreign language requirement for the Master of Science in Physical Education.

Candidates for the master's degrees or a doctor's degree with a minor in physical education must have completed essentially the same program of study as outlined in one of the undergraduate curricula.

All candidates must meet the Graduate School's general requirement for course work and a thesis. Additional requirements will be determined in conference with the Departmental adviser. At least 22 credits, including the thesis, must be in courses numbered 500 and above.

A total of not less than 41 credits for men, including thesis, must be presented.

A minimum of 6 credits for women, 5 for men, must be in Physical Education 600.

For a minor in physical education for the master's degree, the candidate must present a minimum of 26 preparatory credits in physical education, one course in physiology, and at least 12 credits in advanced courses.

## COURSES

### PROFESSIONAL AREAS

#### HEALTH EDUCATION

451 Workshop in Health Education for the Classroom Teacher (Men and Women) (2½) (Offered Summer Quarter only.)	Waters
453 Methods and Materials in Health Teaching (Men and Women) (3)	Waters
465 The School Environmental Health Programs (Men and Women) (3)	Mills, Reeves
503 Seminar in Health Education (Men and Women) (3) Prerequisites, 453, 465, and Physical Education 345.	Waters
508 Administration of the School Health Program (Men) (3) Prerequisites, Health Education 291, 465, Public Health 461 or equivalent, or permission.	Reeves
600 (See Physical Education 600.)	Staff
700 Thesis (Men and Women) (*)	Staff

#### PHYSICAL EDUCATION

318 Analysis of Rhythm (Women) (3)	de Vries, Wilson
322 Kinesiology (Men and Women) (3)	Cutler

- 340 Administration of Intramural Sports (Men) (3) Stevens, Staff
- 345 Principles of Physical Education (Men and Women) (3) Torney
- 351 Theatre Dance (Men and Women) (2) de Vries
- 355 Modern Dance Workshop (Men and Women) (2, maximum 6) de Vries
- 435 Adapted Activities (Men and Women) (3) Cutler, Waters
- 447 Tests and Measurements (Men and Women) (3) Cutler
- 450 The School Physical Education Program (Men and Women) (men, 3; women, 2) Peek, Wilson
- 459-460 Dance Production (Women) (2-2) de Vries
- N466 Coaching (Women) (0) Kidwell, Staff
- 478 Workshop in Elementary School Physical Education (Men and Women) (2½) Horne  
(Offered Summer Quarter only.)
- 480 Principles of Movement (Women) (3) Broer, Fox
- 493 Problems in Athletics (Men) (3) Torney
- 495 Fitness Workshop (Men and Women) (3) Fox  
(Offered Summer Quarter only.)
- 501 Seminar in Physical Education (Men and Women) (3) Broer, Torney, Wilson  
Prerequisites, 345 and 450.
- 502 Problems in Physical Education (Men and Women) (2½) Waters  
(Offered Summer Quarter only.) Prerequisites, 345 and 450, or permission.
- 506 The Curriculum (Men and Women) (3) Kunde  
Selection and organization of program content in relation to characteristics and needs of pupils and local conditions. Prerequisite, 345 or permission.
- 507 Supervision in Physical Education (Men) (2½) Peek  
(Offered Summer Quarter only.) Prerequisites, 345 and 450, or permission.
- 547 Seminar in Research Procedures (Men and Women) (3) Broer, Fox  
Prerequisites, 447 and Mathematics 281, or equivalent.
- 600 Research (Men and Women) (2-5) Broer, Fox, Kunde, Reeves, Torney, Staff  
A. Health education D. Recreation education  
B. Physical education E. Tests and measurements  
C. Physiology of exercise
- 700 Thesis (Men and Women) (\*) Staff
- RECREATION EDUCATION**
- 344 Organization and Administration of Camp Programs (Men and Women) (3) Kunde, Stallings
- 426 Field Work in Recreation (Women) (5) Kidwell
- 454 Recreation Field Work (Men) (3) Kunde
- 504 Administration of Recreation (Men and Women) (5) Kunde  
Prerequisites, 324, and Physical Education 345, or permission.
- 524 Seminar in Community Resources and Organization for Recreation (Men and Women) (3) Kunde  
Functional analysis of integrated community resources and organization for recreation services. Experience in recreation fact finding and evaluation. Study of pertinent problems and needs in the field. Prerequisite, permission.
- 600 (See Physical Education 600.) Staff
- 700 Thesis (Men and Women) (\*) Staff

## PHYSICS

Executive Officer: RONALD GEBALLE, 215 Physics Hall

The Department of Physics offers programs leading to the degrees of Master of Science and Doctor of Philosophy. Specific departmental requirements are described briefly below. More complete information can be obtained by writing to the Department.

Undergraduate preparation is expected to include upper-division courses in electricity and magnetism, mechanics, the properties of matter, advanced calculus and mathematical physics, atomic physics, and nuclear physics. Deficiencies may cause a delay of as much as a year. A reading knowledge of German, French or Russian is desirable.

**MASTER OF SCIENCE.** A minimum of 36 approved credits must be submitted of which 18 must be in courses numbered 500 or above. These 18 credits must include a minimum of 3 credits in Physics 520 or Physics 600 (for both of which the sponsorship of an instructor is necessary), and a minimum of 12 credits in other physics graduate courses. No thesis is required. Each candidate must take a yearly written comprehensive examination until such time as his final examination, generally oral, has been passed.

Students in other fields desiring a minor in physics for a master's degree must submit 9 credits in courses numbered 300 or above and 9 credits in courses numbered 400 or above.

**DOCTOR OF PHILOSOPHY.** The Department requires basic training equivalent to the courses 505, 506, 509, 510, 513, 514, 515, 517, 518, 524, 525, and 528, as well as Mathematics 527, 528, and 529 (Methods of Mathematical Physics). Additional courses of interest will be selected by the student and his supervisory committee. A grade-point average of less than 3.00, unless there are compensating qualifications, will prevent the student from becoming a candidate for this degree.

Each Spring Quarter, a comprehensive examination is given to each student who has not passed his general examination. The former is mainly written and is designed to indicate the student's growth of understanding. The latter is an individual oral examination given by the student's supervisory committee, generally after about two years of graduate study and satisfaction of the language requirement. Completion of this examination signifies admission to candidacy and an intensification of research effort.

The Department recognizes German, French, and Russian as suitable foreign languages. Others may be substituted with the approval of the supervisory committee and the Graduate School.

A candidate for this degree is required to conduct an original and independent investigation in one of the fields of physics. Results of this research are submitted as a thesis. In his final examination, the candidate presents these results orally to the Department and is examined in his field of research.

A minor for a doctor's degree requires the equivalent of a bachelor's degree in physics and three graduate courses.

## COURSES

<b>320</b>	<b>Introduction to Modern Physics (3)</b>	<b>Staff</b>
<b>323</b>	<b>Introduction to Nuclear Physics (3)</b>	<b>Staff</b>
<b>325, 326, 327</b>	<b>Electricity and Magnetism (3,3,4)</b>	<b>Staff</b>
<b>350</b>	<b>Heat and Introduction to Thermodynamics and Kinetic Theory (3)</b>	<b>Staff</b>
<b>367, 368, 369</b>	<b>Special Problems (*,*,*)</b>	<b>Staff</b>
<b>371, 372</b>	<b>Properties of Matter (3,3)</b>	<b>Staff</b>
<b>461, 462, 463</b>	<b>Introduction to Atomic and Nuclear Physics (3,3,3)</b>	<b>Staff</b>
<b>471, 472, 473</b>	<b>Laboratory in Atomic and Nuclear Physics (3,3,3)</b>	<b>Staff</b>
<b>481, 482, 483</b>	<b>Introduction to Mathematical Physics (3,3,3)</b>	<b>Staff</b>

Graduate courses numbered to and including 528, as well as 560 and 561, are given each year. Others are given intermittently, depending on demand; in most cases this means once every two years. Further information may be obtained from the Department of Physics or the current Yearly Time Schedule.

<b>505, 506</b>	<b>Advanced Mechanics (3,3)</b>	<b>Staff</b>
Dynamics of a particle and of rigid bodies; generalized coordinates and Lagrangian theory; variational principles. Hamilton's equations of motion, vibration, and normal coordinates.		
<b>509, 510</b>	<b>Atomic, Molecular, and Nuclear Structure (3,3)</b>	<b>Staff</b>
Energy-level systems of nuclear, atomic, and molecular aggregates of elementary particles studied primarily on the vector model and other phenomenological modes of description; radioactive transitions and selection rules; atomic and molecular spectra; nuclear interactions and transitions		

- 513, 514, 515 Electricity and Magnetism (4,4,4)** **Staff**  
The properties of electric and magnetic fields as boundary value problems; application of harmonic functions and conformal representation; electrodynamics and electromagnetic waves in empty space and material media.
- 517, 518, 519 Quantum Mechanics (4,4,3)** **Staff**  
Prerequisite, 513 for 518.
- 520 Seminar (1-2)** **Staff**  
Seminars in the following subjects meet regularly: cosmic rays, gaseous electronics and spectroscopy, nuclear physics, theoretical physics, and solid state physics. Prerequisite, permission.
- 524 Thermodynamics (3)** **Staff**
- 525 Statistical Mechanics (3)** **Staff**  
Prerequisite, 517.
- 528 Current Problems of Physics (2)** **Staff**  
Discussion of several active research fields; survey of the background of each field; discussion of generally accepted concepts and those at variance with experiment or untested; detailed study of at least one recent paper in the field.
- 550 X Rays (3)** **Staff**  
Prerequisite, 509.
- 552 Conduction Through Gases (3)** **Staff**  
Prerequisite, 509.
- 558 Cosmic Rays (3)** **Staff**  
Prerequisite, 510.
- 560, 561 Theoretical Nuclear Physics (3,3)** **Staff**  
Prerequisites, 510 and 518.
- 562 Theory of Spectra (3)** **Staff**  
Prerequisites, 509 and 518.
- 564 Relativity (3)** **Staff**  
Prerequisites, 506 and 515.
- 566 Theory of Collisions (3)** **Staff**  
Prerequisite, 518.
- 568 Theory of Solids (3)** **Staff**  
Prerequisite, 518.
- 570 Radiation Theory (3)** **Staff**  
Prerequisite, 519.
- 572 Foundations of Statistical Mechanics (3)** **Staff**  
Prerequisites, 518 and 525.
- 574 Atomic and Molecular Interactions (3)** **Staff**
- 576 Selected Topics in Experimental Physics (\*, maximum 6)** **Staff**  
Prerequisite, permission.
- 578 Selected Topics in Theoretical Physics (\*, maximum 6)** **Staff**  
Many-body problems, pi-meson physics, relativistic field theories, strange particles and the theory of the "inner space," group theory and nuclear structure, and studies of the rotation group are among topics covered in recent years. Prerequisite, permission.
- 600 Research (\*)** **Staff**  
Research currently is in progress in the following fields: acoustics, cosmic rays, gaseous electronics, low temperature physics, magnetic resonance phenomena, natural radioactivity, nuclear physics, solid state physics, spectroscopy, and theoretical physics. Prerequisite, permission.
- 700 Thesis (\*)** **Staff**  
Prerequisite, permission.

## POLITICAL SCIENCE

**Executive Officer: HUGH ALVIN BONE, 206 Smith Hall**

The Department of Political Science offers courses leading to the degrees of Master of Arts, Master of Public Administration, and Doctor of Philosophy. Candidates for these degrees must have completed an undergraduate major or the equivalent in political science.

Candidates must acquire mastery of a field of concentration in which the thesis is prepared and of additional supporting fields. The following fields may be used for both purposes: political theory; international law and relations; comparative government; public law; public administration; American government and politics; and state and local government. Combinations of some of the above fields may be required.

Candidates may be permitted to substitute special regional fields for any of the above general fields under the conditions set forth below. But if this is done, comparative government may not be offered as well. Candidates are also encouraged to minor, or offer supporting courses, in other social sciences such as history, economics, sociology, psychology, or geography.

The field of political theory is required in all programs, and courses 511, 512, and 513 are normally required. Not less than two thirds of the minimum credits required for the degree must consist of those earned in courses numbered 500 or above.

**MASTER OF ARTS.** A total of 45 credits is normally required, including 9 allowed for the thesis. In exceptional cases, a candidate's committee may reduce the total credits including thesis to as few as 36. The candidate must present a field of concentration and two supporting fields.

If the candidate is permitted to adopt Far Eastern or Russian political science as a field of concentration, he must have a reading knowledge of the appropriate foreign language, and both of his supporting fields must be in general political science.

**MASTER OF PUBLIC ADMINISTRATION.** The Institute of Public Affairs offers a two-year professional curriculum leading to this degree. The purpose is to prepare students for administrative positions in the public service rather than to train technical specialists, teachers, or research technicians. The program consists of basic instruction in six fields: the administrative process, administrative problem analysis, the sociology of organizations, program design and management, public law, and the economics of public activity. An additional elective field is recommended to be chosen in accordance with the student's career interest, such as municipal affairs, natural resources, international affairs, politics, finance, or personnel. Every student is expected to complete an approved internship during the summer between the first and second years.

The public administration curriculum is limited to a small group of graduate students who show special promise of success in the public service. A broad educational background in the social sciences is desirable.

**DOCTOR OF PHILOSOPHY.** A minimum of 108 credits is required, including 27 allowed for the thesis. The candidate must present a field of concentration and four supporting fields.

If the candidate is permitted to adopt Far Eastern or Russian political science as a field of concentration, he may also present a related field of regional studies as one of his supporting fields.

## COURSES

### POLITICAL THEORY AND PUBLIC LAW

311 Theories of Modern Government	Harbold
362 Introduction to Public Law	Cole
411 The Western Tradition of Political Thought	Harbold
412 American Political Thought	Harbold
413 Contemporary Political Thought	Harbold
414 Oriental Political Thought	Hsiao
(Offered alternate years; offered 1959-60.)	
418 The Evolution of Western Political Institutions	Harbold
460 Introduction to Constitutional Law	Cole
511, 512, 513 Seminar in Readings in Political Science (3,3,3)	Cole
Important writings of the masters in political science; the political classics.	
514 Seminar in Problems of Political Theory	Harbold
Selected topics, historical and conceptual, national, regional, and universal.	
515 Scope and Methods in Political Science	Harbold
Inquiry into the philosophic foundations of various approaches in political science and their possible contributions to an understanding of politics. Substantial background in philosophy, as well as in political science, is highly desirable.	

**562, 563, 564 Public Law (3,3,3)****Cola**

General legal concepts applicable to the conduct of governmental activities.

**GOVERNMENT, POLITICS, AND ADMINISTRATION****350 Government and Interest Groups (5)****Bone****351 The American Democracy (5)****Gottfried****353 Theory and Practice of Government in the State of Washington (3)****Staff****360 The American Constitutional System (3)****Webster****370 Government and the American Economy (5)****Gottfried****375 Problems of Municipal Government and Administration (5)****Webster****376 State and Local Government and Administration (5)****Staff****450 Political Parties and Elections (5)****Bone****451 The Legislative Process (5)****Bone****452 Political Processes and Public Opinion (5)****Gottfried****470 Introduction to Public Administration (5)****Kroll****471 Administrative Management (5)****Kroll****472 Introduction to Administrative Law (5)****Shipman****550, 551, 552 Seminar in Politics (3,3,3)****Bone**

Topical and regional studies of political associations in the United States; leading principles and motivations of political action and leadership; legislative processes; methodology and bibliography.

**570-571-572 The Administrative Process (3-3-3)****Kroll**

An analysis of the administrative process relying primarily upon case materials and emphasizing policy formation, organization behavior, the nature of administrative roles, and the mechanism of responsibility.

**573-574-575 Public Management (3-3-3)****Shipman**

Expression of public policy through program activity, program planning, programming and scheduling, budgeting, staffing, fiscal and other operating controls, evaluations of effectiveness. Prerequisite, admission to graduate curriculum in public administration, or permission.

**576-577-578 Administrative Problems (3-3-3)****Shipman**

Methods employed in the analysis of administrative problems, programs, organization, process, procedure, and staffing; the design of organizations and operations. Prerequisite, admission to graduate curriculum in public administration.

**580, 581, 582 Seminar in Metropolitan and Urban Planning Problems (3,3,3)****Webster**

The metropolitan community: nature, characteristics, functions, governmental structure, and intergovernmental relationships. Urban planning: theory; law and administration, policy determination, and public relations. Methods and devices for plan implementation. Drafting local ordinances for planning, zoning, subdivision control, and urban renewal.

**INTERNATIONAL LAW, ORGANIZATION, AND RELATIONS****321 American Foreign Policy (3)****Gottfried****322 The Foreign Service (3)****Riley****323 International Relations of the Western Hemisphere (5)****Mander****324 Contemporary International Relations in Europe (5)****Hitchner****328 The United Nations and Specialized Agencies (5)****Mander****335J Japanese Foreign Policy in Asia (3)****Maki**

Offered jointly with the Far Eastern and Russian Institute.

**336 National Power and International Politics (5)****Martin****420 Foreign Relations of the Soviet Union (5)****Reshetar****425-426 International Law (3-3)****Martin****427 International Government and Administration (5)****Hitchner****429 International Relations in the Far East (5)****Maki****430 International Relations in the Middle and Near East (5)****Mander****432 American Foreign Policy in the Far East (5)****Michael, Taylor****520J Seminar on the Foreign Policy of the Soviet Union (3)****Reshetar**

Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.

**521 Seminar in the Theory of International Relations (3)****Mander**

The principal theories underlying interstate relations; the sovereign state as a unit in the community of states; the theory of the state and the theory of the society of nations.

**522, 523, 524 International Government and Organization (3,3,3)****Mander**

Constitutional organization and administrative procedures, with particular reference to the United Nations, specialized agencies, and other recent developments.

- 525, 526, 527 Seminar in Foreign Policy (3,3,3)** **Martin**  
 The European states system; foreign policies of the major European powers; alliances and the balance of power; leading principles of American foreign policy; current problems in American diplomacy; international practice and procedure: international conferences; foreign offices.
- 530 Seminar in Regional Foreign Policy (3)** **Mander**  
 Regionalism in the world order and economy; the "region" as a basis of foreign policy; foreign interests and policies of the major regions of the world; the U.S.S.R., Central Europe, Western Europe, the British Empire, the Middle and Near East, the Far East, and Latin America.

# FOREIGN AND COMPARATIVE GOVERNMENT

- 343 Modern British Government (5)** **Hitchner**
- 344 Chinese Government (5)** **Michael**  
 (Offered alternate years; offered 1959-60.)
- 345J Japanese Government (3)** **Maki**  
 Offered jointly with the Far Eastern and Russian Institute.
- 346 Governments of Western Europe (5)** **Hitchner**
- 347 Governments of Eastern Europe (5)** **Roshetar**
- 441 Political Institutions of the Soviet Union (5)** **Roshetar**
- 445 Comparative Political Institutions (5)** **Martin**
- 541J The Soviet Political System (4)** **Roshetar**  
 Critical appraisal of the principal research methods, theories, and types of literature dealing with the government and politics of the Soviet Union. Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.
- 542 Seminar in Commonwealth Governments (3)** **Mander**  
 Analysis of the governments of Canada, Australia, New Zealand, and South Africa; their relations with the United Kingdom.
- 543 Seminar in British Government (3)** **Hitchner**  
 Advanced studies in British parliamentary government.
- 545J Seminar on Japanese Government and Diplomacy (3, maximum 6)** **Maki**  
 Offered jointly with the Far Eastern and Russian Institute.

# GENERAL

- 506 507 508 Contemporary Problems, Domestic and Foreign (3,3,3)** **Martin**
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

# PSYCHOLOGY

**Acting Executive Officer: GEORGE P. HORTON, 335 Savery Hall**

The Department of Psychology offers courses leading to the degrees of Master of Science and Doctor of Philosophy.

The Department offers general and specialized courses, seminars, practica, and research opportunities in the major areas of psychology. The Department believes that general training in psychology should precede specialization.

Applicants who wish to undertake graduate study leading to an advanced degree in psychology must satisfy admission requirements of the Department of Psychology as well as those of the Graduate School. Supplementary application materials will be mailed to the applicant by the departmental Committee on Selection.

The Miller Analogies Test is required for admission to the graduate program. Arrangements for taking the test may be made through the Psychological Corporation, 304 East 45th Street, New York 17, N. Y., or through a local center certified to give the test.

The applicant to the graduate program should have a bachelor's or master's degree, two courses in psychology, an academic preparation regarded as adequate by the Selection Committee, and favorable ratings by former teachers. As a general rule, the applicant should have maintained a 3.00 grade-point average in the senior year and in all graduate work completed. The type of academic preparation regarded as particularly desirable includes courses in mathematics, biology, chemistry, physics, and foreign languages (particularly French and German).



**ADMISSION TO THE CLINICAL TRAINING PROGRAM.** Admission to the Department does not constitute admission to the Clinical Training Program. Selection of students to be admitted to this program will be made during the first quarter of residence. Among the requirements of this program is a one-year internship.

**MASTER OF SCIENCE.** A minimum of 27 approved course credits (major and minor) is required, with combined thesis, research, and course credits totaling at least 36 credits. In his undergraduate and graduate work, the master's candidate must have completed the courses which in this bulletin are numbered 301, 400, 406, 507-508, and 514-515. Reading knowledge of one foreign language (preferably French or German) is required. The student is expected to present a thesis, the general nature and design of which will be decided upon by the student and his sponsor during the second or third quarter in residence. Oral examination by the candidate's thesis committee over the thesis and any additional topics the committee feels to be desirable will be arranged approximately three weeks before the end of the quarter in which the candidate expects to receive his degree.

**DOCTOR OF PHILOSOPHY.** The student is normally required to complete the master's degree before being admitted to further work leading toward the doctorate. Permission to continue beyond the master's degree will depend upon the quality of the course work and of the thesis leading to that degree.

The number of credits usually required total about 108 or more beyond the bachelor's degree. Reading knowledge of two foreign languages (preferably French and German) is required and both language examinations must be passed before the time of writing the general examination. Substitution of one or both of these languages must be approved by the Dean of the Graduate School. The candidate is expected to present a dissertation, the general nature and design of which will be decided upon by the student and his sponsor. The candidate's Supervisory Committee will have the responsibility of arranging the final examination (oral) covering the dissertation and related material in his major and minor field(s). Candidates must meet all general requirements of the Graduate School and the Department before taking the final examinations.

The general examination for Ph.D. candidates will be designed to evaluate not only the student's knowledge of psychology but also his critical ability and his facility and effectiveness in utilizing the concepts, methods, and procedures of the field, and will cover both the more general systematic background and the student's more special areas of interest. This examination will be given at the end of two years of full-time graduate work approved by the Department, and after the candidate has passed two of the required foreign languages.

**MINORS FOR ADVANCED DEGREES IN PSYCHOLOGY.** Depending upon the student's program, orientation, and recommendations by his sponsor or adviser, any of the following subject areas may constitute minors for advanced degrees: physiology, sociology, economics, anthropology, speech, mathematics, zoology, philosophy, or education. Special petition will be required for a minor in other areas. The student is expected to obtain a written statement of the requirements as they pertain to his program from the department in which he intends to minor.

**MINOR IN PSYCHOLOGY.** Graduate students desiring to minor in psychology are expected to have as a prerequisite at least 20 credits in psychology, including statistical methods, as preparation before credit will be given toward a minor in this field. The minor for the master's degree will consist of 12 credits (in addition to the 20 mentioned above). The candidate must present his program for approval by the Department. No examination will be required if the candidate has maintained a grade-point average of 3.00 or better in the minor field.

A minor for the Ph.D. degree will consist of 20 approved credits beyond the requirements for the M.S.

Any specific information not covered here may be obtained by writing directly to the Department of Psychology.

# COURSES

301 Statistical Methods (5)	Baer, Heathers, Smith
305 Abnormal Psychology (5)	Strother
306 Child Psychology (5)	Bijou, Baer
308 Genetic Psychology (5)	Baer
309 Psychology of Exceptional Children (3)	Bijou
331 Applied Psychology (3)	Culbert
345 Social Psychology (3)	Culbert, Edwards
400 Psychology of Learning (3)	Smith
401, 402 Contemporary Psychological Theory (3,3)	McKeever
403 Psychology of Motivation (3)	Smith
405 Personality (5)	Sarason
406 Experimental Psychology (5)	Loucks
409AJ Training of the Mentally Retarded (5) Offered jointly with the College of Education.	Bijou
409BJ Psychology of the Mentally Retarded (5) Offered jointly with the College of Education.	Bijou
409CJ Training the Emotionally Disturbed (5) Offered jointly with the College of Education.	Bijou
409DJ Psychology of the Emotionally Disturbed (5) Offered jointly with the College of Education.	Bijou
413 Tests and Measurements (5)	Heathers
414, 415 Thinking and Problem Solving (3,3) (Formerly 448)	McKeever
416 Animal Behavior (3)	Horton
421 The Neural Basis of Behavior (5)	Staff
422 Physiological Psychology (5)	Loucks
423 Sensory Basis of Behavior (5)	Horton
426 Animal Laboratory (5)	Smith
427 Conditioning (5)	Loucks
435 Applied Experimental Psychology (3)	Culbert, Horton
441 Perception (5)	Culbert
445 Theories of Social Psychology (5)	Stotland
446 Objective Assessment of Personality (3)	Edwards
447 Psychology of Language (5)	Culbert
449 Psychology of Social Movements (3)	Culbert
450 Techniques in Social Psychology (5)	Stotland
451 Laboratory in Social Psychology (5)	Stotland
462 Readings in Psychology (1-3, maximum 9)	Staff
484 Laboratory in Child Behavior (5)	Baer
490 The Ecology of Development (5)	Baer
501 Problems in Learning Theory (3) Selected topics in the interpretation and evaluation of current theories of learning. Prerequisite, permission.	McKeever
507-508 History of Psychology (3-3) Experimental and theoretical backgrounds of modern psychology, especially in the nineteenth century. Prerequisite, permission.	Esper
509 Problems in Developmental Psychology (3) A critical analysis of current theoretical problems, of approaches to theory formulation, and a review of some typical pieces of research in the field of child behavior and personality development. Prerequisites, 306 or 308, 490, and permission.	Bijou
514-515 Experimental Design (3-3) Planning research problems; formulation of hypotheses; techniques of equating groups; sampling problems; factorial design and analysis of variance; interpretation of data. Prerequisite, 301 or permission.	Edwards, Smith

- 516 Introduction to Multivariate Psychological Measurement (5)** **Horst**  
Special quantitative techniques essential to understanding of multivariate psychological measurement theory. Elementary principles of matrix algebra basic to this theory and efficient computational routines are emphasized. Prerequisites, 301 and 413, or permission.
- 517 Factor Analysis (5)** **Horst**  
Mathematical and theoretical foundations; alternative methods of analysis; computational procedures; applications to psychological problems. Prerequisite, 516 or permission.
- 518 Test Construction (5)** **Horst**  
Correlational analysis; statistical bases of test construction and of the use of test batteries; practice in test construction. Prerequisite, 517 or permission.
- 520 Seminar (2)** **Staff**  
May be repeated for credit. Prerequisite, permission.
- 523 Seminar in the History of Psychology (2)** **Esper**  
May be repeated for credit. Prerequisite, permission.
- 524 Seminar in Physiological Psychology (2)** **Horton, Loucks**  
May be repeated for credit. Prerequisite, permission.
- 525 Seminar in Genetic and Comparative Psychology (2)** **Horton**  
May be repeated for credit. Prerequisite, permission.
- 527 Seminar in Social Psychology (2)** **Edwards, Stotland**  
May be repeated for credit. Prerequisite, permission.
- 528 Seminar in Experimental Psychology (2)** **Hermans**  
May be repeated for credit. Prerequisite, permission.
- 529 Seminar in Clinical Psychology (2)** **Bijou, Strother**  
May be repeated for credit. Prerequisite, permission.
- 530 Seminar in Theory (2)** **Staff**  
May be repeated for credit. Prerequisite, permission.
- 531 Seminar in Learning and Motivation (2)** **Staff**  
May be repeated for credit. Prerequisite, permission.
- 544-545 Psychology of Social Attitudes (3-3)** **Edwards**  
Theory and techniques of attitude-scale construction; scaling by the methods of equal-appearing intervals and of summated ratings; scale analysis; applications of attitude scales in education, industry, and the social sciences; determinants of attitudes and experimental studies of attitude change. Prerequisite, 301 or permission. (Not offered 1959-60.)
- 581 Individual Testing (Children) (5)** **Sarason**  
Construction, administration, and scoring of individual mental tests used with children. Prerequisites, 306 or 308, 413, and permission.
- 582 Individual Testing (Adults) (5)** **Sarason**  
Construction, administration, and scoring of clinical psychological tests used with adults. Prerequisites, 305, 413, 581, and permission.
- 585 Experimental Problems in Clinical Psychology (5)** **Bijou**  
Analysis of research and theories of concepts and processes in deviant behavior. Prerequisite, permission.
- 587 Clinical Pro-seminar I: Personality Theory (5)** **Sarason**  
The theories of personality development relating to the psychodynamics of personality organization. Prerequisite, permission.
- 588 Clinical Pro-seminar II: Psychopathology (5)** **Strother**  
Major historical and contemporary theories of psychopathology and research in the main categories of the behavior disorders. Prerequisite, 587.
- 589 Clinical Pro-seminar III: Theories and Systems of Psychotherapy (5)** **Strother**  
A review of some of the principle theories and systems of psychotherapy. Prerequisite, 588.
- 591 Projective Personality Tests (3)** **Sarason**  
Theory of projective tests; practice in scoring and interpreting projective tests with emphasis on the Rorschach. Prerequisites, 581, 582, or permission.
- 592 Projective Personality Tests (5)** **Sarason**  
Training in interpretation of normal Rorschach records; review of literature on the use of the Rorschach in psychopathology. Prerequisite, 591 or permission.
- 596 Field Work in Clinical Psychology (3-5, maximum 36)** **Staff**  
Field training in clinics and institutions for students of clinical psychology. May be repeated for credit. Prerequisite, permission.  
A. Clerkship in child testing      B. Clerkship in adult testing      C. Externship
- 599 Survey of Clinical Psychometrics (2)** **Strother**  
The nature, development, and clinical application of psychological tests. Prerequisites, permission and registration in the School of Social Work.
- 600 Research (\*)** **Staff**  
The name of the staff member with whom nonthesis research will be done should be indicated in registration. Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## ROMANCE LANGUAGES AND LITERATURE

**Executive Officer: HOWARD L. NOSTRAND, 217 Denny Hall**

The Department of Romance Languages and Literature offers courses leading to the degrees of Master of Arts and Doctor of Philosophy. A knowledge of Latin and an acquaintance with masterpieces of other literatures are strongly recommended. The equivalent of an undergraduate major in Romance languages is required for admission to candidacy for an advanced degree in the Department.

The student is responsible for knowing and meeting the general requirements of the Graduate School (see pages 49-50).

**MASTER OF ARTS.** This Department offers two programs for the degree of Master of Arts, one designed for those who may subsequently want to continue for the degree of Doctor of Philosophy, the other a nonthesis terminal program designed for those who intend to teach in a school or junior college.

For the thesis program which may subsequently lead to the degree of Doctor of Philosophy the Departmental requirements are as follows:

1. **LANGUAGE.** Oral and written proficiency in the major language.
2. **COURSE WORK.** At least 36 quarter hours in literature and linguistics, usually divided between a major and minor subject. Romance 401 and 581 must be included, and half the 36 credits must be in courses numbered 500 or above.
3. **SYLLABI.** A knowledge of representative literary works, such as those listed in syllabi obtainable from the Department (the M.A. and B.A. syllabi for an M.A. major, and the B.A. syllabus for an M.A. minor).
4. **THESIS.** A satisfactory thesis, to be submitted to the Department in completed form not less than four weeks before the date of the final examination.

The nonthesis, terminal program, following the Modern Language Association's recommendations as to subject-matter competence requisite for foreign-language teaching, and stressing linguistic proficiency and acquaintance with area and culture, carries the following requirements: French or Spanish 409; French or Spanish 541, 542, 543; Romance Linguistics 401 plus at least 2 credits from Romance Linguistics 505, 506, 507; French or Spanish 600, devoted to area studies (3-5 credits); qualifying essay (5 credits).

The remainder of the 45 credits in this program will normally be taken from other courses offered by this Department in accordance with the requirements of the Graduate School. Especially recommended are Romance 572J, 573J, and French or Spanish 571, 572 for all students in this program, and Spanish 409 for those students majoring in Spanish.

**DOCTOR OF PHILOSOPHY.** A candidate for a Ph.D. degree in Romance Languages and Literature must be accepted by an adviser and by the Graduate Studies Committee of the Department, and follow a program of studies requiring a minimum of 90 credits, of which 45 must be in courses numbered 500 or above. The student's adviser must present a course plan, as early as possible, to the Graduate Studies Committee for approval.

The total program of requirements will include:

1. **LANGUAGE.** Near-native proficiency in one Romance language.
2. **MAJOR FIELD.** The student's area of concentration is to be chosen from among the following fields: French literature, Spanish literature (Peninsular and Spanish-American), Italian literature, and Romance linguistics. The candidate is expected to acquire a thorough mastery in the major field, including, in the case of a literature, a special familiarity with one or more of its principal authors.
3. **MINOR FIELDS.** Normally three minors, or supporting fields, are to be chosen by the student from among the following: French literature, Spanish literature (Peninsular and Spanish-American), Italian literature, Portuguese literature (Pen-

insular and Brazilian), and Romance linguistics (which must be one of the three unless it is the student's major field).

In the case of supporting literatures, the candidate is expected to acquire a knowledge of their historical development (using as a basis of study the works suggested in the departmental syllabi), as well as a more particular acquaintance with the works of one major author in each literature. This plan is designed to require, in each literature, approximately 15 quarter credits acceptable toward a graduate degree, or equivalent study.

In the case of linguistics, it is expected that the candidate will acquire a knowledge of general and Romance linguistics as exemplified in the history of at least one Romance language. The scope of this requirement corresponds to the material embodied in (a) Romance 401, 505, 506, 507 (8 credits), and (b) French, Spanish, or Italian 541, 542, 543 (6 credits).

In the event that a literature outside the Romance field is selected as one of the minors, guidance will be provided by the department concerned.

4. **RESEARCH METHODS.** Romance 581 (2 credits), Methodology and Bibliography of Research, is required of all candidates for the Ph.D.

5. **CRITICAL PAPER.** Prior to the qualifying examination, the student is expected to develop and to demonstrate his capacity for research and criticism by writing, after consultation with his adviser, a critical paper on a special aspect or aspects of his work.

6. **GENRE.** The student will be expected to acquire a thorough knowledge of one literary genre, usually in all the literatures embraced by his program and over a specified period of their history. The choice of genre and period must be approved by the student's adviser and the Graduate Studies Committee.

7. **THESIS.** A satisfactory thesis must be submitted to the Department in completed form not less than six weeks before the date of the final examination.

## COURSES

### ROMANCE LINGUISTICS AND LITERATURE, GENERAL AND COMPARATIVE

- 401, 402 **Introduction to Romance Linguistics (2,2)** Dorfman  
Prerequisite, junior standing or equivalent of one year of Romance Language or Latin.
- 460 **The Literature of the Renaissance in English (5)** Keller
- 505, 506, 507 **Romance Linguistics (2,2,2)** Dorfman  
Principles of comparative linguistics; a brief history of the Romance languages and detailed investigation of their linguistic evolution.
- 521, 522, 523 **Phonemic Analysis and Description (2,2,2)** Dorfman  
Phonology as functional phonetics; brief history of the phoneme idea; comparison of the variant phonemic systems in the Romance languages and other linguistic structures; functional and structural analysis of linguistic expression.
- 531 **Problems in Romance Linguistics (2-5, maximum 10)** Staff
- 572J, 573J **Romance Language Teachers' Seminar (2½, 2½)** Simpson  
The teaching of foreign languages; conducted as a workshop. Opportunity for directed practice teaching of elementary school children. Offered jointly with the College of Education. (Offered Summer Quarter only.)
- 581, 582, 583 **Methodology and Bibliography of Research (2,2,2)** Nostrand, Weiner  
Bibliographical resources for Romance literatures; recurrent types of research problems and the accumulating methodology; standards of evidence; the evaluation and organization of evidence; the philosophies of literary history and its relation to bibliography and criticism.
- 584, 585, 586 **Seminar in Romance Culture (3,3,3)** Staff  
Individual and collective research in the evolution of concepts common to Romance literature. Open to graduates of this and other departments. (Offered 1958-59.)
- 590 **Research in Comparative Romance Literature (2-5, maximum 20)** Staff
- 599 **Research in Romance Linguistics (2-5, maximum 15)** Staff
- 700 **Thesis (\*)** Staff

### CATALAN

- 535 **Catalan Language and Literature (5)** Simpson  
Survey of political and literary history of Catalonia. Reading and reports on modern Catalan literary works. (Offered when demand is sufficient.)

## FRENCH

- 304, 305, 306 Survey of French Literature (3,3,3)** Keller, Nostrand, Simpson
- 319 Nineteenth-Century Novel in English (3)** Keller
- 320 Contemporary Novel in English (3)** Weiner
- 390 Supervised Study (2-5, maximum 20)** Staff
- 409 Advanced Phonetics (3)** Creore, Dorfman
- 416 Rabelais and Montaigne in English (3)** Keller
- 417 Racine and Moliere in English (3)** Chessex
- 418 Literature of the Enlightenment in English (3)** Hanzeli
- 421, 422, 423 Prose (3,3,3)** Keller, Hanzeli, Weiner  
 421: classical prose. (Offered 1960-61.)  
 422: eighteenth-century prose. (Offered 1961-62.)  
 423: contemporary prose. (Offered 1960-61.)
- 424, 425, 426 Modern Prose Fiction (3,3,3)** Simpson, C. Wilson, Weiner  
 424: The novel, 1800-50. (Offered 1959-60.)  
 425: The novel, 1850-1900. (Offered 1960-61.)  
 426: The novel, 1900-50. (Offered 1961-62.)
- 430 Advanced Conversational French (1-3, maximum 6)** Hanzeli  
 (Offered Summer Quarter only.)
- 431, 432, 433 Lyric Poetry (3,3,3)** Creore, Nostrand, Weiner  
 431: Renaissance poetry. (Offered 1960-61.)  
 432: romantic poetry. (Offered 1960-61.)  
 433: Parnassians, symbolists, and contemporary poetry. (Offered 1961-62.)
- 441, 442, 443 Drama (3,3,3)** Chessex, Creore  
 441: classical tragedy. (Offered 1960-61.)  
 442: romantic drama. (Offered 1961-62.)  
 443: modern drama. (Offered 1960-61.)
- 444, 445, 446 Drama (3,3,3)** Chessex, Hanzeli  
 444: Molière. (Offered 1961-62.)  
 445: eighteenth-century comedy. (Offered 1959-60.)  
 446: modern comedy. (Offered 1960-61.)
- 451, 452, 453 Moralists and Essayists (3,3,3)** Keller, Hanzeli, David  
 451: Montaigne. (Offered 1960-61.)  
 452: from Montesquieu to Comte. (Offered 1959-60.)  
 453: essayists of the twentieth century. (Offered 1961-62.)
- 501 Studies in Renaissance Prose (5)** Keller  
 Rabelais and Montaigne. (Offered 1960-61.)
- 502 Studies in Renaissance Poetry (5)** Creore  
 The *Pléiade*. (Offered 1959-60.)
- 504 Contemporary French Literature (5)** David  
 Parties and schools of thought after World War I. Special emphasis will be laid on "intelligence" and related concepts such as the "heart" and "honor." (Offered 1960-61.)
- 513 Old French Literature (3)** Simpson  
 Literary backgrounds; reading and discussion of selected texts. (Offered when demand is sufficient.)
- 531 Literary Problems (2-5, maximum 20)** Staff  
 Field (see A-F below) must be specified in registering. For individual conferences under this number (but not for group projects) permission of the Executive Officer is required.  
 A. Middle ages D. Eighteenth century  
 B. Renaissance E. Nineteenth century  
 C. Classic period F. Twentieth century
- 541, 542, 543 History of the French Language (2,2,2)** Dorfman  
 A survey of the phonological, morphological, and syntactical development of the French language from its origins to the present. (Offered alternate years; offered 1960-61.)
- 571, 572 French Literary Criticism (5,3)** Weiner, Nostrand  
 Major philosophies of criticism and their exponents. The influences which affected standards, purposes, and methodologies. 571: nineteenth and early twentieth centuries. 572: twentieth century.
- 580 Explication de Texte (3)** David  
 Close study of short pieces of French prose and poetry. The method consists of a literary analysis of the text from different viewpoints: biographical, historical, etc. Lectures, discussion, and student *explications*. (Offered 1959-60.)
- 600 Research (2-5, maximum 20)** Staff
- 700 Thesis (\*)** Staff

## ITALIAN

- 318 Italian Literature in English (5)** Budel
- 384 Renaissance Literature of Italy in English (2)** Budel

- 390 Supervised Study (2-5, maximum 20)** Budel
- 421, 422, 423 Survey of Italian Literature (3,3,3)** Budel
- 481, 482 Dante in English (2,2)** Budel
- 512, 513 Dante (3,3)** Budel  
Dante and the *Dolce stil nuovo*: *La vita nuova*, *Le rime*. The Dante of the *Divina commedia*. Dante's literary aesthetics: *De vulgari eloquentia*, *Il convivio*. (Offered 1960-61.)
- 531 Literary Problems (2-5, maximum 20)** Budel  
Field (see A-F, below) must be specified in registering. For individual conferences under this number (but not for group projects) permission of the Executive Officer is required.  
A. Middle ages and fourteenth century D. Eighteenth century  
B. Renaissance E. Nineteenth century  
C. Baroque F. Twentieth century
- 541, 542, 543 History of the Italian Language (2,2,2)** Budel, Dorfman  
A survey of the phonological, morphological, and syntactical development of the Italian language from its origins to the present. (Offered when demand is sufficient.)
- 551, 552, 553 Seminar in Humanist and Renaissance Prose and Poetry (3,3,3)** Budel  
551: Humanism and Early Renaissance: Pulci, Boccaccio, Poliziano, Lorenzo il Magnifico, Boiardo, Sannazaro, Marsilio Ficino, Pico della Mirandola. (Offered 1959-60.)  
552: High Renaissance: Castiglione, Ariosto, Machiavelli, Folengo, Bembo, Trissino. (Offered 1959-60.)  
553: Late Renaissance: Michelangelo, Tasso, Bandello, Pietro Aretino. Renaissance literary theory from Coluccio Salutati to Scaligero.
- 561, 562, 563 Italian Literature of the Nineteenth and Twentieth Centuries (3,3,3)** Budel  
(Offered 1960-61.)
- 600 Research (2-5, maximum 20)** Staff
- 700 Thesis (\*)** Staff

## PORTUGUESE

- 390 Supervised Study (2-5, maximum 20)** C. Wilson

## PROVENÇAL

- 534 Old Provençal (3)** Simpson  
(Offered when demand is sufficient.)

## RUMANIAN

- 536 Rumanian Language (5)** Staff  
Rumanian grammar; readings in the language and lectures on its history. (Offered when demand is sufficient.)
- 537 Rumanian Literature (5)** Staff  
History of Rumanian literature from the sixteenth century; the contemporary novel; the poetry of Mihail Eminescu. (Offered when demand is sufficient.)

## SPANISH

- 304, 305, 306 Survey of Spanish Literature (3,3,3)** Staff
- 315 Latin-American Authors in English (5)** Vargas-Baron
- 318 Don Quixote in English (3)** W. Wilson
- 390 Supervised Study (2-5, maximum 20)** Staff
- 409 Phonetics, Pronunciation, Intonation (3)** Vargas-Baron
- 430 Advanced Conversational Spanish (1-3, maximum 6)** Ayllon  
(Offered Summer Quarter only.)
- 441, 442, 443 Drama (3,3,3)** W. Wilson  
(Offered alternate years; offered 1960-61.)
- 451, 452, 453 Spanish Literature Since 1700 (3,3,3)** McDonald  
(Offered alternate years; offered 1959-60.)
- 461, 462, 463 Spanish Literature of the Golden Era (3,3,3)** W. Wilson  
(Offered alternate years; offered 1960-61.)
- 471, 472, 473 Individual Spanish Authors (3,3,3)** Staff  
(Offered when there is sufficient demand.)
- 481, 482, 483 Spanish-American Literature (3,3,3)** Alcalá, Vargas-Baron  
(Offered alternate years; offered 1959-60.)
- 484 The Colonial Period in Spanish-American Literature (3)** Vargas-Baron  
(Offered when there is sufficient demand.)
- 485 Romanticism, Realism and Naturalism in Spanish America (3)** Vargas-Baron  
(Offered alternate years; offered 1960-61.)
- 486 The Modernista Movement in Spanish-American Literature (3)** Vargas-Baron  
(Offered alternate years; offered 1960-61.)

- 487 The Contemporary Spanish-American Novel (3)** Vargas-Baron  
(Offered alternate years; offered 1960-61.)
- 511 The Poema de Mio Cid (3)** Sousa  
(Offered alternate years; offered 1960-61.)
- 512 Epic Poetry (3)** Sousa  
The epic material in old Spanish literature and its later treatment in poetry and drama. Special investigations and reports. (Offered alternate years; offered 1960-61.)
- 513 The Spanish Ballad (3)** Ayllon  
The origin and evolution of the Spanish ballad. (Offered alternate years; offered 1960-61.)
- 515 The Contemporary Spanish-American Short Story (3)** Vargas-Baron  
Leading short story writers in Spanish America. (Offered 1960-61.)
- 521 The Renaissance in Spain (5)** Ayllon  
(Offered alternate years; offered 1960-61.)
- 531 Literary Problems (2-5, maximum 20)** Staff  
Field (see A-H, below) must be specified in registering. For individual conferences under this number (but not for group projects) permission of the Executive Officer is required. Maximum credit to be 5 in any one sub-division.  
A. Middle ages E. Nineteenth century  
B. Renaissance F. Twentieth century  
C. Golden age G. Spanish colonial literature  
D. Eighteenth century H. Latin America
- 541, 542, 543 History of the Spanish Language (2,2,2)** Sousa  
A survey of the phonological, morphological, and syntactical development of the Spanish language from its origins to the present. (Offered 1959-60.)
- 571 The Modern Essay (3)** Alcalá, Vargas-Baron  
Leading essayists of Spain and Spanish America. (Offered 1960-61.)
- 572 Modern Poetry (3)** Alcalá, Vargas-Baron  
Romanticism and later movements in Spanish and Spanish-American poetry. (Offered 1960-61.)
- 600 Research (2-5, maximum 20)** Staff
- 700 Thesis (\*)** Staff

## SCANDINAVIAN LANGUAGES AND LITERATURE

Executive Officer: SVERRE ARESTAD, 215 Denny Hall

The Department of Scandinavian Languages and Literature offers courses leading to the degree of Master of Arts. To meet the language requirement for this degree, French or German is recommended. Candidates must earn 20 credits in courses numbered 500 and above.

### COURSES

#### DANISH

- 490 Supervised Reading (\*, maximum 5)** Arestad

#### NORWEGIAN

- 450 History of Norwegian Literature (3)** Arestad  
**490 Supervised Reading (\*, maximum 5)** Arestad

#### SCANDINAVIAN LITERATURE

- 500, 501, 502 Old Icelandic (2,2,2)** Johnson  
**503 Problems in Scandinavian Literature (\*, maximum 5)** Arestad, Johnson  
**507 Ibsen (\*, maximum 5)** Arestad  
**508 The Scandinavian Novel (\*, maximum 5)** Arestad  
**510, 511, 512 Strindberg (2,2,2)** Johnson  
**515 Modern Danish and Norwegian Poetry (3)** Arestad  
**516 Modern Danish and Norwegian Drama (3)** Arestad  
**517 Modern Swedish Poetry (3)** Johnson  
**518 The Swedish Novel (3)** Johnson  
**700 Thesis (\*)** Staff



**SWEDISH**

450 History of Swedish Literature (3)	Johnson
455 History of the Swedish Language (3)	Johnson
490 Supervised Reading (*, maximum 6)	Johnson

**COURSES IN ENGLISH**

309, 310, 311 The Scandinavian Novel in English (2,2,2)	Arestad, Johnson
382 Twentieth-Century Scandinavian Drama in English (2)	Johnson
480 Ibsen and His Major Plays in English (2)	Arestad
481 Strindberg and His Major Plays in English (2)	Johnson

**SOCIOLOGY**

**Executive Officer: ROBERT E. L. FARIS, 108A Smith Hall**

The Department of Sociology offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The Department of Sociology requires all graduate students to complete undergraduate requirements for a major in sociology before becoming candidates for degrees. Students whose undergraduate work in sociology seems inadequate may be required to pass a qualifying examination before being admitted to graduate courses.

Requirements for both advanced degrees include work in some of these fields of specialization: sociological theory; research methods and social statistics; ecology and demography; social interaction; social institutions; social organization; and social disorganization.

**MASTER OF ARTS.** Candidates must complete an approved program in advanced sociology courses and a minor in a related field or a program of related courses. At least 9 of the sociology credits must be in courses numbered 500 and above. A reading knowledge of a foreign language is required. Candidates must take a final examination in two fields of sociology and a separate examination in the minor given by the department in which the minor courses are taken. The master's thesis must be submitted seven weeks before the degree is to be granted.

**DOCTOR OF PHILOSOPHY.** Candidates must complete a program of courses approved by the Department. Half of the credits, including the thesis, must be in courses numbered 500 and above. The residence requirement is three years, two of them at the University of Washington. One of the two years must be spent in continuous full-time residence.

A reading knowledge of two foreign languages is required.

A completed thesis must be submitted seven weeks before the degree is conferred.

A general, written examination will cover four fields of specialization, one of which must be research methods and social statistics. A minor sequence or a program of related courses in addition to the fields, is also required.

A final oral examination is given on the completion of all requirements, including the thesis.

**COURSES**

310 General Sociology (5)	Larsen, Staff
331 Population Problems (5)	Watson
352 The Family (5)	Staff
362 Race Relations (5)	Barth
365 Urban Community (5)	Cohen
371 Criminology (5)	Haynor, Schrag
389 Reading in Selected Fields (2-5, maximum 15)	Staff

- 410 History of Sociological Thought (5) Catton
- 411, 412, 413 Systematic Sociology (3,3,3) Dodd
- 414 Sociological Theory (5) Lundberg
- 415 Theory of Social Organization (5) Catton
- 420 Methods of Sociological Research (5) Faris
- 421 Methodology: Case Studies and Interviewing (3) Larsen
- 423 Advanced Social Statistics (5) Costner
- 425J Graphic Techniques in the Social Sciences (5) Schmid  
Offered jointly with the Department of Geography.
- 426 Methodology: Quantitative Techniques in Sociology (3) Costner
- 427 Statistical Classification and Measurement (3) Costner
- 428-429 Sampling and Experimentation (3-3) Costner
- 430 Human Ecology (5) Cohen, Schmid
- 440 Primary Interaction and Personal Behavior (5) Faris
- 442 Public Opinion (3) Larsen
- 443 Mass Communication (3) Larsen
- 445 Social Movements (3) Miyamoto
- 447 Social Control (5) Lundberg
- 448 Sociometric Analysis and Group Structure (5) Schrag
- 450 Contemporary American Institutions (5) Wager
- 451 Social Change and Trends (5) Wager
- 453 Social Factors of Marriage (3) Leik
- 455 Housing in the American Community (5) Cohen
- 458 Institutional Forms and Processes (5) Faris
- 460 Social Differentiation (5) Barth
- 463 American Negro Community (3) Barth
- 466 Industrial Sociology (5) Wager
- 467 Industry and the Community (3) Wager
- 468 Sociology of Occupations and Professions (5) Wager
- 472 Juvenile Delinquency (5) Hayner, Schrag
- 473 Corrections (5) Hayner, Schrag
- 474 Probation and Parole (3) Hayner
- N510, N511, N512 Departmental Seminar (0,0,0) Staff  
Monthly meetings with reports on independent research by graduate students and staff members.
- 521, 522, 523 Seminar in Methods of Sociological Research (3,3,3) Lundberg  
Prerequisites, 223, 414, and 420, or equivalents.
- 528 Seminar in Selected Statistical Problems in Social Research (3) Staff  
Prerequisite, 426.
- 530 Advanced Human Ecology (3) Schmid  
Prerequisites, 230 or 430, and 15 credits in social science.
- 531 Demography (3) Schmid  
Research problems in population and vital statistics. Prerequisites, 331, and 15 credits in social science or permission.
- 540 Seminar in Social Interaction (3) Miyamoto  
Evaluation of studies in social interaction. Analyzes types of interaction, interaction models, and such major variables as roles, self-conception, and the influence of norms. Prerequisite, 440 or equivalent.
- 541 Seminar on Small Group Research (3) Miyamoto  
Theories, methodology, and studies in the area of small group research. Covers such topics as interaction channels, group cohesion, group locomotion, and consensus in groups. Prerequisite, permission.
- 543 Communications Seminar (3) Larsen
- 550, 551, 552 Marriage and the Family (3,3,3) Leik  
Analysis of marriage and family patterns and problems, with initial emphasis on research findings and methods. Individual research on selected projects. Prerequisite, 352 or equivalent.
- 566, 567 Industrial Sociology Seminar (3,3) Wager  
Research training in industrial sociology. Readings and field projects. Prerequisite, 466 or equivalent.

- 571 Correctional Communities (3)** Hayner  
Prerequisite, 371 or equivalent.
- 572 Analysis of Criminal Careers (3)** Hayner  
Personal and social factors in criminal maturation and reformation. Prerequisite, 371 or equivalent.
- 573 Crime Prevention (3)** Hayner  
Prerequisite, 371 or equivalent.
- 574 Seminar in Methods of Criminological Research (3)** Schrag  
Provides training in the technical analysis of published research in criminology; designs and processes studies in parole prediction, prediction of prison adjustment, and prediction of treatment effect. Prerequisite, permission.
- 599 Reading in Selected Fields (2-5, maximum 15)** Staff  
Open only to qualified graduate students by permission.
- 600 Research (2-5)** Staff  
Original field projects carefully planned and adequately reported. Certain projects can be carried on in connection with the Public Opinion Laboratory or the Office of Population Research. Open only to qualified graduate students by permission.
- 700 Thesis (\*)** Staff

## SPEECH

**Executive Officer: HORACE G. RAHSKOPF, 209 Parrington Hall**

The Department of Speech offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

Students who undertake a program of study leading to a graduate degree in speech are expected to present an undergraduate background of not less than 35 credits of approved courses in speech. In certain cases the Department may accept a limited amount of credit in closely related fields as part of the required undergraduate background. In general it is expected that a student's background in speech will constitute a broad orientation in the field. When this is not the case, the Department may require certain speech courses outside the field of specialization, either as additional undergraduate training or as part of the graduate program.

**MASTER OF ARTS.** Candidates must complete 36 credits of approved course work of which 12 credits should be in a minor or supporting courses from closely related areas. Thesis research may be in any subdivision of the field.

**DOCTOR OF PHILOSOPHY.** Two major areas of concentration are available: public address and rhetoric including argumentation and discussion, and speech correction and hearing including experimental phonetics.

## COURSES

### VOICE AND PHONETICS

- 310 Voice Science (5)** Tiffany
- 411 Anatomy of the Vocal Organs and Ear (5)** Palmer
- 415 Advanced Voice and Phonetics (5)** Tiffany
- 510 Experimental Phonetics (3)** Tiffany  
Application of experimental methods to research in voice and phonetics; critical review of research literature. Prerequisite, 415 or permission.

### PUBLIC ADDRESS

- 320 Public Speaking (5)** Franzke
- 420 Advanced Problems in Speaking (5)** Baskerville
- 425, 426 Public Speaking in America (5,5)** Baskerville  
(Offered alternate years; 426 offered 1959-60; 425 offered 1960-61.)
- 521 Studies in Greek and Roman Rhetoric (5)** Rahskopf  
Critical analysis of writings on rhetoric by Plato, Aristotle, Cicero, Quintilian, and others.
- 522 Studies in Medieval and Renaissance Rhetoric (5)** LaRusso  
A critical analysis of selected persons, works, and topics related to the development of rhetorical theory during the Middle Ages and the Renaissance. (Offered alternate years; offered 1959-60.) Prerequisite, 521.

- 523 Studies in Modern Rhetoric (5)** **Pence**  
Critical analysis of writings on rhetoric by Cox, Wilson, Bacon, Campbell, Blair, Whately, and others. (Offered alternate years; offered 1960-61.) Not open to students who received credit for 522 prior to Spring, 1957.
- 525 Rhetorical Criticism (3)** **Baskerville**  
The history and method of rhetorical criticism. Application of standards to notable British and American speeches. (Offered alternate years; offered 1960-61.) Prerequisite, 425 or 426.
- 529 Seminar in Rhetoric and Public Address (3, maximum 6)** **Rahskopf**  
Prerequisite, permission.
- 530 Experimental Problems in Public Address (3-5)** **Pence**  
Analysis of theoretical considerations in audience and listening behavior; application of measurement techniques. (Offered alternate years; offered 1959-60.) Prerequisites, 430 or equivalent and permission.

## ARGUMENT AND DISCUSSION

- 332 Principles of Group Discussion (5)** **Crowell, Nilsen**
- 430 Advanced Argument (5)** **Pence**
- 432 Problems of Discussion Leadership (3)** **Crowell**
- 436 Methods of Public Discussion (5)** **Franzko**

## ORAL INTERPRETATION OF LITERATURE

- 340 Oral Interpretation of Prose (3)** **Grimes**
- 345 Choral Speaking (3)** **Grimes**  
(Offered alternate years; offered 1960-61.)
- 440 Oral Interpretation of Poetry (3)** **Grimes**
- 540 Studies in Oral Interpretation (3)** **Grimes**  
Critical analysis of writings by Sheridan, Walker, Rush, Delsarte, Bell, Curry, Emerson, and others. (Offered alternate years; offered 1959-60.) Prerequisite, 440.

## TEACHING OF SPEECH

- 357 Debate and Discussion Problems in High School and College (2½)** **Staff**  
(Offered Summer Quarter only.)
- 359 Speech in the Classroom (3)** **Nelson**
- 550 Studies in Speech Education (3)** **Nelson**  
Philosophical, curricular, and methodological problems of speech instruction. (Offered alternate years; offered 1960-61.)

## RADIO-TV SPEECH

- 361 Advanced Radio-TV Speech (3)** **Bird**

## SPEECH CORRECTION

- 470, 471 Speech Correction (5,5)** **Carrell**
- 473 Diagnostic Methods in Speech Correction (5)** **Wingate**  
Prerequisite, 471.
- 474 Clinical Practice in Speech Correction (1-5, maximum 15)** **Palmer**
- 475 Stuttering (2)** **Wingate**
- 476 Language Development of the Child (3)** **Wingate**  
(Offered alternate years; offered 1960-61.)
- 478 Interview Techniques for Speech and Hearing Rehabilitation (3)** **Wingate**  
(Offered alternate years; offered 1959-60.)
- 570, 571, 572, 573 Organic Disorders of Speech (3,3,3,3)** **Carrell**  
Etiology, diagnosis, and therapy. 570: morphogenic disorders, especially cleft palate and dental malocclusions. Not open to students who took 574 prior to Autumn, 1956. (Offered alternate years; offered 1960-61.) 571: dysarthria, especially cerebral palsy. (Offered alternate years; offered 1959-60.) 572: aphasia. (Offered alternate years; offered 1960-61.) 573: pathologic disorders of voice. (Offered alternate years; offered 1959-60.) Prerequisite for each course, 471 or permission.
- 574 Advanced Clinical Practice in Speech Correction (1-5, maximum 10)** **Palmer**  
Prerequisite, 474.
- 575 Seminar in Stuttering Therapy (3)** **Wingate**  
(Offered alternate years; offered 1960-61.) Prerequisite, 475 or permission.
- 578 Psychogenic Factors in Speech and Hearing Disorders (2)** **Wingate**  
Psychogenic factors as etiological agents in speech and hearing disorders. (Offered alternate years; offered 1959-60.) Prerequisite, Psychology 305 or permission.

**HEARING**

- 480 Introduction to Hearing (5) Hanley
- 481, 482 Principles and Methods of Aural Rehabilitation (5,5) Palmer
- 484 Clinical Practice in Aural Rehabilitation (1-5, maximum 15) Hanley
- 485 Medical Background for Audiology (2) Staff  
(Offered alternate years; offered 1960-61.)
- 487 Audiometry (3) Hanley
- 488 Hearing Aid Evaluation and Selection (2) Hanley  
(Offered alternate years; offered 1960-61.)
- 580 Advanced Audiology (5) Hanley  
Methods, techniques, and instruments used in the measurement of auditory function especially as related to perception of speech. Review of research literature. (Offered alternate years; offered 1960-61.) Prerequisite, 480 or permission.
- 584 Advanced Clinical Practice in Aural Rehabilitation (1-5, maximum 10) Hanley  
Prerequisite, 484.
- 587 Advanced Audiometry (2) Hanley  
Special diagnostic tests of auditory function; clinical practice. (Offered alternate years; offered 1959-60.) Prerequisite, 487.

**GENERAL**

- 400 Backgrounds in Speech (5) Nilsen, Rahskopf
- N500 Departmental Seminar (0) Staff  
Reports of research by graduate students and staff members.
- 501 Introduction to Graduate Study in Speech (2) Crowell
- 600 Research (\*) Staff
- 700 Thesis (\*) Staff

**ZOOLOGY**

**Executive Officer: ARTHUR W. MARTIN, 142 Johnson Hall**

The Department of Zoology offers courses of study leading to the degrees of Master of Science and Doctor of Philosophy. Candidates for advanced degrees are expected to complete the academic work outlined in the undergraduate curriculum for the Bachelor of Science degree, in addition to their graduate course program. Students seeking an advanced degree must be accepted for research supervision by a member of the staff. A choice of supervisor need not be made immediately, but will not ordinarily be delayed into the second year of graduate work. Graduate students are not formally recognized as candidates by the Department until they have passed the written examinations in five basic fields: comparative anatomy, embryology, general physiology, genetics, and invertebrate zoology.

**COURSES****BIOLOGY**

- 401 Cytology (3) Hsu
- 401L Cytology Laboratory (2) Hsu  
Must be accompanied by 401.
- 451 Genetics (3 or 5) Roman
- 452 Cytogenetics (3 or 5) Roman
- 453 Topics in Genetics (2, maximum 6) Roman
- 454 Evolutionary Mechanisms (3) Kruckeberg
- 472 Principles of Ecology (3) Edmondson
- 472L Ecology Laboratory (2) Edmondson  
Must be accompanied by 472.
- 473 Limnology (5) Edmondson
- 501 Advanced Cytology (5) Hsu
- 508 Cellular Physiology (3) Whiteley  
Functional aspects of protoplasmic structures. Prerequisite, Zoology 400 or permission.
- 508L Cellular Physiology Laboratory (2) Whiteley  
Must be accompanied by 508. Prerequisite, permission.

- 551 Genetics of Microorganisms (3)** Roman  
Prerequisite, 451 or permission.
- 552 Genetics of Microorganisms Laboratory (3)** Stadler  
Methods of studying inheritance in fungi, bacteria, and viruses. Prerequisite, Biology 551 or permission.
- 573 Topics in limnology (2)** Edmondson  
May be repeated for credit.

## ZOOLOGY

- 330 Natural History of Marine Invertebrates (5)** Illg, Ray  
Prerequisite, permission.
- 358 Vertebrate Physiology (6)** Martin
- 362 Natural History of Vertebrates (5)** Snyder
- 381 Microtechnique (4)** Hsu
- 400 General Physiology (5)** Florey
- 402 History of Zoology (3)** Hatch
- 403 Comparative Vertebrate Histology (5)** Staff
- 423 Protozoology (5)** Osterud
- 432 Marine Invertebrate Zoology (8)** Staff  
(Offered at Friday Harbor Summer Quarter only.) Not open to students who have had 433, 434.
- 433, 434 Invertebrate Zoology (5,5)** Illg, Ray  
Not open to students who have had 432.
- 435 Parasitology (5)** Osterud
- 444 Entomology (5)** Hatch
- 453-454 Comparative Anatomy of Chordates (5-5)** Snyder
- 456 Vertebrate Embryology (5)** Fernald
- 457 Experimental Morphogenesis (3)** Fernald
- 457L Experimental Morphogenesis Laboratory (2)** Fernald  
Prerequisite, permission.
- 463 Natural History of Amphibia and Reptiles (5)** Staff
- 464 Natural History of Birds (Ornithology) (5)** Richardson
- 465 Natural History of Mammals (5)** Staff  
(Offered alternate years; offered 1960-61.)
- 475 Vertebrate Zoogeography (3)** Staff
- 498 Special Problems in Zoology (1-5, maximum 15)** Staff
- 506 Topics in Experimental Embryology (2, maximum 6)** Fernald, Whiteley
- 516 Chemical Embryology (3)** Whiteley  
Prerequisite, permission.
- 516L Chemical Embryology Laboratory (2)** Whiteley  
Must be accompanied by 516.
- 517 Chemical Embryology (3)** Whiteley  
Prerequisite, permission.
- 517L Chemical Embryology Laboratory (2)** Whiteley  
Must be accompanied by 517.
- 520, 521, 522 Seminar (1,1,1)** Staff
- 533 Advanced Invertebrate Zoology (6)** Staff  
The rich and varied invertebrate fauna of the San Juan Archipelago is studied, emphasizing systematics and ecology, with opportunity for developing individual research problems. (Offered at Friday Harbor Summer Quarter only.) Prerequisite, 10 credits in invertebrate zoology or equivalent.
- 534 Topics in Advanced Invertebrate Zoology (2)** Illg  
Advanced considerations in morphology, ecology, phylogeny of invertebrates; emphasizing current developments. Prerequisites, 434 or equivalent and permission.
- 536 Advanced Invertebrate Embryology (6)** Staff  
Morphological and experimental studies of development of selected types of marine invertebrates. (Offered at Friday Harbor Summer Quarter only.) Prerequisites, 433, 434, and 456.
- 537 Comparative Invertebrate Physiology (3)** Florey  
Selected chapters of comparative physiology of nerve, muscle, circulation, respiration, renal function, and hormone action. Prerequisites, 400 and 434.
- 537L Comparative Invertebrate Physiology Laboratory (2)** Florey  
Exercises in kymographic, oscilloscopic and other recording of mechanical, electrical, and metabolic phenomena of invertebrate organ function. Must be accompanied by 537. Prerequisite, permission.

- 538 Advanced Invertebrate Physiology (6)** **Staff**  
Physiological bases of ecology, evolution, and tolerance to stress, as illustrated by many diverse forms. (Offered at Friday Harbor Summer Quarter only.) Prerequisites, chemistry through organic and 10 credits in invertebrate zoology, or equivalent.
- 554 Advanced Vertebrate Morphology (3)** **Snyder**  
Current problems and trends in vertebrate anatomy emphasizing functional relationships. Prerequisites, -454, 456, and permission.
- 558 Comparative Vertebrate Physiology (6)** **Martin**  
Advanced studies with particular reference to cold-blooded vertebrates and to birds. Prerequisite, 400 or equivalent.
- 581 Systematic Zoology (4)** **Illg**  
History, principles, and procedures of zoological taxonomy; review of biological bases of phylogeny; history and principles of zoological nomenclature. Prerequisite, permission.
- 598 Seminar in General and Comparative Physiology (2)** **Flore**  
Study and discussion of classical and current literature in the field of general and comparative physiology. Prerequisites, 400, 433, 434, and permission.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## COLLEGE OF BUSINESS ADMINISTRATION

Dean: **AUSTIN GRIMSHAW, 210 Guthrie Hall**

The College of Business Administration offers courses leading to the degrees of Master of Business Administration, Master of Arts, and Doctor of Business Administration. Graduate training is given in these areas of specialization: accounting; business and its environment; business policy and business administration; finance and banking; foreign trade; insurance; marketing; personnel and industrial relations; production; real estate; research and statistical control; and transportation. However, these areas shall not be held to exclude others which may be appropriate in special instances.

Students seeking advanced degrees in business administration must first file an application for admission to the Graduate School. The Graduate School passes upon the application and, if found satisfactory, forwards it to the College of Business Administration for final approval. Before final approval is granted by the College the applicant must have submitted to the College the result of the Admission Test for Graduate Study in Business. Inquiries concerning this test should be addressed to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.

The applicant for a graduate degree in the College of Business Administration must have a bachelor's degree. If the degree is not in business administration from a member of the Association of American Collegiate Schools of Business, the applicant must present not less than 45 credits in accounting, business fluctuations, business law, business statistics, corporation finance, economics, human relations, marketing, and production. Applicants for the degrees of Master of Business Administration and Doctor of Business Administration must include at least 9 credits in accounting and at least one course in each of the following subjects: business statistics, corporation finance, economic theory, human relations, marketing, and production.

Deficiencies in background courses may be removed through registration for regular undergraduate courses or their equivalent in accelerated courses identified by the letter "P." Deficiencies in background courses may be removed after enrollment in the graduate program.

The purpose of the accelerated courses is to remove background deficiencies of postgraduate students who seek admission to advanced degree programs in the College of Business Administration. Enrollment is limited to students who hold bachelors' degrees, have a grade-point average of 3.00, or better, in their senior year, and have permission of the Graduate Student Adviser of the College. These courses include:

	CREDITS
Accounting 200P .....	5
Business Statistics 200P .....	3
Finance 300P .....	5
Marketing 300P .....	3
Production 300P .....	3
Human Relations 400P .....	3

## ADVANCED DEGREES

Full standing is granted the applicant with the necessary prerequisites and a grade-point average of 3.00 (B) or higher during his senior year. A grade-point average of less than 3.00 but above 2.75 will, if the student is admitted, result in provisional standing.

A student must maintain a 3.00 average in his first quarter of graduate work or he cannot take graduate courses in his second quarter. A student who fails to maintain a 3.00 average during the first two quarters of his graduate work will have his case reviewed by the Graduate Study Committee to determine whether or not he will be permitted to continue his work toward an advanced degree. In computing these grade-point averages, grades in both graduate and undergraduate courses are counted.

**MASTER OF BUSINESS ADMINISTRATION.** The student must complete a minimum of 36 credits. At least 24 credits must be in business administration courses. The following courses are required:

	CREDITS
Policy and Administration 575, 576, or 586 .....	3
Policy and Administration 593 or 594 .....	3
Accounting 592 .....	3
General Business 570, 571-572* .....	9
Electives. (The electives must include at least three areas of business administration, with a minimum of three credits in each area. Six of the elective credits shall be in 500-numbered courses.) .....	18
	<hr/> 36

\* Students may petition the Graduate Study Committee to enroll for thesis as a substitute for completing the three seminars in research and writing.

**MASTER OF ARTS.** The student must complete a minimum of 36 credits with a major in one of the fields of graduate study offered by the College of Business Administration. A minimum of 15 credits exclusive of the thesis must be earned in the major field. A minor may be taken in the College of Business Administration or elsewhere. A minimum of 9 credits is required in the minor field. If the minor is elected outside the College, requirements of the department offering the minor must be met.

A minimum of 15 credits must be earned in courses for graduates (500 and 600 series), and the remaining course credits must be in courses approved for graduate credit. The student must have a reading knowledge of an acceptable foreign language, as determined by examination.

Candidates for a master's degree in other colleges who elect a minor in the College of Business Administration must have as a background 15 credits in acceptable courses in business administration. The student must earn a minimum of 15 credits in approved upper-division and graduate courses in one field of business administration.

**DOCTOR OF BUSINESS ADMINISTRATION.** A requirement for consideration for the D.B.A. program is a grade-point average of at least 3.25 during the preceding year of graduate study and the necessary prerequisites for work in the College of Business Administration. Applications for admission to the D.B.A. program must be accompanied by three letters of recommendation, at least two of which must come from former instructors. The student must maintain a 3.25 or better average in his graduate work in *all* courses.

In addition to the general requirements of the Graduate School, the doctoral student must demonstrate competence in four areas of study, at least three of which must be in the College of Business Administration. Business and its en-



vironment or economics must be one of the four areas. In addition, the candidate must show evidence of competency in business research and must understand administrative functions of management. He must also demonstrate a knowledge of economics pertinent to his areas.

At the end of two years of graduate study as approved by the students' supervisory committee, the chairman of the committee may present to the Graduate School for approval a warrant permitting the student to take the general examination for admission to candidacy. The general examination consists of written and oral parts in all of the candidate's fields. All of these examinations are to be taken in one quarter and they are scheduled by the Graduate Study Committee.

No student is regarded by the Graduate School as a candidate for the doctor's degree until after the warrant certifying the successful completion of the general examinations has been filed with the Graduate School Office by the chairman of his supervisory committee. After his admission to candidacy, the student ordinarily devotes his time to the completion of his research work to be embodied in the thesis and to preparation for his final examination.

The candidate's thesis must represent original and independent investigation. It should reflect not only his mastery of research techniques but also his ability to select an important problem for investigation and to deal with it competently. Instructions for the preparation of theses in acceptable form may be obtained from the Library.

The final examination is oral and will normally be taken not less than two quarters after the general examination. It is primarily on the thesis and the field of the thesis and will not be given until after the thesis has been accepted.

## COURSES

### ACCOUNTING

310 Intermediate Accounting (5)	Staff
320 Income Tax I (3)	Staff
330 Cost Accounting (5)	Staff
340 Accounting Systems (3)	Staff
344 Introduction to Electronic Data Processing (2) (Formerly Business Statistics 344.)	Staff
350 Budgetary Control (3)	Staff
360 Advanced Accounting (5)	Staff
420 Income Tax II (3)	Staff
444 Advanced Electronic Data Processing (3) (Formerly Business Statistics 444.)	Staff
470 Auditing I (5)	Staff
471 Auditing II (3)	Staff
480 Fund Accounting (3)	Staff
485 Consolidated Financial Statements (3)	Staff
486 Fiduciary Accounting (2)	Staff
490 Advanced Problems (3)	Staff
495 Advanced Accounting Theory (3)	Staff
520, 521 Seminar in Financial Accounting (3,3) Critical examination of accounting theories, concepts and standards, and study of current problems. 520: general principles, measurement, historical costs versus current values, current assets and liabilities, and the fund theory of accounting. 521: fixed items in the balance sheet and the related expenses and incomes, including fixed investments and liabilities, plant assets and depreciation, wasting assets and depletion, intangible assets and their amortization, capital stock, dividends, capital surplus, and reserves. Prerequisite, permission.	Staff
522 Seminar in Cost Accounting (3) Income matters such as accounting period convention, realization of income, matching costs and revenues, joint costs, and trends in accounting and reporting. Each course is a separate unit and need not be taken in order. Prerequisite, permission.	Staff

- 592 Seminar in Administrative Controls (3)** **Staff**  
The use of accounting and statistics by management in the exercise of its planning and controlling functions; e.g., forecasting, budgets, standard costs, analysis of cost variations. Controllanship as a function in the business enterprise. Prerequisite, 255.
- 604 Research (\*, maximum 10)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

**BUSINESS AND ITS ENVIRONMENT**

- 552 Legal Aspects of Business Regulation (3)** **Staff**  
Examination, from the administrative point of view, of advanced legal problems bearing directly upon top management's decisions concerning basic operating policy.
- 562 Responsibilities of Business Leadership II (3)** **Staff**  
Social responsibilities of business in relation to changing social forces. Relationships between business and consumers, government, labor, and agriculture. Problems of business ethics.
- 590 Business History (3)** **Staff**  
Evolution of business institutions with special emphasis upon changing administrative policy, business organization, and methods in the American environment from the colonial period to the present.
- 593 Seminar in Business Fluctuations (3)** **Staff**  
Business problems arising from fluctuations in prices and demand; analysis of strategic causes and effects of business policy on fluctuations; methods of adjustment by the firm; appraisal of corrective measures internal and external to business. Prerequisite, permission.
- 594 Seminar in Business Forecasting (3)** **Staff**  
Problems of business forecasting and their setting; study and appraisal of forecasting methods in current use by corporations, advisory services and governmental agencies; review of actual cases and experience; techniques of preparing forecasts for the individual firm. Prerequisite, permission.
- 597 Behavioral Science of Business (3)** **Staff**  
Analysis of the business system in the light of the concepts and methods of the behavioral disciplines.
- 598 Analysis of Business Behavior (3)** **Staff**  
Current broad problems of business concerns in the American economy. The topics, one of which is usually discussed each quarter, emphasize practical price determination, cost analysis, firm behavior, motivation, or other similar subjects. Prerequisite, permission.
- 604 Research (\*, maximum 10)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

**BUSINESS LAW**

- 302 Business Law (5)** **Staff**
- 420 Law in Accounting Practice (3)** **Staff**

**BUSINESS STATISTICS**

- 341 Sampling (5)** **Staff**
- 350 Analytical Techniques in Business (5)** **Staff**
- 442 Administrative Applications of Statistical Control (3)** **Staff**
- 443 Statistical Problems (3)** **Staff**
- 451 Analytical Methods in Decision Making (5)** **Staff**
- 520 Seminar (3)** **Staff**  
Administrative use of modern statistical techniques available for solution of problems in industrial, commercial, governmental, and nonprofit organizations. Emphasis on the utilization of statistical methods in administrative control. Group discussion, lecture, and reading groups. Prerequisite, permission.
- 604 Research (\*, maximum 10)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

**BUSINESS WRITING**

- 410 Business Reports (5)** **Staff**

**FINANCE**

- 334 Credits and Collections (3)** **Staff**
- 340 Securities Markets (5)** **Staff**
- 344 Principles of Investment (5)** **Staff**
- 367 International Finance (5)** **Staff**

<b>410 Mortgage Banking (3)</b>	<b>Staff</b>
<b>423 Problems in Bank Administration (5)</b>	<b>Staff</b>
<b>426 Financial Institutions and Money Markets (3)</b>	<b>Staff</b>
<b>446 Investment Analysis (5)</b>	<b>Staff</b>
<b>450 Problems in Corporation Finance (5)</b>	<b>Staff</b>
<b>520 Seminar in Banking Problems (3)</b> Selected problems of contemporary and permanent significance in domestic and international banking and finance. Prerequisite, permission.	<b>Staff</b>
<b>521 Seminar in Money Markets (3)</b> Supply and demand for funds in short-term and long-term money markets; analysis of the influence of the money supply, bank reserves, legal restrictions, institutional portfolio policies, and changing needs and instruments of corporation finance. An objective of this seminar is to develop ability to analyze and appraise current money market developments. Prerequisite, permission.	<b>Staff</b>
<b>522 Seminar in Corporation Finance (3)</b> Emphasizes selected contemporary problems and methods used, internal and external, in financing business corporations; sources of information useful for research in solving corporate financial problems and indicating financial trends. Extensive reading and discussion is required in designated areas. Prerequisite, permission.	<b>Staff</b>
<b>604 Research (*, maximum 10)</b> Prerequisite, permission.	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

#### FOREIGN TRADE

<b>320 International Business Environment (5)</b>	<b>Staff</b>
<b>370 Foreign Area Analysis (5)</b>	<b>Staff</b>
<b>420 Foreign Trade Practices (5)</b>	<b>Staff</b>
<b>470 Problems in Foreign Operations Management (5)</b>	<b>Staff</b>
<b>520, 521 Seminar (3,3)</b> Trends and contemporary problems in foreign operations management, international business relations, services, foreign economic policies, and related subjects; research and sources of information useful for solving foreign trade problems. Each quarter a different aspect is emphasized. Prerequisite, permission.	<b>Staff</b>
<b>604 Research (*, maximum 10)</b> Prerequisite, permission.	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

#### GENERAL BUSINESS

<b>439 Analysis of Business Conditions (5)</b>	<b>Staff</b>
<b>462 Responsibilities of Business Leadership I (3)</b>	<b>Staff</b>
<b>570 Seminar in Business Research (3)</b> Business research methods and techniques. Emphasis is placed on what business research is; how it is done (stressing the scientific method as a research procedure) and who does it. Sources of relevant information are covered. Students will carry out the formulation of a research project—defining the problem, pinpointing sources of information, selecting a method of approach. Prerequisite, permission.	<b>Staff</b>
<b>571-572 Business Studies (3-3)</b> Independent study of the field of business administration; critical evaluation of business analysis and research methods. Effective communication of ideas is emphasized. Methods and content of independent research studies being completed by the students are subjected to critical evaluation in seminar discussion. Prerequisites, 570 and approved research topic outline for 571-; 571- for -572; 571-572 open only to Master of Business Administration nonthesis students.	<b>Staff</b>
<b>604 Research (*, maximum 10)</b> Prerequisite, permission.	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

#### HUMAN RELATIONS IN BUSINESS AND INDUSTRY

<b>460 Human Relations in Business and Industry (5)</b>	<b>Staff</b>
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#### INSURANCE

<b>360 Life Insurance for the Individual (5)</b>	<b>Staff</b>
<b>370 Property—Liability Coverages (5)</b>	<b>Staff</b>
<b>375 Casualty Insurance (5)</b>	<b>Staff</b>
<b>460 Life Insurance for Business (5)</b>	<b>Staff</b>

**520 Seminar (3)** **Staff**  
 Considers theoretical aspects of the insurance business rather than the public and sales factors. Examination is made of the economic theory underlying insurance and a number of the management problems facing the industry. Class is conducted on a discussion basis, with the members of the class preparing and presenting reports on the management problems discussed. Prerequisite, permission.

**604 Research (\*, maximum 10)** **Staff**  
 Prerequisite, permission.

**700 Thesis (\*)** **Staff**

## MARKETING

**351 Principles of Salesmanship (2)** **Staff**

**371 Wholesaling (5)** **Staff**

**381 Retailing (5)** **Staff**

**391 Advertising (5)** **Staff**

**401 Sales Management (5)** **Staff**

**411 Group Activities in Marketing (5)** **Staff**

**421 Marketing Research (5)** **Staff**

**425 Distribution Cost Analysis (2)** **Staff**

**431 Retail Planning and Control (5)** **Staff**

**441 Retail Sales Promotion (3)** **Staff**

**491 Marketing Problems (5)** **Staff**

**520 Marketing Trends and Developments (3)** **Staff**  
 The current evolution of marketing is subjected to critical evaluation. The entire field of marketing is reviewed analytically. Prerequisite, 301.

**521 Marketing's Role in Contemporary America (3)** **Staff**  
 The role of marketing in helping to meet the challenges of full employment to an expanding flow of goods and services through the American economy. Special problem areas which may be examined include: marketing costs and efficiency, marketing and government, marketing and monopoly, pricing, and channels of distribution. Prerequisite, 301.

**522 Advanced Marketing Concepts (3)** **Staff**  
 The interdisciplinary exchange of ideas related to marketing is studied. New marketing theories and evolving concepts of marketing management are examined and critically appraised. Prerequisites, 491, 520 or 521.

**604 Research (\*, maximum 10)** **Staff**  
 Prerequisite, permission.

**700 Thesis (\*)** **Staff**

## PERSONNEL

**345, 346 Personnel Management Techniques (3,3)** **Staff**

**450 Industrial Relations Administration (5)** **Staff**

**520 Seminar in Personnel Management (3)** **Staff**  
 By case discussion and brief written reports, the course involves analysis of the problems and policies in personnel administration in the following areas: business philosophy, ethics, personnel policies, the role of the personnel director, breadth of the personnel department's responsibilities, supervision, job evaluation, and safety. Prerequisite, permission.

**521 Current Problems in Personnel and Industrial Relations (3)** **Staff**  
 Current problems in these areas: selection, appraisal, performance review, and development of executives; executive salary administration; white-collar unionization; preparation for contract negotiations; problems surrounding strikes. Prerequisite, permission.

**604 Research (\*, maximum 10)** **Staff**  
 Prerequisite, permission.

**700 Thesis (\*)** **Staff**

## POLICY AND ADMINISTRATION

**440 Concepts in Organization and Administration (5)** **Staff**

**463 Administrative Practices (5)** **Staff**

**470 Business Policy (5)** **Staff**

**471 Problems of the Independent Businessman (5)** **Staff**

**575, 576 Seminar in Administration (3,3)** **Staff**  
 An examination of present-day thinking, points of view, and developing research with a major stress on the human aspects of administration. Various areas are developed by extensive reading, case discussion, and individual reports on special projects and research. (Formerly 590, 591.) Prerequisite, permission.

- 586 Seminar in Administrative Organization (3)** **Staff**  
Examination of organization concepts and theories aimed at developing working principles and an organized philosophy of management. Reading and discussion of the classical and current literature of the field, including an examination of the philosophy of various outstanding business leaders. (Formerly 596.) Prerequisite, permission.
- 593 Policy Determination and Administration (3)** **Staff**  
Development of an appreciation for and skill in dealing with policy problems faced by the chief administrative officers of business firms. Analysis of problems which relate to determination of objectives; development of policies to achieve the objectives; organization of executive personnel to implement the policies; coordination of the organization; appraisal and adjustments to changes in the environment. The course is intended to give a clearer insight not only into how business decisions are reached, but into the motivation of businessmen in deciding what to do under varying circumstances. Case study seminar. (Formerly 560.) Prerequisites, Master of Business Administration candidacy and permission.
- 594 Policy Determination and Administration (3)** **Staff**  
Continuation and extension of the objectives of 593. Methodology involves business gaming and advanced case study at the top management level. Attention is focused on the critical analysis of integrated business policy formulation and effectuation in complex and dynamic environments. (Formerly 561.) Prerequisite, 470, 471 or 593, or permission.
- 604 Research (\*, maximum 10)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

**PRODUCTION**

- 351 Production Planning and Control (5)** **Staff**
- 355 Purchasing and Material Management (5)** **Staff**
- 460 Manufacturing Administration (5)** **Staff**
- 470 Industrial Analysis of the Pacific Northwest (5)** **Staff**
- 520 Seminar in Production (3)** **Staff**  
Research, readings, and reports on current problems in the field using a topical approach with emphasis on such areas as product research and development, plant location, equipment policies, materials and quality controls, and production planning and control. Prerequisite, permission.
- 521 Seminar in Manufacturing (3)** **Staff**  
Policy formulation and administration of manufacturing enterprises by analysis of case studies of selected industries emphasizing integration of the functions of production management with the major goals of the organization. Prerequisite, permission.
- 604 Research (\*, maximum 10)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

**REAL ESTATE**

- 410 Real Estate Appraisals, Brokerage, and Management (5)** **Staff**
- 520 Seminar in Real-Estate and Urban Land Economics (3)** **Staff**  
Analysis and evaluation of land allocation systems, institutional aspects of the real-estate industry, and problems arising from competition of spatial units within urban markets.
- 521 Seminar in Real-Estate Administration (3)** **Staff**  
The administrative approach to management problems in the real-estate industry; analysis of the business functions of production, finance, and distribution of real-estate services.
- 604 Research (\*, maximum 10)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

**TRANSPORTATION**

- 311 Railroad Transportation (5)** **Staff**
- 313 Air Transportation (5)** **Staff**
- 315 Highway Transportation (5)** **Staff**
- 317 Water Transportation (5)** **Staff**
- 440 Industrial Traffic Management (5)** **Staff**
- 481 Management Problems in Transportation (5)** **Staff**
- 491 Distribution Management Problems (5)** **Staff**
- 520, 521 Seminar (3,3)** **Staff**  
Advanced analysis and research on current transportation problems and practices. Study and discussion of techniques employed in the evaluation of an industrial firm's transportation problems. Relationship and effect of changing national policies and regulations on transportation businesses. Prerequisite, permission.

604 Research (\*, maximum 10)

Prerequisite, permission.

Staff

700 Thesis (\*)

Staff

## SCHOOL OF DENTISTRY

Dean: MAURICE J. HICKEY, C301 Health Sciences

Director, Graduate Dental Education: SAUL SCHLUGER, B324 Health Sciences

The School of Dentistry offers, through the Graduate School, course work leading to a Master of Science in Dentistry degree with a major in orthodontics, pedodontics, restorative dentistry, oral pathology, periodontics, or endodontics. Classes are selectively admitted once a year at the beginning of the Autumn Quarter.

An applicant is eligible for admission to the Graduate School provided he is a graduate of a School of Dentistry approved by the Council on Dental Education of the American Dental Association, or of a university dental school, located outside of the North American continent, whose curriculum and admission requirements are similar to those of the School of Dentistry, University of Washington. The candidate must also meet the admission requirements of the Graduate School of the University of Washington.

After a candidate has been declared eligible for admission, his acceptance must be approved by the Graduate Admissions Committee of the School of Dentistry. This approval will be based upon the availability of places in the various classes. A maximum of ten students can be accommodated each year in orthodontics, two in pedodontics, and varying numbers, not to exceed two, in each of three phases of restorative dentistry, depending upon the availability of teaching and research staff members. There will be five openings for majors in periodontics and one in endodontics.

A minimum of eight consecutive quarters (24 months) of residence is required for the M.S.D. degree with a major in periodontics and oral pathology; a minimum of six consecutive quarters for a major in orthodontics and endodontics; a minimum of five quarters for a major in pedodontics, and a minimum of three quarters for a major in restorative dentistry. Under the program for restorative dentistry, the student determines his major field (operative dentistry, fixed partial dentures, or prosthodontics) by the electives he selects. No foreign language is required.

**ORTHODONTICS.** Required courses are: Dentistry 510, 511, 512, 513, 588, 589, 590; Orthodontics 500, 501, 502, 503, 504, 546, 547, 548, 549, 550, 551; Pediatrics 505 (Physical Growth of the Well Child); Psychiatry 450 (Principles of Personality Development).

**PEDODONTICS.** Required courses are: Conjoint 532, 533, 534; Dentistry 510, 511, 512, 513, 588, 589, 590; Orthodontics 500; Pediatrics 505 (Physical Growth of the Well Child); Pedodontics 500, 501, 502, 503, 504, 546, 547, 548, 549, 550; Psychiatry 450 (Principles of Personality Development).

**PERIODONTICS AND ENDODONTICS.** Required courses are: Conjoint 532, 533, 534; Dentistry 588, 589, 590; Periodontics 546, 547, 548, 549, 550, 551, 560, 561, 562, 563, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 591, 592, 593, 600; Endodontics 535, 546, 547, 548, 549, 550, 551, 560, 561, 562, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 591, 592, 593, 600.

**RESTORATIVE DENTISTRY.** Required courses are: Conjoint 532, 533, 534; Dentistry 511, 580, 581, 582, 583, 588, 589, 590; and electives to make a total of 45 credits. In this program, the student selects electives to specialize in either operative dentistry, fixed partial dentures, or prosthodontics.

The approved list of electives for all programs includes such subjects as anatomy, anthropology, biometrics, child development, education, microbiology, nutrition, physiology, psychiatry, psychology, public health, and speech.

The programs are planned to prepare students to think independently, to evalu-

ate their own services and the literature, and to develop their clinical operative skills to a level to permit the successful practice of their chosen specialty. Emphasis is placed on the basic principles of diagnosis and treatment, which comprise the clinician's most valuable armamentarium. The seminar method of teaching is generally used. The purpose of the programs is not only to train students in the art of their respective specialties, but to also encourage basic science research in the specialties on a graduate level in possible preparation for academic careers or for research. The research may be undertaken in the major department or in co-operation with other departments. The opportunity for collaborative research is excellent because of the close proximity of the other colleges and departments in the University.

The graduate programs operate on the quarter system. There are three 11-week quarters in the academic school year. In order for the graduate dental programs to be continuous, the Summer Quarter has also been made an 11-week quarter or equivalent in length to the other quarters in the school year.

Applications are received and processed throughout the school year. Applications for admission to the orthodontics, periodontics or endodontics curricula, along with all necessary credentials, must be submitted on or before January 1 for consideration for entrance in the following Autumn Quarter. Applicants for restorative dentistry or pedodontics must have complete credentials on file by July 15.

## COURSES

### CONJOINT

#### 532, 533, 534 Basic Science (3,4,4)

Sreebny, Staff

An integrated course in the basic sciences useful to graduate students in dentistry.

### DENTISTRY

#### 416 Scientific Methodology in Dental Research (3)

Kraus

Principles of scientific methodology and basic statistics. Problem definition. Principles of classification. Collection of data. Techniques of analysis. Formation of hypothesis. Search of the literature. Experimentation. Sampling techniques. Graphic presentation of material. Ordering of quantitative data. Phenomena of distributions of biological data. Tests of significance, and their interpretation.

#### 417 Scientific Methodology in Dental Research (3)

Kraus

Advanced biometric techniques. Analysis of variance and co-variance. Linear and curvilinear regression. Multiple regression and analysis of variance. Orthogonal polynomials. Experimental designs: general principles, precision, replications. Randomized blocks and Latin squares. Incomplete block designs.

#### 510 Applied Osteology and Myology of the Head and Neck (2)

Kraus, Moore, Riedel

Detailed study as a background for the study of the growth and development of the head and for cephalometric roentgenogram interpretation. (Department of Orthodontics)

#### 511 Roentgenographic Cephalometry (2)

Bolton, Moore

Basic principles, history, and techniques of roentgenographic cephalometry. (Department of Orthodontics)

#### 512, 513 Growth and Development (2,2)

Moore

Review of the various methods of studying human growth, with special emphasis upon growth of the head, and study of the development of the dentition from birth through maturity; analysis of the factors that produce normal occlusion and malocclusion. Prerequisite, 512 for 513. (Department of Orthodontics)

#### 514 Genetics and Its Applications to Dental Problems (2)

Kraus

Genes and the nature of genic action. Significance of mitosis and meiosis. Hereditary syndromes involving cranial structures. Introduction to population genetics. Genetics of the blood groups and their medico-legal implications. Hereditary aspects of the human dentition.

#### 515 Evolution of the Human Cranio-facial Complex (2)

Kraus

Darwinism and the genetic basis for biological evolution. Principles of evolution. Palaeontological evidence of human evolution. Evolution of the cranio-facial complex. Evolution of the dentition. Malocclusion from the genetic and phylogenetic perspectives. Variability in the craniofacial complex and its interpretation in terms of evolution.

#### 518 Scientific Methodology in Dental Research (2)

Kraus

Critical review of dental literature. Application of principles learned in Dentistry 416 and 417 to selected monographs and papers in dentistry and related fields of the basic sciences.

#### 580 Gnathodynamics (2)

Moore, Young

A seminar devoted to a comprehensive review of the temporomandibular joint and its associated structures. Thorough review of the anatomy and growth processes of the head and oral mechanism, with special emphasis upon the functional aspect of the human denture. Study of the instruments designed to imitate jaw movement and their effectiveness, together with the pathologies of the temporomandibular joint. (Departments of Orthodontics and Prosthodontics)

- 581 Restorative Treatment Planning (4)** **Stibbs, Staff**  
Coordinated application of knowledge gained from both graduate and undergraduate courses to the diagnosis and treatment of the more complicated cases. (Department of Operative Dentistry)
- 582 Cast Metal Restorations (4)** **Morrison, Staff**  
Metallography of cast metals; physical properties of waxes and investments. Control of shrinkage. Interrelationships of physical properties of metals and physiology of oral tissues; thermal conductivity and pulpal response; galvanism; tissue tolerance in respect to various metals. Direct and indirect techniques. Principles of cavity preparation that apply specifically to cast restorations. (Department of Fixed Partial Dentures)
- 588, 589, 590 Seminar in Occlusion (2,2,2)** **Morrison, Staff**  
A continuous seminar in the dynamics and physiology of occlusion and related phenomena.

**FIXED PARTIAL DENTURES**

- 400, 401 Advanced Fixed Partial Dentures (1,1)** **Hagen, Morrison**
- 446 Advanced Clinical Crowns and Fixed Partial Dentures (8)** **Morrison, Staff**
- 561 Abutments and Distribution of Masticatory Stresses (4)** **Morrison, Staff**  
Tissue responses of bone and periodontal membrane to increased masticatory loads; physical principles involved in replacements in different locations in the mouth; considerations involved in length of span; retention form and resistance form; study of broken-stress design and fixed removable attachments; esthetic consideration of abutment preparation.
- 562 Advanced Dental Ceramics (3)** **Morrison, Staff**  
Baked porcelain as a substitute for lost tooth structure. Physical properties of the material; pyrochemical reactions in firing. Indications and contraindications in restorative dentistry. Color in dental ceramics; esthetics, a major consideration; use of stains. Veneer crowns and inlays—variant preparations of the teeth. Methods of impression taking, die formation, and construction of matrices. Manipulation of the various porcelains; the factors involved. Variations in techniques of fabrication of restoration. Clinical considerations in respect to insertion and maintenance.
- 700 Thesis (\*)** **Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

**OPERATIVE DENTISTRY**

- 400, 401, 402 Advanced Operative Dentistry (1,1,1)** **Stibbs**
- 446 Advanced Clinical Operative Dentistry (7)** **Stibbs, Staff**
- 561 Plastics as Restorative Materials (4)** **Stibbs, Staff**  
Metallography of silver-tin amalgams; physical properties of zinc oxyphosphate cements, siliceous cements, and acrylic resins. Postoperative history of teeth restored with plastic materials; relative service life of materials. Basic and variant designs of cavity preparation, considering morphology of tooth, masticatory stress, physical properties of material, and location and size of restoration. Variant techniques of manipulation of plastics; analysis of failures in plastics.
- 562 Gold Foil Restorations (4)** **Stibbs, Staff**  
Tissue reactions to operative procedures; response of dental pulp to thermal change; age changes in dentinal wall and histology of dental pulp. Indications and contraindications for gold foil in restorative procedures. Physical properties of dentin, cohesive and noncohesive pure gold foil, and platinum-centered foil. Rationale of manipulation of these materials. Modifications of basic cavity preparation for foil: Black, Ferrier, Woodbury, True, etc. Procedures for condensation and finishing.
- 700 Thesis (\*)** **Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

**ORAL DIAGNOSIS AND TREATMENT PLANNING**

- 400, 401, 402 Advanced Oral Diagnosis and Treatment Planning (1,1,1)** **Jacobson**
- 446 Advanced Clinical Oral Diagnosis and Treatment Planning (1)** **Staff**

**ORAL PATHOLOGY**

- 520 Seminar in Oral Pathology (1-3, maximum 9)** **Staff**  
Conferences, seminars and round table discussions of advanced topics and recent literature in oral pathology. Prerequisite, permission.
- 531 Oral Pathology (5)** **Staff**  
The purposes of this course are to train the student so that he may intelligently interpret manifestations of pathology as they occur in the oral cavity and to stimulate an intellectual curiosity regarding the basic pathological mechanisms responsible for these changes.
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**



**ORTHODONTICS**

- 500, 501, 502, 503, 504 Orthodontics Seminar (2,4,4,2,2)** **Staff**  
Methods of diagnosis, analysis, and treatment planning of malocclusion; analysis of methods and theoretical principles used in the treatment of malocclusion. The student presents a detailed case analysis and plan of treatment for each clinical patient he is supervising. Each course is a prerequisite to the following course.
- 546, 547, 548, 549, 550, 551 Clinical Orthodontics (4,5,5,5,6)** **Staff**  
Technics of construction and manipulation of the edgewise arch mechanism; application of the technics in the treatment of malocclusion. Treatment of patients begins in the second quarter. Each course is a prerequisite to the following course.
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

**PEDODONTICS**

- 500, 501, 502, 503, 504 Pedodontics Seminar (2,2,2,2,2)** **Law**  
Seminar on problems of tooth formation, development, calcification, and eruption in the child. Management of clinical problems of tooth development; operative procedures, pulp therapy, treatment planning, and the consideration of emotional factors in pedodontic practice.

**PERIODONTICS AND ENDODONTICS****Periodontics**

- 546, 547, 548 Clinical Periodontics (3,4,4)** **Schluger, Staff**  
The clinical diagnosis and treatment of periodontal disease.
- 549, 550, 551 Clinical Periodontics (3,4,4)** **Schluger, Staff**  
The clinical diagnosis and treatment of periodontal disease. Prerequisites, 546, 547, 548.
- 560, 561, 562 Periodontic Rehabilitation (2,1,1)** **Morrison, Staff**  
A lecture-clinic course emphasizing the restorative rehabilitation of the periodontally involved dentition.
- 563 Minor Tooth Movement (2)** **Ingle, Staff**  
A lecture-clinic course dealing with minor tooth movement necessary to successful periodontal therapy. Prerequisite, 546.
- 576, 577, 578 Periodontics Seminar (2,2,2)** **Schluger, Staff**  
A continuous weekly seminar devoted to review of periodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment.
- 579, 580, 581 Periodontics Seminar (2,2,2)** **Schluger, Staff**  
A continuation of the weekly seminars devoted to review of periodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment. Prerequisites, 576, 577, 578.
- 582, 583, 584 Treatment Planning Seminar (2,2,2)** **Schluger, Staff**  
A weekly seminar to discuss controversial treatment problems and difficult diagnostic cases.
- 585, 586, 587 Treatment Planning Seminar (2,2,2)** **Schluger, Staff**  
A continuation of the weekly seminar to discuss controversial treatment problems and difficult diagnostic cases. Prerequisites, 582, 583, 584.
- 591, 592, 593 Clinical Practice Teaching (1,1,1)** **Ogilvie, Staff**  
A closely supervised experience in teaching clinical periodontics to the undergraduate dental student. Prerequisites, 546, 547, 548, 576, 577, 578.
- 600 Research (\*)** **Schluger, Staff**  
An investigative program in one of the basic sciences under the direction of the departmental faculty. Prerequisite, permission.
- 700 Thesis (\*)** **Schluger, Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have clinical application.

**Endodontics**

- 535 Oral Microbiology (3)** **Zeldow**  
An advanced lecture-laboratory survey of the oral flora and diseases related to their activity.
- 546, 547, 548 Clinical Endodontics (3,4,4)** **Ingle, Staff**  
The clinical diagnosis and treatment of the pulpless tooth.
- 549, 550, 551 Clinical Endodontics (3,4,4)** **Ingle, Staff**  
The clinical diagnosis and treatment of the pulpless tooth. Prerequisites, 546, 547, 548.
- 560, 561, 562 Restoration of the Pulpless Tooth (2,1,1)** **Morrison, Staff**  
A lecture-clinic course emphasizing the restorative problem peculiar to the pulpless tooth.
- 576, 577, 578 Endodontic Seminar (2,2,2)** **Ingle, Staff**  
A continuous weekly seminar devoted to review of endodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment.

- 579, 580, 581 Endodontic Seminar (2,2,2)** **Ingle, Staff**  
A continuous weekly seminar devoted to review of endodontic and related literature and to discussion of teaching methods and philosophy of teaching and treatment. Prerequisites, 576, 577, 578.
- 582, 583, 584 Treatment Planning Seminar (2,2,2)** **Ingle, Staff**  
A weekly seminar to discuss controversial treatment problems and difficult diagnostic cases.
- 585, 586, 587 Treatment Planning Seminar (2,2,2)** **Ingle, Staff**  
A continuation of the weekly seminar to discuss controversial treatment problems and difficult diagnostic cases. Prerequisites, 582, 583, 584.
- 591, 592, 593 Clinical Practice Teaching (1,1,1)** **Ingle, Staff**  
A closely supervised experience in teaching clinical endodontics to the undergraduate dental student. Prerequisites, 546, 547, 548, 576, 577, 578.
- 600 Roserach (\*)** **Ingle, Staff**  
An investigative program in one of the basic sciences under the direction of the departmental faculty. Prerequisite, permission.
- 700 Thesis (\*)** **Ingle, Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have clinical application.

**PROSTHODONTICS**

- 400, 401 Advanced Complete Denture Prosthodontics (1,1)** **Young, Special Lecturers**
- 402 Advanced Removable Partial Denture Prosthodontics (1)** **Wykhuis**
- 446 Senior Clinical Prosthodontics (5)** **Staff**
- 560 Complete Dentures (4)** **Young**  
A seminar-laboratory-clinic in the various needs for reproduction of oral tissues in restorative dentistry. Physical requirements of various types of restoration; routines, materials, and equipment used; tissue responses to physical and functional stimuli. (Department of Prosthodontics)
- 561 Immediate Dentures (4)** **Wykhuis, Young**  
A seminar-clinic in removable partial denture treatments. Discussions of diagnosis and treatment planning; variations in basic denture procedures; the surgical operations of preparing the ridges for dentures; tissue reaction and wound healing; postoperative care; patient information. Clinical operations using procedures and equipment for denture construction.
- 562 Removable Partial Dentures (4)** **Wykhuis, Young**  
A seminar-clinic in removable partial denture treatments. Discussion of diagnosis and treatment planning, stressing mucosa, bone, and abutment teeth, and the influence of natural and modified tooth crown on abutment values. Clinical operations using procedures and equipment for removable partial denture construction.
- 563 Obturators and Speech Appliances (2)** **Beder**  
Theories, principles, technical and clinical experience in the fabrication of prostheses for the patient presenting congenital or acquired defects of the palate and contiguous tissue. Active participation in affiliated hospital programs will be provided whenever available. Desirous for applicant to furnish own patient if possible.
- 564 Definitive and Adjunctive Maxillofacial Appliances (2)** **Beder**  
Theories, principles, technical experience in the fabrication of somatoprostheses, appliances for the osteotomized mandible, vehicle and protective devices in irradiation therapy, stents, cranial prostheses, and splints. Active participation in affiliated hospital programs will be provided whenever available. Desirous for applicant to furnish own patient if possible.
- 700 Thesis (\*)** **Staff**  
An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

**COLLEGE OF EDUCATION****Dean: FRANCIS F. POWERS, 230 Miller Hall**

The College of Education offers courses leading to the degrees of Master of Arts, Master of Education, Doctor of Education, and Doctor of Philosophy.

All candidates for advanced degrees are required to have at least 20 credits in background courses in education. One year of successful teaching or administrative experience is required for admission to candidacy for master's degrees; two years of continuously successful teaching or administrative experience are required for admission to doctoral candidacy.

**MASTER OF ARTS.** The requirements are: 24 credits in education, including 591 and 10 credits in each of two fields in education; and 12 credits of approved

course work in a department other than education. The fields in education from which work may be taken for the M.A. degree are: college teaching, curriculum, educational administration and supervision, educational methods, educational psychology, educational sociology, elementary education, guidance and counseling, history and philosophy of education, and remedial and special education. Students must pass written final examinations, and present an acceptable thesis on an approved topic.

Master's candidates who are taking a minor in education must present a minimum of 12 approved credits in education courses.

**MASTER OF EDUCATION.** The requirements are: 27 credits in education, including 591 and a minimum of 5 credits in each of four fields in education; and 15 credits in two departments other than education, including 5 credits in courses numbered above 500. The fields in education from which work may be taken for the M.Ed. degree are: audio-visual education, business education, college teaching, comparative education, curriculum, educational administration, educational methods, educational psychology, educational sociology, educational supervision, elementary education, guidance and counseling, history and philosophy of education, industrial education, remedial and special education, secondary education, and tests and measurements. Students must pass written final examinations over the selected four fields in education and present an acceptable thesis on an approved topic.

**DOCTOR OF EDUCATION.** The requirements are: 60 credits in education, including 490 or 491, 587 and 588 or 589, 591, a minimum of 12 credits in one field in education, a minimum of 9 credits in each of three other fields in education, and electives to make up the total; and 45 credits in departments other than education, including 9 to 15 credits each in arts and letters, science and mathematics, foreign language, and social sciences. The fields in education from which prospective Ed.D. candidates may elect work are: college teaching, curriculum, educational administration and supervision, educational methods, educational psychology, educational sociology, elementary education, guidance and counseling, history and philosophy of education, and remedial and special education. Normally, it is expected that students who plan to enter upon doctoral work will have maintained a grade-point average of 3.50 or better in their work for the master's degree.

**DOCTOR OF PHILOSOPHY.** The requirements are: 70 credits in education, including 490, 587 and 588 or 589, 591, and approximately 15 credits in each of three fields in education; and either 35 credits in one department other than education, or 20 credits in each of two departments other than education. The fields in education in which prospective Ph.D. candidates may specialize are: college teaching, curriculum, educational administration and supervision, educational methods, educational psychology, elementary education, guidance and counseling, history and philosophy of education, and remedial and special education. Normally, it is expected that students who plan to enter upon doctoral work will have maintained a grade-point average of 3.50 or better in their work for the master's degree.

Doctoral candidates who are taking a minor in education must present a minimum of 35 approved credits in education courses.

## COURSES

*For a listing of courses offered any given quarter, together with the time and place of meeting, consult the Yearly Time Schedule which is available for reference in the College of Education Advisory Office, 221 Miller Hall. Since the amount of credit for courses offered during Summer Quarter varies slightly in some cases from that given during the regular quarters, it is advisable to refer to the Summer Quarter Announcement for the specific number of credits for a particular course.*

401 Advanced Educational Psychology (3)

Fea

402 Child Study and Development (3)

Staff

<b>403 Psychology of Elementary School Subjects (3)</b>	<b>Staff</b>
<b>404 Education of Exceptional Children (5)</b>	<b>Hayden</b>
<b>405 Problems of Adolescence (5)</b>	<b>Staff</b>
<b>406 Character Education (3)</b>	<b>Staff</b>
<b>407 Teaching the Gifted Child (3)</b>	<b>Staff</b>
<b>407W Workshop in Teaching the Gifted Child (3)</b>	<b>Staff</b>
<b>408 Mental Hygiene for Teachers and Administrators (3)</b>	<b>Staff</b>
<b>409AJ Training of the Mentally Retarded (5)</b> Offered jointly with the Department of Psychology. (Offered Summer Quarter only.)	<b>Staff</b>
<b>409BJ Psychology of the Mentally Retarded (5)</b> Offered jointly with the Department of Psychology. (Offered Summer Quarter only.)	<b>Staff</b>
<b>409WJ Advanced Workshop in the Education of the Retarded (10)</b> Offered jointly with the Department of Psychology. (Offered Summer Quarter only.)	<b>Staff</b>
<b>410 Educational Sociology (3)</b>	<b>Jessup</b>
<b>415 Principles of Safety Education (3)</b>	<b>Corbally</b>
<b>415D Principles of Safety Education: Driver Education (5)</b>	<b>Corbally</b>
<b>417 Adult Education (3)</b>	<b>Jessup</b>
<b>420 Theory and Technique of Kindergarten and Primary Teaching (3)</b>	<b>MacDonald</b>
<b>421 Remedial Education (3)</b>	<b>Foa</b>
<b>422 Remedial Education Clinic (3)</b> Prerequisite, 425 or equivalent.	<b>Foa</b>
<b>425 Remedial Reading (3)</b> Prerequisite, 374 or equivalent.	<b>Foa</b>
<b>430 Public School Administration (3)</b>	<b>Strayer</b>
<b>430P Workshop for Public School Business Officials (2)</b> (Offered Summer Quarter only.)	<b>Staff</b>
<b>430W Workshop in School Administration (1)</b> (Offered Summer Quarter only.)	<b>Staff</b>
<b>431 School Finance (3)</b> Prerequisite, 430 or permission.	<b>Strayer</b>
<b>433 Elementary School Organization and Administration (3)</b>	<b>Jessup</b>
<b>434 High School Organization and Administration (3)</b> Prerequisite, 430 or permission.	<b>Strayer</b>
<b>435 Administration and Supervision of Junior High Schools (3)</b>	<b>Staff</b>
<b>437 School Supervision (3)</b>	<b>Jessup</b>
<b>439 Pupil Personnel and Progress Reporting (3)</b>	<b>Staff</b>
<b>445V Principles and Objectives of Vocational Education (3)</b>	<b>Baily</b>
<b>447 Principles of Guidance (3)</b>	<b>Salyer</b>
<b>448 Improvement of Guidance Techniques (3)</b>	<b>Salyer</b>
<b>449 Workshop on Pupil Personnel Service (3)</b>	<b>Vopni</b>
<b>455 Auditory and Visual Aids in Teaching (3)</b>	<b>Hayden</b>
<b>456 Auditory and Visual Aids in Teaching (3)</b> Prerequisite, 455 or equivalent.	<b>Hayden</b>
<b>457 Audio-visual Aids Management (3)</b>	<b>Hayden</b>
<b>460J Field Training in Health Education (5)</b> Offered jointly with the Department of Public Health and Preventive Medicine.	<b>Vavra</b>
<b>461 Elementary School Curriculum (3)</b>	<b>Jessup</b>
<b>466 Workshop in Curriculum Improvement (1-15, maximum 15)</b> Prerequisite, 467 or permission.	<b>Draper</b>
<b>467 Principles and Techniques of Curriculum Improvement (3)</b> Prerequisite, 360.	<b>Draper</b>
<b>470 Historical Backgrounds of Educational Methods (3)</b>	<b>Staff</b>
<b>474 Workshop in the Improvement of Teaching (5)</b>	<b>Staff</b>
<b>475 Improvement of Teaching (3)</b>	<b>Staff</b>
<b>475A Improvement of Teaching: Secondary Mathematics (3)</b> Prerequisite, teaching experience or permission.	<b>Staff</b>
<b>475B Improvement of Teaching: Arithmetic (3)</b>	<b>Vopni</b>

- 475J Improvement of Teaching: Clothing Selection (2½)** **Staff**  
Offered jointly with the School of Home Economics. (Offered Summer Quarter only.)
- 475H Improvement of Teaching: Language Arts (3)** **Fea**
- 475I Improvement of Teaching: Industrial Education (3)** **Baily**
- 475LJ Improvement of Teaching: Latin (5)** **Grummel**  
Offered jointly with the Department of Classics. (Offered Summer Quarter only.)
- 475M Improvement of Teaching: Social Studies (3)** **Boroughs**
- 475S Improvement of Teaching: Elementary School Science (3)** **Vopni**
- 475T Improvement of Teaching: Secondary School Science (3)** **Vopni**
- 475XJ Caesar for High School Teachers (2½)** **Staff**  
Offered jointly with the Department of Classics. (Offered Summer Quarter only.)
- 476D Materials and Methods of Teaching Typewriting (2½)** **Staff**  
(Offered Summer Quarter only.)
- 476E Materials and Methods of Teaching Office and Clerical Practice (2½)** **Staff**  
(Offered Summer Quarter only.)
- 476H Workshop in Current Problems of Distributive Education (2½, maximum 5)** **Staff**  
(Offered Summer Quarter only.)
- 476K Coordination of Distributive Education and Diversified Occupational Programs (2-3, maximum 3)** **Staff**  
(Offered Summer Quarter only.)
- 476L Materials and Methods of Teaching Gregg Shorthand and Transcription (2½)** **Staff**  
(Offered Summer Quarter only.)
- 476M Principles and Problems of Business Education (2½)** **Staff**  
(Offered Summer Quarter only.)
- 476N Materials and Methods of Teaching Bookkeeping and General Business Subjects (2½)** **Staff**  
(Offered Summer Quarter only.)
- 477 The Teaching of Reading (3)** **Fea**
- 478J Workshop in Elementary School Physical Education (2½)** **Staff**  
Offered jointly with the Department of Women's Physical and Health Education. (Offered Summer Quarter only.)
- 480 History of Education (5)** **Jessup**
- 481 Workshop in Industrial Education (3-10, maximum 10)** **Baily, Staff**
- 482 Advanced Tools and Materials (3)** **Baily**
- 483 Organization and Administration of Industrial Education (3)** **Baily**
- 484 Comparative Education (5)** **Jessup**
- 485 Advanced General Shop for Industrial Education Teachers (3)** **Baily**  
Prerequisite, 182 or equivalent, or permission.
- 486 Trends in Industrial Education (3)** **Baily**
- 487 Instructional Analysis for Industrial Education Teachers (3)** **Baily**
- 488 Philosophy of Education (3)** **Staff**
- 489 Current Problems in Industrial Education (3)** **Baily**
- 490 Educational Statistics (5)** **Dvorak**  
Prerequisite, 390.
- 491 Advanced Educational Measurements (3)** **Dvorak**  
Prerequisite, 390 and 490, or Psychology 301 or equivalent.
- 501 Seminar in Educational Psychology (3)** **Fea**  
Psychological principles of education; summary of research results in application to school problems. Prerequisite, a background in general and educational psychology.
- 510 Seminar in Educational Sociology (3)** **Jessup**  
Application of sociological principles to school problems; individual problems and investigations. For teachers, administrators, and those using educational sociology as a field for advanced degrees.
- 522 Seminar in Diagnostic and Remedial Work in Education (3)** **Fea**  
Study of the recent research in diagnosis of and remediation for learning difficulties in the academic school subjects.
- 525 Seminar in Elementary Education (3)** **Boroughs**  
An exploration into the philosophy, history, curriculum, and method of the elementary school, with emphasis upon individual research. Prerequisite, doctoral candidacy or special permission.

- 531 Seminar in Administration: Finance (5)** **Strayer**  
Current problems in school finance, including costs, ability to support schools, and financial implications of educational principles. The relation of costs to efficiency; preparation of the budget, salary schedules, sources of school revenue, problems of state and local school support, and state and local control of school funds; financing capital outlay, research, and public relations. Prerequisites, 430, 431, and doctoral candidacy or special permission.
- 533 Seminar in Administration: School Buildings (3)** **Strayer**  
School building surveys; sharing responsibility for the educational plant; types of school buildings and building materials; appraisal of existing school plants; heating and ventilating; acoustics; special areas; audio-visual illumination and color; preparation of floor plans on the basis of educational plans; building maintenance and school insurance; modernizing existing buildings; financing the school plant program. Prerequisites, 430 and doctoral candidacy or special permission.
- 536 Internship in Educational Administration (5, maximum 15)** **Strayer**  
Recommended for all doctoral candidates preparing for administrative positions except those having sufficient experience as administrators. Half-time work in a school district or districts in close proximity to the University of Washington for one, two, or three quarters, depending upon the student's previous experience. Supervision by staff members of the College of Education and the superintendent of schools or school principal in the selected school district. Prerequisites, 430 and doctoral candidacy or special permission.
- 538 Public Relations for Public Schools (5)** **Strayer**  
Relationship between the public schools and the public, with emphasis on the two-way flow of ideas between school and community; the school board, administrators, advisory groups, and the public relations program; school personnel and the public; pupils, parents, and community attitudes; proven techniques and media; special versus continuous public relations programs; special problems such as school finance, school extracurricular activities, and building programs. Prerequisites, 430 and doctoral candidacy or special permission.
- 539 Seminar in Public School Administration (3)** **Strayer**  
Current studies on administrative trends and problems; principles for the evaluation of administrative decisions; desirable research problems; appraisal of problems in certain school districts. For school administrators. Prerequisites, 430 and doctoral candidacy or special permission.
- 541, 542, 543 Guidance and Counseling (3,3,3)** **Vopni**  
Techniques and materials used in school guidance; organization and administration of the guidance program. Primarily for people who plan to become counselors or guidance workers in educational institutions. Prerequisite, 447 or permission.
- 547 Seminar in Guidance (5)** **Corbally**  
Individual problems in the areas of organization, supervision, and administration of guidance in the elementary and secondary schools. Required of most graduate students using guidance as a field for advanced degrees. Prerequisites, 447 or equivalent and doctoral candidacy or special permission.
- 550 Development and Organization of Higher Education (3)** **Staff**  
Higher education from the standpoint of the new instructor; history of administrative organization. Prerequisite, doctoral candidacy or special permission.
- 551 College Problems (3)** **Staff**  
A consideration of the pertinent problems of the college teacher and his tasks. Prerequisite, doctoral candidacy or special permission.
- 552 Improvement of College Teaching (3)** **Staff**  
An analysis of type of teaching applicable to the college level, with special reference to lectures, assignments, use of textbooks, student reports, quiz techniques, panel discussions, the use of visual aids, syllabi, and bibliographies. Prerequisite, doctoral candidacy or special permission.
- 555 The Junior College (3)** **Staff**  
An outline study of the history, philosophy, and curriculum of junior colleges in general, with special emphasis upon junior colleges in the Northwest. Special problem studies are optional.
- 560 Seminar in Curriculum: Cooperative Research in Curriculum (3)** **Drapar**  
Research studies in the field of curriculum development will be designed for experimentation in the public schools. An analytical study will be made of the place of action research in the curriculum field. Prerequisites, 467 and doctoral candidacy or special permission.
- 561 Seminar in Curriculum: Studies in Fusion, Correlation, and Child-Centered Programs (3)** **Drapar**  
Research in fusion, correlation, and child-centered programs in the large block of time. Prerequisites, 467 and doctoral candidacy or special permission.
- 568 Seminar in Secondary Education (3)** **Drapar**  
Research in the field of extraclass activities with emphasis on evaluation. Fusion and correlation with curriculum areas will be studied. Prerequisite, 467.
- 570, 571 Problems in Modern Methods (3,3)** **Staff**  
The nature of teaching and the problems involved in the underlying principles and practices of types of modern methodology, with special reference to experimental studies in the project, the unit, socialized recitation, audio-visual aids, supervised study, lesson plans, lectures, assignments, and the activity movement.

- 572J, 573J Romance Language Teachers' Seminar (2½,2½)** **Staff**  
Theory and practice of foreign language learning; how language is learned; the principal obstacles; techniques for learning a foreign language as a child, as an adolescent, as an adult; the possibilities and the limits of electronic aids. Offered jointly with the Department of Romance Languages and Literature.
- 575 Seminar in Language Arts (3)** **Foa**  
Study of recent research in listening, oral language, reading and written language, emphasizing psychological and interrelated aspects. Prerequisites, 374, 475 or equivalent, and permission.
- 587, 588, 589 Seminar in Philosophy of Education (3,3,3)** **Staff**  
The nature and meaning of philosophy as it relates to educational objectives, methodology, curriculum, and administration, from the points of view represented in idealism, realism, naturalism, and pragmatism.
- 591 Methods of Educational Research (3)** **Hayden**  
A study of devices and methods used in conducting research. Designed to assist students in planning, organizing, and writing theses. Required of candidates for advanced degrees.
- 600 Research (\*)** **Staff**  
Prerequisites, 591 and permission of instructor and Director of Graduate Studies in Education. Instructor and field must be designated in registration.
- |                            |                                     |
|----------------------------|-------------------------------------|
| Audio-visual education     | Educational supervision             |
| College teaching           | Elementary education                |
| Comparative education      | Guidance and counseling             |
| Curriculum                 | History and philosophy of education |
| Educational administration | Industrial education                |
| Educational methods        | Remedial and special education      |
| Educational psychology     | Secondary education                 |
| Educational sociology      | Tests and measurements              |
- 700 Thesis (\*)** **Staff**  
Advanced degree candidates in education must register for "thesis." When registration is for "thesis only," an incidental fee of \$27.50 is charged and the work may be done *absentia* by special permission.

## COLLEGE OF ENGINEERING

Dean: HAROLD E. WESSMAN, 206 Guggenheim Hall

In the College of Engineering, graduate study leading to a Master of Science degree with departmental designation is available in the Departments of Aeronautical, Chemical, Civil, Electrical, and Mechanical Engineering, and in the School of Mineral Engineering through the Divisions of Ceramic, Metallurgical, and Mining Engineering.

The degree of Master of Science in Engineering (without departmental designation) is offered to qualified advanced students whose undergraduate majors have been in departments different from those in which they have worked toward master's degrees and to students who are doing graduate work in several engineering departments with the approval of advisers in their major departments.

The degrees of Master of Aeronautical Engineering and Master of Electrical Engineering are offered to students who satisfactorily complete an approved two-year program of graduate work in aeronautical or electrical engineering.

Graduate study leading to the Doctor of Philosophy degree is available in aeronautical, chemical, civil, electrical, and mechanical engineering.

Admission to graduate study in engineering requires the approval of both the Graduate School and the engineering department in which the major work will be done.

**NUCLEAR ENGINEERING.** A graduate program in Nuclear Engineering leading to the degree Master of Science in Engineering is now offered by the College of Engineering. The degree is designated as Major: Nuclear Engineering. The program is a cooperative undertaking of the Departments of Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Metallurgical Engineering, and is administered by a faculty committee composed of representatives from these departments under the chairmanship of Dr. R. W. Moulton, Executive Officer, Department of Chemical Engineering.

The requirements for the Master of Science in Engineering degree are 36 credits of course work and a thesis equivalent to 9 credits of course work. The course

work is usually divided in the ratio of two to one between nuclear engineering courses and selected courses from other departments. It is recommended that candidates for this degree include 500, 501, 510, and 539 among their courses. Attendance at N521 will normally be required for three quarters. No foreign language is required.

## COURSES

- |   |                |
|---|----------------|
| <b>444 Nuclear Metallurgy (3)</b>   | <b>Polonis</b> |
| <b>445 Nuclear Metallurgy Laboratory (2)</b>  | <b>Polonis</b> |
| <b>484 Introduction to Nuclear Engineering (3)</b>  | <b>Babb</b>    |
| <b>485 Nuclear Instruments (3)</b>  | <b>Mar</b>     |
| <b>486 Nuclear Power Plants (3)</b>   | <b>Waibler</b> |
| <b>487 Tracer Techniques in Engineering Measurements (3)</b>  | <b>Firey</b>   |
| <b>500 Nuclear Reactor Theory (5)</b>   | <b>Mar</b>     |
| A lecture course in nuclear reactor physics covering: nuclear reactions; production of neutrons; diffusion of neutrons; slowing down of neutrons; Fermi Age Theory and applications; general theory of homogeneous multiplying systems and heterogeneous reactors. Prerequisites, 484 or permission, Physics 323 or equivalent, and Mathematics 321; equivalent of Mathematics 428 recommended.   |                |
| <b>501 Nuclear Reactor Theory Laboratory (3)</b>  | <b>Babb</b>    |
| A continuation of 500, covering time behavior of nuclear reactors; fundamentals of reactor control; elements of perturbation and transport theory. The laboratory work will center around the natural uranium-graphite reactor. Experiments will include measurements of the scattering and absorption of neutrons, flux distributions in the exponential pile, lattice parameters, and studies with a reactor simulator and reactor control circuits. Prerequisite, 500. |                |
| <b>502 Nuclear Engineering Laboratory (5)</b>   | <b>Babb</b>    |
| An advanced laboratory course centered around the 10-KW critical reactor. Experiments will include studies of reactor operating characteristics and measurements utilizing gamma and neutron radiations. Prerequisite, 501.   |                |
| <b>510 Nuclear Reactor Engineering (3)</b>  | <b>Babb</b>    |
| An advanced course in engineering analysis of nuclear reactor systems. The course covers core design methods; heat generation and distribution in nuclear reactor systems; the removal and utilization of heat for power production; fuel cycles and processing of irradiated reactor fuels; shielding of nuclear radiations. Prerequisite, 500.  |                |
| <b>N521, N522, N523 Graduate Seminar (0,0,1)</b>  | <b>Staff</b>   |
| <b>539 Nuclear Reactor Design (3)</b>   | <b>McFeron</b> |
| A design laboratory course involving the synthesis of reactor theory, engineering analysis, material specifications, and economics to meet the design specifications for a complete nuclear reactor facility. Emphasis upon cycle analysis, hazards, arrangements and requirements peculiar to nuclear reactor plants. Prerequisite, 510.   |                |
| <b>559 Control of Radioactive Wastes (3)</b>  | <b>Bogan</b>   |
| Environmental problems resulting from utilization of nuclear reactions; radioactive waste disposal practice; decontamination of water supplies; reactor site location and control of stream and atmospheric pollution. Prerequisite, Physics 320 or permission.   |                |
| <b>700 Thesis (*)</b>   | <b>Staff</b>   |

Additional complementary courses are offered in the Departments of Chemistry, Mathematics, and Physics within the College of Arts and Sciences. Mathematics 427, 428, and 429 (Topics in Applied Analysis) are particularly recommended for majors in nuclear engineering. Students having prerequisite courses in physical chemistry will be interested in the following two courses: Chemistry 418 (Radiochemistry) and 419 (Radiochemistry Laboratory).

All students planning to take graduate work in nuclear engineering are advised to include in their undergraduate programs the following courses or their equivalents: Mathematics 321 (Differential Equations); Physics 320 (Introduction to Modern Physics); Physics 323 (Introduction to Nuclear Physics); Metallurgical Engineering 441 (Engineering Physical Metallurgy); Nuclear Engineering 484 (Introduction to Nuclear Engineering).

Questions concerning the nuclear engineering program should be addressed to Dr. R. W. Moulton.



## AERONAUTICAL ENGINEERING

**Executive Officer: HAROLD CLIFFORD MARTIN, 207 Guggenheim Hall**

The Department of Aeronautical Engineering offers courses leading to the advanced degrees of Master of Science in Aeronautical Engineering, Master of Science in Engineering (see page 148), Master of Aeronautical Engineering, and Doctor of Philosophy. Students who intend to work toward advanced degrees must meet the requirements of the Graduate School, and must have, or must take without graduate credit, a first course in differential equations. Candidates for advanced degrees with insufficient undergraduate aeronautical engineering background may be required to take some undergraduate courses, which are not counted toward the advanced degree.

**MASTER OF SCIENCE IN AERONAUTICAL ENGINEERING.** A total of 36 credits of course work and a thesis equivalent to 9 credits of course work are required. All programs of study must be approved by the Department and will normally include aeronautical courses in the 500 series, plus selected courses from other departments. No foreign language is required. The thesis for the Master of Science degree may be waived in certain cases for students who present evidence of having performed a thesis-type investigation. Such a waiver requires staff approval and 9 additional credits of course work.

**MASTER OF AERONAUTICAL ENGINEERING.** A total of 72 credits of course work and a more extensive thesis, equivalent to 18 credits of course work, are required for this more advanced degree. Other requirements are similar to those for the Master of Science degree.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge.

### COURSES

<b>300, 301, 302 Aerodynamics (3,3,3)</b>	<b>Staff</b>
<b>320 Aerodynamics Laboratory (3)</b>	<b>Staff</b>
<b>330, 331, 332 Aircraft Structural Analysis (3,3,3)</b>	<b>Dill, O'Brien</b>
<b>350 Aircraft Structural Laboratory (2)</b>	<b>Dill, O'Brien</b>
<b>360 Aircraft Engines (3)</b>	<b>Eastman</b>
<b>N390-N391-392 Seminar (0-0-1)</b>	<b>Eastman, Staff</b>
<b>404 Introduction to Theoretical Aerodynamics (3)</b>	<b>Ganzer, Street</b>
<b>405 Elements of Gas Dynamics (3)</b>	<b>Ganzer, Street</b>
<b>410, 411, 412 Aircraft Design (3,3,3)</b>	<b>Staff</b>
<b>422 Aerodynamics Laboratory (3)</b>	<b>Staff</b>
<b>425 Flight Test Laboratory (3)</b>	<b>Joppa</b>
<b>441 Advanced Structural Design (3)</b>	<b>O'Brien</b>
<b>450 Astronautics (3)</b>	<b>Street</b>
<b>461 Jet Propulsion (3)</b>	<b>Ganzer</b>
<b>462 Propellers and Moving Wing Systems (3)</b>	<b>Eastman</b>
<b>470 Analytical Problems in Aeronautics (3)</b>	<b>Staff</b>
<b>480 Elementary Dynamics (3)</b>	<b>Staff</b>
<b>481 Elementary Aero-elasticity (3)</b>	<b>Martin, O'Brien</b>
<b>499 Special Projects (2-5, maximum 10)</b>	<b>Staff</b>
<b>505 Aerodynamics of Incompressible Fluids (3)</b>	<b>Street</b>
Theory of perfect incompressible fluids; Euler's equations of motion; circulation and vorticity, potential flow, conformal transformations, and theory of the two-dimensional airfoil; lifting line theory of the finite wing. Prerequisite, 404 or permission.	

- 506 Aerodynamics of Incompressible Fluids (3)** **Street**  
Theory of viscous incompressible fluids; the Navier-Stokes equations, dimensional analysis, and exact solutions; Prandtl's boundary layer theory, Karman's integral theorem, and laminar and turbulent boundary layer over airfoils and bodies of revolution.
- 508 Aerodynamics of Compressible Fluids (3)** **Street**  
Equations of motion in general vector form; exact solutions for shock waves, expansion waves, and flow past cones; small perturbation theory applied to bodies of revolution and wings in subsonic and supersonic flow. Prerequisite, 405 or permission.
- 509 Aerodynamics of Compressible Fluids (3)** **Street**  
Equations in the hodograph variables; theory of characteristics; viscous compressible flow, laminar boundary layers; real gas effects; hypersonic viscous flow. Prerequisite, 508 or permission.
- 513 Heat Transfer in Aeronautics (3)** **Street**  
The fundamental laws of heat transfer; temperature boundary layer in laminar and turbulent flow and its relation to the fluid flow; thermal radiation; applications to high-speed aerodynamic heating of aircraft. (Offered when demand is sufficient.) Prerequisites, thermodynamics and permission.
- 516 Stability and Control (3)** **Ganzer**  
Aerodynamics of control; the general problem of dynamic stability; the influence of aerodynamic parameters on flying characteristics.
- N520-N521-522 Seminar (0-0-1)** **Staff**
- 530 Theory of Elastic Structures (3)** **Dill, Martin**  
Discussion of stresses, strains, displacements; development of the basic equations of elasticity; principle of virtual work and the energy theorems; approximate methods; application of basic theory in formulating and solving problems in elastic structures. Prerequisite, 330.
- 533 Theory of Plasticity (3)** **Dill, Martin**  
Physical behavior of elastic-plastic and plastic structures; development of stress-strain relations and conditions for yielding; discussion of extremum principles; application of theory to representative problems. Prerequisite, 530 or Civil Engineering 572.
- 540 Aircraft Structural Problems (3)** **Dill, Martin**  
Application of the methods of elasticity to aircraft structural problems using original papers and reports as source material; discussion of problems of current interest. Prerequisite, 530 or Civil Engineering 572.
- 550 Dynamics of Aircraft Structures (3)** **Martin, O'Brien**  
Equations of motion of restrained and unrestrained elastic structures; response of elastic systems to time dependent forces and to forces arising from motion of the system; calculation of dynamic overstresses in complex structures.
- 553 Aircraft Vibrations (3)** **Martin, O'Brien**  
Natural frequencies and modes of vibration of simple linear systems; free, damped, and forced vibrations; continuous systems with emphasis on aircraft-type structures; development of Lagrange's equations; matrix methods.
- 556 Aero-elasticity (3)** **Martin, O'Brien**  
Two- and three-dimensional flutter theory; aerodynamic forces; flutter stability determinant and its solution; wing divergence and aileron reversal; flutter prevention; control effectiveness. Prerequisite, 553.
- 557 Nonlinear Problems in Airplane Dynamics (3)** **Street**  
The application to aeronautics of nonlinear ordinary differential equations of motion, and the topology of their integral curves in the phase plane; dynamical interpretation of singular points; existence of periodic solutions; questions of stability; nonlinear resonance; frequency demultiplication; relaxation oscillations. (Offered when demand is sufficient.)
- 571, 572, 573 Analysis in Aeronautics (3,3,3)** **Staff**  
Mathematical methods for solving problems arising in aeronautical engineering; complex variables, vector analysis, matrices, cartesian tensors, calculus of variations, operational calculus, finite difference methods, partial differential equations, and boundary value problems.
- 599 Special Projects (2-5, maximum 15)** **Staff**  
An investigation on a special project by the student under the supervision of a staff member.
- 600 Research (2-5)** **Staff**
- 700 Thesis (\*)** **Staff**

## CHEMICAL ENGINEERING

**Executive Officer: RALPH W. MOULTON, 37 Bagley Hall**

The Department of Chemical Engineering offers courses leading to the degrees of Master of Science in Chemical Engineering, Master of Science in Engineering (see page 148), and Doctor of Philosophy.

Entrance, or qualifying, examinations are required of prospective candidates for the degrees of Master of Science in Chemical Engineering and Doctor of

Philosophy. These examinations are designed to assess the student's knowledge and understanding of the material normally contained in an undergraduate program with a major in chemical engineering. They are usually given Thursday and Friday preceding the opening of Autumn Quarter, during the first week of Winter Quarter, and toward the end of Spring Quarter.

**MASTER OF SCIENCE IN CHEMICAL ENGINEERING.** The requirements for this degree are 36 credits of course work and a thesis. The course work is usually divided in the ratio of about two to one between major department and other departments. It is recommended that candidates for this degree include 570, 571, 574, and 575 among their courses. No foreign language is required.

**DOCTOR OF PHILOSOPHY.** Students who have completed at least one year of satisfactory graduate study and are acceptable for work leading to the Doctor of Philosophy degree in chemical engineering are required to take cumulative examinations regularly, twice each quarter. They are not then required to take formal examinations in courses offered by the Department, except as may be specified by their research professors or advisory committees. The cumulatives are general examinations in the field of chemical engineering and are designed to stimulate independent study and thought. They attempt to evaluate the breadth of knowledge gained from courses, seminars, and literature and the student's ability to apply this knowledge to problems of a diverse nature. The cumulative requirement is satisfied when six examinations are passed, usually out of the first twelve taken.

## COURSES

- |  |                          |
|--|--------------------------|
| <b>N381, N382 Field Trip (0,0)</b>   | <b>David</b>             |
| <b>383 Industrial Stoichiometry (2)</b>  | <b>David</b>             |
| <b>384 Industrial Stoichiometry (3)</b>  | <b>David</b>             |
| <b>385 Chemical Engineering Thermodynamics (4)</b>   | <b>McCarthy</b>          |
| <b>470 Transport Process Principles (4)</b>  | <b>McCarthy</b>          |
| <b>471, 472, 473 Unit Operations (3,3,3)</b>   | <b>Johanson, Moulton</b> |
| <b>474, 475, 476 Unit Operations Laboratory (2,2,2)</b>  | <b>Heidoger</b>          |
| <b>481 Process Design Principles (3)</b>   | <b>Moulton</b>           |
| <b>482 Chemical and Nuclear Processes (3)</b>  | <b>Babb, Moulton</b>     |
| <b>483 Chemical Engineering Process Design (4)</b>   | <b>Staff</b>             |
| <b>485 Industrial Electrochemistry (3)</b><br>(Offered when demand is sufficient.)   | <b>Moulton</b>           |
| <b>520 Graduate Seminar (1-5)</b>  | <b>Staff</b>             |
| <b>570 Introduction to Transport Properties (3)</b><br>Derivation of general differential equations for transport of heat, mass, and momentum; kinetic theory of fluids and its application to transport phenomena based on molecular motion; methods for estimating transport coefficients in fluids. Prerequisite, 471.  | <b>Babb</b>              |
| <b>571 Heat Transfer (3)</b><br>Steady and unsteady state conduction with emphasis on numerical methods. Radiation; design theory background and application to furnace design; convection; introductory concepts; methods for predicting coefficients; recent developments in theory; heat-exchanger design. Prerequisites, 570 and 575, or permission.   | <b>David</b>             |
| <b>572 Distillation (3)</b><br>Application of fundamental principles to industrial problems in binary and multicomponent distillation. Equilibrium and rate of transfer; ideal and nonideal systems. Graphical and analytical calculation methods. Design, control, and instrumentation of fractionating equipment. (Offered alternate years; offered 1960-61.) Prerequisites, 570 and 575, or permission. | <b>Johanson</b>          |
| <b>573 Absorption and Extraction (3)</b><br>Diffusion theory; transfer of material between phases; design of absorption equipment; multicomponent systems; performance of absorption equipment; simultaneous absorption and chemical reaction; solvent extraction. (Offered alternate years; offered 1959-60.) Prerequisites, 570 and 575, or permission.  | <b>Heidoger</b>          |
| <b>574 Fluid Flow (3)</b><br>Mechanism of fluid flow. Total energy balance and Bernoulli's theorem. Integration of the differential equations for motion of a fluid. Poiseuille, Fanning, and other equations. Turbulent flow and boundary-layer relationships. High velocity flow. Introductory design calculations. Prerequisites, 570 and 575, or permission.   | <b>McCarthy</b>          |

- 575 Advanced Chemical Engineering Thermodynamics (3)** **McCarthy**  
Principles of thermodynamics. Applications to unit operations and to prediction of phase equilibria and chemical equilibria. Prerequisite, 385.
- 581 Kinetics and Catalysis (3)** **Johanson**  
Homogeneous and heterogeneous systems, with emphasis on chemical engineering principles applied to industrial reactor design. Prerequisites, 571 and 575, or permission.
- 582 Multistage Separation Processes (3)** **Staff**  
Theoretical and practical study of special batch and continuous multistage processes for separation of various substances, including isotopes. Ion exchange, chemical exchange, gas and thermal diffusion, chromatographic, electrophoretic, and other processes are considered. Prerequisite, permission.
- 583 Topics in Chemical Engineering Unit Operations (1-3)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering unit operations. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.
- 584 Topics in Chemical Engineering Unit Processes (1-3)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering unit processes. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.
- 585 Topics in Chemical Engineering Plant Design (1-3)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering plant design. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.
- 586 Chemistry of High Polymers (3, maximum 6)** **McCarthy**  
Fundamentals of substances with high molecular weight, including study of valence consideration, molecular weight determination, polymerization and condensation reactions, cracking, fiber and film formation, glasses, and mechanical properties as related to chemical structure. (Offered alternate years; offered 1959-60.) Prerequisites, Chemistry 232 and 356.
- 587 Cellulose and Lignin (3)** **McCarthy**  
Chemistry and technology of cellulose, lignin, and related substances. Origin and status in plant tissue, isolation procedures, physical characteristics, and chemical reactions. Chemical processing in pulp, paper, rayon, and plastic industries. (Offered alternate years; offered 1960-61.) Prerequisites, Chemistry 336 and 356, or permission.
- 596 Topics in Chemical Engineering Research (3, maximum 18)** **Staff**  
Discussions and readings of topics of current interest in the field of chemical engineering research. Subject matter changes from year to year. Prerequisite, satisfactory completion of one year of graduate study in chemical engineering or permission.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## CIVIL ENGINEERING

**Executive Officer: ROBERT B. VAN HORN, 201 More Hall**

The Department of Civil Engineering offers courses leading to the degrees of Master of Science in Engineering (see page 148), Master of Science in Civil Engineering, and Doctor of Philosophy.

**MASTER OF SCIENCE IN CIVIL ENGINEERING.** Graduate work leading to this degree is offered in the fields of hydraulic engineering, sanitary engineering, soil mechanics, structural engineering, and transportation (highway) engineering. The requirements are: a minimum of 45 credits, of which 36 credits must be in formal course work and 9 in thesis. No foreign language is required.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge. This research program may be in one of the following areas: hydraulics and fluid mechanics, sanitary engineering, soil mechanics, structural engineering, or transportation engineering.

## COURSES

### GENERAL

- 509 Engineering Relations (2)** **Staff**  
Methods of setting up engineering problems and investigations; written and oral presentation of professional ideas and analysis of current research and investigations, both professional and economic, in the student's major field. Prerequisite, graduate standing.

- 520 Seminar (1)** **Staff**  
 Formal presentation for discussion and criticism of all research of the graduate year. Required of all candidates for an advanced degree during their final quarter in residence.
- 595 Advanced Professional Design and/or Analysis (2-5, maximum in one field, 15)** **Staff**  
 Special studies under the direction of staff members. Students should register for H (hydraulics), M (materials), P (planning), S (structural), W (sanitary), or T (transportation).
- 600 Research (\*)** **Staff**  
 Special investigations by graduate students under the direction of staff members. Students should register for H, M, P, S, W, or T.
- 700 Thesis (\*)** **Staff**

## SURVEYING

- 315 Photogrammetry (3)** **Chittenden, Colcord**

## TRANSPORTATION ENGINEERING

- 403 Principles of Urban Planning (3)** **Horwood**
- 422 Railway Engineering (3)** **Ekse**
- 423 River and Harbor Engineering (3)** **Ekse, Meese**
- 424 Highway Pavement Design (3)** **Ekse**
- 426 Airfield Design (3)** **Ekse**
- 428 Highway Policy and Economics (3)** **Hennes, Horwood**
- 429 Traffic Engineering—Operations (3)** **Horwood, Sawhill**
- 521 Seminar in Urban Transportation (2)** **Hennes, Sawhill**  
 Prerequisite, Civil Engineering or Urban Planning graduates, or permission.
- 523 Port Development (4)** **Ekse, Hennes**  
 Engineering design of port facilities, river and protective works; study of tides, currents, wave action, layout of channels and anchorage basins, and wharf and other waterfront constructions. Prerequisites, 342 and senior or graduate standing.
- 524 Modern Pavement Theory (4)** **Ekse**  
 Elastic slab theory as applied to rigid pavements, considering such factors as subgrade reaction, stress repetition, temperature, and warping stresses; theories of plastic equilibrium as applied to base courses and flexible mats. Other elements of highway design. Two lectures, one laboratory period, and one conference. Prerequisite, graduate standing.
- 530 Advanced Traffic Engineering—Freeways (4)** **Sawhill**  
 Factors and elements in the geometric design and location of arterials, freeways, interchange connections, and parking facilities. Special studies and reports. Prerequisite, Civil Engineering graduates, or permission.

## HYDRAULIC ENGINEERING

- 342 Fluid Mechanics (5)** **Campbell, Chenoweth, Kent, Moritz, Richey**
- 343 Hydraulic Engineering (5)** **Chenoweth, Moritz, Richey**
- 445 Hydraulic Machinery (3)** **Chenoweth, Moritz**
- 447 Applied Hydrology (3)** **Campbell, Richey**
- 448 Reclamation (3)** **Campbell, Van Horn**
- 547 Advanced Hydrology (4)** **Campbell, Richey**  
 Theory and application of hydrology, with emphasis on water power development. Precipitation, runoff, maximum and minimum flows, flood routing. Economics of storage and transportation of water. Types of hydroelectric installations; multiple use projects. Special problems in hydrology and hydraulic power. Prerequisites, 342 and graduate standing.

## SANITARY ENGINEERING

- 350 Introduction to Sanitary Engineering (3)** **Bogan, Carlson, Sylvester**
- 450 Advanced Sanitary Engineering Laboratory (5)** **Bogan, Sylvester**
- 452 Water Supply (3)** **Bogan, Sylvester**
- 453 Water Treatment (3)** **Bogan, Sylvester**
- 454 Sewerage (3)** **Bogan, Sylvester**
- 456 Sewage Treatment (3)** **Bogan, Sylvester**
- 457 Environmental Engineering Problems (3)** **Bogan, Sylvester**
- 553 Advanced Water Treatment Design (4)** **Bogan, Sylvester**  
 Functions and performance of unit operations employed in water treatment. Methods of design and process applications involving sedimentation, chemical coagulation, filtration, demineralization, and the removal of radioisotopes. Functional design of a complete water treatment plant by the student to meet specific requirements. (Not open to students with credit in 453.) Prerequisites, 343, 452.

- 556 Advanced Sewage Treatment Design (4)** **Bogan, Sylvester**  
Application and design of unit operations and processes employed in sewage treatment, including mechanical and gravitational separations, aerobic and anaerobic biochemical transformations, aeration and ORP control. Functional design of a complete sewage treatment plant. (Not open to students with credit in 456.) Prerequisites, 454, Microbiology 300 or 301.
- 557 Industrial Waste Treatment (4)** **Bogan, Sylvester**  
Origin and properties of waste gases, aerosols, and liquids from industries, including chemical, petroleum, pulp and paper, food processing, metallurgical, pharmaceutical, and nuclear energy. Laboratory analysis and treatment of wastes. (Not open to students with credit in 457.) Prerequisites, 452, 454, Physics 320, Microbiology 300 or 301.

**ENGINEERING MATERIALS**

- 362 Materials of Construction (3)** **Mittet**
- 363 Materials of Construction (3)** **Hartz, Vasarhelyi**
- 466 Soil Mechanics (3)** **Hennes, Meese**
- 467 Earthwork Engineering (3)** **Hennes, Meese**
- 468 Engineering Properties of Soils (3)** **Hennes, Meese**
- 567 Advanced Soil Mechanics and Foundations (4)** **Hennes, Meese**  
Design of earth dams and analysis of slope stability. Dam foundations. Stress distribution in a semi-infinite elastic solid, and its application to foundation analysis. Hydraulics of groundwater flow, including piping, uplift, and quicksand phenomena. Flow net construction. Moisture-density control in earth embankment. Weekly seminar on current publications in the field of soil mechanics with special emphasis on landslides, seepage, and earth fill. Prerequisites, 466 and graduate standing.
- 569 Applied Soil Mechanics (3)** **Hennes, Meese**  
Soil mechanics in engineering practice; the application of theory to the analysis of footings, piling, retaining walls, tunnels, and other substructures. Prerequisites, 467 and senior or graduate standing.

**STRUCTURAL ANALYSIS AND DESIGN**

- 371, 372, 373 Structural Theory (3,3,3)** **Chenoweth, Clanton, Hartz, Mittet, Rhodes**
- 475, 476, 477 Structural Design (3,3,3)** **Clanton, Miller, Rhodes, Sergev**
- 485 Applied Structural Analysis (3)** **Miller**
- 570 Strain Measurements (3)** **Vasarhelyi, Hartz**  
Experimental determination of strain under static and dynamic loads; mechanical, optical and electrical strain gages; transducers for displacement, velocity and acceleration; photoelasticity, strain rosette, brittle coating and other methods; problems of instrumentation, and analysis of data
- 571 Advanced Strength of Materials (3)** **Chenoweth, Sergev**  
Stresses and deflection of curved bars, beams on elastic foundation, beams with axial forces, shear center, stresses and deflection of thin plates, stresses in thick cylinders; stresses in pressure vessels. Particular emphasis is on the technique of breaking down the problems to fundamentals and solving the resultant mathematical equations.
- 572 Theory of Elasticity (3)** **Sergev**  
A more rigorous approach to stress and strain problems, including differential equations of equilibrium, compatibility conditions, stress function; stresses in and deflection of beams, stresses in semi-infinite plates, disks, curved bars, and stress concentration. Introduction to torsion of prismatic bars and energy methods. The subject matter deals primarily with two-dimensional problems.
- 573 Elastic Stability (3)** **Sergev**  
The study of buckling phenomena in columns, beams, plates, and tubes, with practical application.
- 574 Dynamics of Structures (3)** **Hartz**  
Stresses and deflections in structures due to dynamic loads. Methods for the analysis of lumped and distributed mass systems. Response of structures to earthquake, moving, and blast loads. Prerequisite, graduate standing in engineering.
- 575 Plastic Design of Structures (3)** **Vasarhelyi**  
Plastic (inelastic) behavior of structural materials. Applications to the design of structural members and systems. Principles of upper and lower bound. Limitations and economy of the procedure. Prerequisite, graduate standing in engineering.
- 576 Theory of Plates and Shells (3)** **Sergev**  
Stresses and deflections of flat plates and shells. Effect of transverse loads on circular and rectangular plates. General theory of thin shells. Prerequisite, 573 or equivalent.
- 577 Energy Methods in Structural Mechanics (3)** **Hartz**  
Basic energy and minimal principles of mechanics, calculus of variations and variational methods; applications to structures, elasticity, plates and shells, stability, and vibrations. Prerequisites, 571, 581, or permission.
- 578 Advanced Analytical Mechanics (3)** **Paris**  
Generalized coordinates and La Grange's equations; fundamental theorems and applications; Hamilton's principle; canonical equations; transformation theory; integrals of dynamical equations. Prerequisite, Mathematics 321 or permission.

- 581 Advanced Structures (3)** **Miller**  
Truss deflection and secondary stresses. Trussed arches. Multi-span trusses. Redundant members. Mueller-Breslau, Maxwell-Mohr, and strain-energy methods.
- 582 Advanced Structures (3)** **Miller**  
Multi-story, multi-bay rigid frames including wind and earthquake loads. Theory of flexure of members of nonuniform section. Nonrectangular rigid frames. Moment-area and moment-distribution methods.
- 583 Advanced Structures (3)** **Miller**  
Ideal, two-hinged and hingeless elastic arches. Influence lines for statically indeterminate structures. Castigliano's theorem and strain-energy methods applied to curved members of nonuniform section.
- 585 Structural Model Analysis (3)** **Vasarhelyi**  
Basic structural theory taught in laboratory by structural model analysis. A rational examination of structural theory, its development from the elements of physics, geometry, and properties of materials, and its application to statically determinate and indeterminate structures.
- 586 Structural Materials and Design (3)** **Vasarhelyi**  
A critical review and discussion of the mechanical properties of structural steel, structural aluminum alloy, and reinforced concrete which affect structural design. Fatigue and impact in metal structures. Failure of structures and structural members.
- 587 Design of Welded Structures (3)** **Vasarhelyi**  
A broad review of the factors such as the function of the structure, the mechanical properties of the base metal and welds, structural details, and type of loading which must be considered in the design of a welded structure. Prerequisite, 586.
- 590 Structures Under Winds (3)** **Farquharson**  
Fundamental principles governing the static or dynamic response of suspended structures, transmission lines, tall stacks and other flexible structures subject to deflection, overturning, or oscillation, as result of wind action.

## ELECTRICAL ENGINEERING

**Executive Officer: AUSTIN V. EASTMAN, 202 Electrical Engineering**

The Department of Electrical Engineering offers courses leading to the degrees of Master of Science in Electrical Engineering, Master of Science in Engineering (see page 148), Master of Electrical Engineering, and Doctor of Philosophy.

No foreign language is required for the master's degrees, but mathematics through at least one quarter of differential equations is a prerequisite to all graduate work.

Students who received their undergraduate training at other institutions are expected to have substantially the same training as that given to students at this University. In case of deficiencies, students may be required to take certain undergraduate courses in addition to the normal graduate program.

**MASTER OF SCIENCE IN ELECTRICAL ENGINEERING.** A total of 36 credits of course work and a suitable thesis are required for this degree. Course work should be divided between electrical engineering and supporting courses in other fields in the ratio of approximately two to one. Electrical engineering courses normally must be chosen from those numbered above 500 and must include 510 and N520-N521-522.

**MASTER OF ELECTRICAL ENGINEERING.** This is a more advanced degree than that of Master of Science in Electrical Engineering. A total of 72 credits of course work and a more extensive thesis are required. Other requirements are similar to those for the Master of Science degree. Certain physics courses may be used in partial satisfaction of the major requirements.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge. Courses taken must include 510, 511, 512, and N520-N521-522.

## COURSES

- 311 Electric Transients (4)** **Staff**  
To be taken concurrently with 312.
- 312 Electric Transients Laboratory (1)** **Staff**  
To be taken concurrently with 311.

- 331 Fields and Materials (4)** **Staff**  
To be taken concurrently with 332.
- 332 Fields and Materials Laboratory (1)** **Staff**  
To be taken concurrently with 331.
- 333 Basic Tubes and Electronics I (4)** **Staff**  
To be taken concurrently with 334.
- 334 Basic Electronics Laboratory (1)** **Staff**  
To be taken concurrently with 333.
- 335 Basic Electronics II (4)** **Staff**  
To be taken concurrently with 336.
- 336 Electronics Laboratory (1)** **Staff**  
To be taken concurrently with 335.
- 400 Vacuum Tubes and Electronics (5)** **Staff**
- 469 Advanced Field Theory (4)** **Held**
- 477 Principles of Computer Applications (4)** **Johnson**
- 479 Fundamentals of Automatic Control (4)** **Clark, Noges**
- 483 Introductory Communication Theory (3)** **Swarm**
- 485 Introduction to Solid State Electronics (4)** **Bjorkstam, Wei**
- 510 Introductory Network Theory (5)** **Lewis, Lytle**  
Mathematical concepts applicable to network theory, including Fourier series and integrals. Transfer characteristics of networks, applicable to the transient and steady state. Elements of complex variables, including conformal transformations and complex potential applied to fields and networks. Network relations involving matrices and determinants. The Laplace transform and relations to Fourier integrals and frequency analysis. Prerequisite, graduate standing.
- 511 Network Analysis (3)** **Lewis, Lytle**  
Network representation in the complex-frequency domain, stability criteria, realizability conditions, steady-state relations in closed-loop systems, optimum relations and design criteria in applications involving feedback. Prerequisite, 510.
- 512 Network Synthesis (3)** **Lewis, Lytle**  
Frequency-domain synthesis of driving-point and transfer impedances, in active and passive systems. Canonical forms and network equivalents. Time-domain synthesis and considerations of pulsed-data systems. Prerequisite, 511.
- 514 Power System Analysis (5)** **Bergseth**  
Methods of analysis of power systems, with emphasis on the interrelations between generation, transmission, and distribution; symmetrical components; evaluation of system parameters and sequence networks; fault studies; transient and steady-state behavior of systems; elements of system protection. Prerequisite, 340.
- 515 Measurements and Circuit Components (3)** **Cochran**  
Measurements of circuit components on zero to one thousand megacycles, impedance and phase measurements at audio through UHF; use of electronic counters and precision frequency measuring equipment; noise figure measurements. Prerequisite, 470.
- N520-N521-522 Seminar (0-0-2)** **Staff**  
Required for all graduate students.
- 545 Power Transmission (5)** **Bergseth**  
Circuit theory; lumped and distributed constants; power circle equations and power transmission diagrams; voltage control and line compensation. Surge impedance loading and loading for maximum economy; transmission line design; traveling waves. Prerequisite, 514.
- 547 Advanced Studies in Power Systems (5)** **Bergseth**  
Power flow in systems with two voltage sources. General network equations; synchronous-machine power-angle characteristics; composite systems. Equivalent reactance of synchronous machines; stability criteria, stability characteristics of turbo-generators; transmission-line electrical loadings and comparative economic study. System design; torque-angle characteristics, two-machine stability. Multi-machine problems. Prerequisite, 545.
- 551 Power System Protection (3)** **Bergseth**  
Protection of power systems and equipment against both overvoltages and overcurrents; includes power circuit breakers, fuses, relays, lightning arrestors, expulsion tubes, and the influence of neutral grounding methods in overvoltages. Prerequisite, 514.
- 560 Wave Phenomena (4)** **Rogers**  
Solution of ordinary differential equations as applied to the vibrations of lumped systems; vector analysis and the solution of the partial differential equations of continuous systems; Fourier series, Bessel's functions, and orthogonality; solution of the field equations for wave guides and radiating systems. Prerequisites, 331, 411.
- 562 Advanced Vacuum Tubes (4)** **Hill, Shimada**  
Energy distribution functions, emission theory; conformal transformation and solution of electric fields; current flow in diodes, triodes, and tetrodes; noise in vacuum tubes; analysis of problems in electron optics; high-intensity cathodes and beam formation. (Offered alternate years; offered 1960-61.) Prerequisites, 333 and 510, which may be taken concurrently with 562.



- 563, 564 Electrical Noise (3,3)** **Shimada**  
Introduction to the theory of fluctuating phenomena such as thermionic emission and random motion of electrons in solids. Analysis of noise from electronic devices and circuits. Prerequisite, 335 or permission.
- 566 Microwave Measurements (2)** **Harrison**  
Measurements of wave length, admittance, power, dielectric constant, and losses in the microwave frequency region utilizing wave guide techniques. Problems in impedance matching and impedance transformation based on laboratory work. Includes one three-hour laboratory per week. Prerequisites, 335 and 411.
- 567 Microwave Vacuum Tubes (4)** **Harrison**  
Theory of microwave vacuum tubes, including triodes, klystrons, traveling wave tubes, and magnetrons, and their modulation characteristics. Oscillator theory is considered in detail, with klystron oscillators used to illustrate general principles. Prerequisite, 566 or permission.
- 570 Antenna Theory (3)** **Swarm**  
Theory of radiation; impedance characteristics and radiation patterns of thin linear antenna elements; properties and synthesis of antenna arrays; field intensity calculations. Prerequisite, 331.
- 571 Radio Propagation (3)** **Swarm**  
Theory of tropospheric and ionospheric propagation, study of ground to ground, ground to air, and air to air propagation characteristics; theory of scattering, meteor reflection, and auroral propagation. Prerequisite, 469.
- 572 Microwave Network Theory (4)** **Held**  
A brief review of transmission line theory and associated impedance concepts in light of applicability to uniform wave guides. Equivalent circuit for wave guide discontinuities will be developed on the basis of mode theory, linearity, reciprocity, and symmetry ideas. Application of general network theory to wave guides, cavity resonators, and antennas. Prerequisites, 411, 469, and 510.
- 574 Microwave Antennas (4)** **Held**  
Fundamental principles underlying the design of microwave antennas. Radiation from current distributions. Scattering and diffraction of electromagnetic waves. Prerequisites, 572 and Mathematics 429, which may be taken concurrently, or permission.
- 575 Microwave Propagation (3)** **Held**  
Microwave propagation through anisotropic media, ferrite-filled or partially filled-wave guide, slow waves, surface waves, strip lines; diffraction and scattering. Prerequisite, 572.
- 576 Communication Theory I (3)** **Swarm**  
Statistical theory of communication systems. Description of periodic and random signals. Theory of information measure and channel capacity. Prerequisite, 483 or permission.
- 577 Communication Theory II (3)** **Swarm**  
Mathematical description of noise, analysis of circuits with random inputs, optimum linear systems, statistical detection of signals, and evaluation of communications systems. Prerequisite, 576.
- 580 Electroacoustics (4)** **Hill**  
Vibration of strings, bars, and membranes; acoustical wave equation and solutions; electric, acoustic, and mechanical analogies; acoustical networks and measurements; architectural acoustics; properties of hearing; loudspeakers, microphones, and sound reproduction. Includes one four-hour laboratory on alternate weeks. (Offered alternate years; offered 1959-60.) Prerequisite, 411.
- 581 Control System Measurements (2)** **Hsu, Clark**  
Theory and practice in measurement of control system parameters. Determination of transfer functions for various system components by transient and frequency response measurements. Prediction of feedback system performance, from experimentally derived data, with experimental verification. Use of the analog computer in simulation. Prerequisite, 479.
- 582 Analytical Design of Linear Control Systems (4)** **Bergsoth, Clark**  
Synthesis of automatic control systems to satisfy analytical performance criteria. Elements of statistical analysis, stochastic processes, probability density functions, correlation functions, and power-density spectra. Minimization of mean square error in presence of noise, and optimization according to other analytical performance functions. Use of constraints in design. Special problems in linear control system design. Prerequisites, 479 and 510.
- 583 Nonlinear Control Systems (3)** **Clark, Nogos**  
Dynamic analysis of nonlinear control systems. Graphical and numerical methods for solution of nonlinear differential equations. Limit cycles and other phenomena peculiar to nonlinear systems. Use of phase-space, describing function, and simulation techniques in the analysis of nonlinear servomechanisms. Self-adaptive control systems. Prerequisites, 479 and 510.
- 584 Sampled-Data Control Systems (4)** **Hsu**  
Sampling process and data reconstruction; Z-transform analysis of linear sampled-data systems; sampled-data system design; behavior of systems between sampling instants; multirate sampled systems; sampled-data systems with random inputs. Prerequisites, 479, 510, Mathematics 427.
- 586 Electrical Computing Methods (4)** **Johnson**  
Study of field models, analog and digital computers, and various special-purpose computers for solving electrical problems. Includes one three-hour laboratory per week. Prerequisite, 510.

- 587 Applications of Digital Computers to Engineering Problems (4)** **Johnson**  
Evaluation and application of numerical methods in solution of typical engineering problems by means of digital computers. Choice of method, problem organization, error, convergence, limitations and considerations for specific computers. Curve fitting and random selection. Prerequisite, 586.
- 588 Logical Design of Digital Computers (3)** **Johnson**  
Circuit components and binary numbers, Boolean algebra and the simplification of Boolean functions. Memory element input and application equations. Digital computer memories, computer arithmetic units, control units. Computer design organization. Prerequisite, graduate standing.
- 600 Research (2-5)** **Staff**
- 700 Thesis (\*)** **Staff**

## MECHANICAL ENGINEERING

**Executive Officer: BRYAN T. McMINN, 142 Mechanical Engineering**

The Department of Mechanical Engineering offers courses leading to the degrees of Master of Science in Engineering (see page 148), Master of Science in Mechanical Engineering, and Doctor of Philosophy.

**MASTER OF SCIENCE IN MECHANICAL ENGINEERING.** Although options are not designated, graduate offerings in mechanical engineering are so arranged that candidates for the master's degree who are interested in the special fields of heat power, gas dynamics, air conditioning and refrigeration, nuclear power, advanced engineering materials, stress analysis, and design will find well-integrated programs available. Subject to the approval of the candidate's committee, work beyond bachelor requirements in physics, mathematics, civil engineering, and electrical engineering is permitted and sometimes required. The thesis is normally the equivalent of 9 credits, in which case 36 credits of course work are required for the master's degree. No foreign language is required.

**DOCTOR OF PHILOSOPHY.** Candidates for this degree must complete an approved program of studies and a research program which makes a definite contribution to knowledge.

## COURSES

- 305 Production Tooling (1)** **Kenny, Zylstra**
- 306 Production Techniques (1)** **Schaller, Snyder**
- 307 Production Planning (1)** **Schaller, Snyder**
- 312 Machine Tool Fundamentals (3)** **Anderson, Kenny, Zylstra**  
Not open to engineering students.
- 320 Thermodynamics (5)** **Childs, McMinn, Nordquist**
- 325 Thermodynamics for Nonmajors (3)** **Childs, Nordquist, Shouman, Thomas**
- 326 Thermodynamics I (5)** **Childs, McFeron, McMinn, Waibler**
- 327 Thermodynamics II (3)** **Childs, Costello, Waibler**
- 328 Elementary Thermodynamics (3)** **Hendrickson**  
Not open to engineering students.
- 329 Refrigeration (3)** **Hendrickson**  
Not open to engineering students.
- 330 Experimental Thermodynamics (3)** **Costello, Crain, Firey, Thomas**
- 340 Engineering Materials (3)** **Day, Ford, Kobayashi, Mills, Meador**
- 341 Aircraft Materials (2)** **Schaller**
- 342 Industrial Materials and Processes (3)** **Ford, Mills**  
Not open to engineering students.
- 361, 362 Machine Design (3,3)** **Crain, Day, Kieling, Morrison**
- 367 Dynamics of Machines (3)** **Balise, Morrison, Nordquist**
- 368 Kinematics (3)** **Day, Kieling, Morrison**
- 403 Tool Design (3)** **Zylstra**
- 410 Engineering Administration (3)** **Owens, Schaller**

- 411 Engineering Economy (3) Schaller, Zylstra  
 414 Industrial Safety (2) Zylstra  
 415 Statistical Quality Control (3) Fritz, Owens, Zylstra  
 417 Methods Analysis (3) Owens  
 418 Work Simplification (2) Owens  
 424 Power Plants (5) Childs, Waibler  
 425 Air Conditioning (3) Crain, Hendrickson  
 426 Thermodynamics for Nonmajors (5) Childs, McFeron, Nordquist  
 428 Refrigeration (3) Hendrickson, McMinn  
 430 Introduction to Heat Transfer (3) Childs, Firey, McFeron, Waibler  
 432 Gas Dynamics I (3) Childs, Costello  
 434 Advanced Mechanical Engineering Laboratory (3) Firey, Meador, Shouman  
 436 Friction and Lubrication (3) Firey, Mills  
 443 Instrumentation (3) Balise  
 466 Machine Design (4) Day, Kieling, Morrison  
 468 Machine Design (3) Day, Kieling, Morrison  
 469 Dynamics of Machines (3) Balise, Kobayashi, Morrison, Nordquist  
 481 Internal Combustion Engines (3) Firey, Guidon, Meador  
 482 Internal Combustion Engine Laboratory (3) Firey, Guidon, Meador  
 483 Internal Combustion Engine Design (3) Firey, Guidon  
 485 Rocket Propulsion (3) Guidon  
 490, 491, 492 Naval Architecture (3,3,3) Rowlands  
 516 Statistical Analysis of Engineering Measurements (3) Owens  
 Application of statistical techniques to engineering problems; design of engineering test procedures so as to evaluate experimental error; investigation of inherent variability of processes and systems. Prerequisite, 415 or permission.  
 521 Thermodynamics III (3) Childs, Costello, McMinn, Nordquist  
 A critical study of the fundamental concepts of thermodynamics; nonflow and steady-flow processes; enthalpy; point properties; reversibility; vapors vs. perfect gases. Prerequisites, 327 and graduate standing, or permission.  
 522 Thermodynamics IV (3) McFeron, Waibler  
 Selected topics from the thermodynamics and dynamics of fluid flow. The thermodynamics of reactive systems. Introductory kinetic theory of gases. Prerequisite, 521.  
 524 Combustion (3) Firey  
 Chemical and physical processes of combustion, preparation of fuels, applications, design of combustion equipment. Prerequisite, 521.  
 526 Air Conditioning (3) Hendrickson  
 Study at the graduate level of heat-transfer aspects of air-conditioning problems; special problems in humidifying and dehumidifying; automatic control and zoning; noise and vibration control; laboratory and field tests of air-conditioning installations. Prerequisites, 425 and graduate standing or permission.  
 529 Advanced Refrigeration (3) Hendrickson  
 Review of basic cycles and equipment, cold storage practice, refrigeration in food manufacture and distribution, industrial applications, frozen foods and other low temperature applications, capital and operating cost studies, and design problems. Prerequisites, 428 and graduate standing or permission.  
 531 Heat Transfer (3) Childs, Waibler  
 Analysis of the methods and mechanisms of heat transfer by conduction, radiant energy interchanges, radiation and convection. Steady and transient state conduction, forced and natural convection, fluid flow and boundary layer theory, heat exchanger design. Prerequisite, 430 or equivalent.  
 532 Convective Heat Transfer (3) Waibler  
 An introduction to fluid flow and boundary layer theory as applicable to forced and natural convection heat transfer. Dimensional analysis. Condensation and boiling heat transfer. Design of heat exchangers. Prerequisite, 531 or permission.  
 533 Gas Dynamics II (3) Childs, Costello  
 A continuation of 432. A study of the dynamic and thermodynamic relationships for the flow of fluids. Application of basic laws to flow processes in pipes, nozzles, diffusers, compressors, and turbines; wave phenomena; introduction to multidimensional flow; experimental techniques and measurements. Prerequisites, 432 and graduate standing, or permission.

- 541 Advanced Engineering Materials (3)** **Mills**  
A second course in the nature and behavior of engineering materials. Ferrous and non-ferrous alloys, plastics, and wood-fiber products. Corrosion, surface coatings, powdered metals, and investment casting. Laboratory studies of X-ray radiography, electron microscopy, hardenability, heat treatment, mechanical properties, wood-fiber utilization, and magnetic and fluorescent methods of defect detection. Lectures and laboratory. Prerequisites, 340 and graduate standing in engineering, or permission.
- 542 Topics in Engineering Materials (3)** **Mills**  
Topics of current importance, including behavior of materials at high and low temperatures, developments in plastic and wood products, dynamic behavior of materials, significance of residual stresses, and engineering applications of radioisotopes. Prerequisite, 541 or permission.
- 544 Automatic Control (3)** **Balise**  
Theory and practice of industrial process control; effects of system parameters on control; modes of control; analysis of pneumatic components; advantages and limitations of equipment. Lectures and laboratory. Prerequisite, graduate standing in engineering or permission.
- 545 Automation (3)** **Balise**  
Concepts in addition to feedback that are important in automatic production, including automatic data processing, computers, numerical control of machine tools, and integrated manufacturing systems. Prerequisite, 544.
- 546 Experimental Stress Analysis (3)** **Day**  
Studies of stress and strain relationships under static and dynamic loading. Analytical methods for determination of stress and strains in irregular members. Theory and practice of the photoelastic method. Brittle lacquer method for study of strain. Application of resistance wire strain gauges to measurement of dynamic and static strain. Interferometry as a tool in stress analysis. Principles and application of mechanical strain gauges. Lectures and laboratory. Prerequisite, graduate standing in engineering or permission.
- 547 Experimental Stress Analysis (3)** **Day**  
Study of structural similitude, dimensional analysis, and brittle models as they apply to experimental stress analysis. Use of nomographs with electric strain-rosettes, study of principles and application of instrumentation available for strain-sensitive pickups. Non-destructive methods of testing and inspecting structures and machine parts. Calibration of stress-analysis instruments. Prerequisite, 546.
- 548 Experimental Stress Analysis** **Day**  
Seminar and individual research on special problems in experimental stress analysis. Prerequisite, 547 or permission.
- 551 Applied Elasticity (3)** **Day, Kobayashi**  
General equilibrium relations and the stress-strain relations homogeneous, isotropic, elastic materials. Elastic stress distributions in machine components; plane-stress and plane-strain problems; torsion of various-shaped bars, bending of prismatic bars; thermal-stress problems. Prerequisite, graduate standing in mechanical engineering, or permission.
- 552 Applied Plasticity (3)** **Kobayashi**  
Yield conditions and stress-strain relations in the transition range. Elastic-plastic stress distributions in machine components; thick-walled spherical shells and thick-walled tubes under internal pressures; rotating cylinders and disks; torsion and bending of bars; thermal stresses in shells, rotating disks and plates. Prerequisite, 551 or permission.
- 564 Mechanical Engineering Analysis II (3)** **Balise**  
Development of solutions to mathematically analogous problems from various fields in mechanical engineering with emphasis on analytical thinking. Use of analogs in the study of mechanical behavior. Distributed parameters in heat flow and dynamics problems. Application of complex variables to mechanical system analysis. Prerequisites, 463 or equivalent, and graduate standing in mechanical engineering or permission.
- 567 Advanced Dynamics of Machines (3)** **Kobayashi**  
Dynamics of particles and of rigid bodies, with emphasis upon applications involving machine parts and other engineering components. Generalized coordinates, La Grange's equations, Hamilton's principle. Prerequisite, 469 or permission.
- 568 Vibrations of Machinery (3)** **Mills**  
Study of vibration phenomena, with emphasis on application to practical problems. Systems of one and two degrees of freedom, with and without damping, in translational and torsional vibration. Systems of many degrees of freedom in torsional vibration. Free and forced vibration. Prerequisite, permission.
- 571 Servomechanisms (3)** **Balise**  
Applications of feedback to meet accuracy and stability requirements of closed-loop systems; transient and transfer-function methods of analysis; comparative study of mechanical, hydraulic, pneumatic, and electrical components; testing and design. Prerequisite, 564 or permission.
- 584 Gas Turbines (3)** **Guidon**  
Applications of the gas turbines; gas turbine cycles (theoretical Brayton, simple open, regenerative, reheat, intercooling, and closed cycles); axial-flow compressors; centrifugal compressors; turbines; combustion systems; gas turbine power plant materials; plant performance. Prerequisites, 481 and graduate standing in engineering, or permission.
- 600 Research (2-5)** **Staff**
- 700 Thesis (\*)** **Staff**

## MINERAL ENGINEERING

Director: DRURY A. PIFER, 328 Roberts Hall

The School of Mineral Engineering, through the Divisions of Ceramic, Metallurgical, and Mining Engineering, offers courses leading to the degrees of Master of Science in Engineering (see page 148), Master of Science in Mining, Coal Mining, Metallurgical, or Ceramic Engineering; and Master of Science in Ceramics or Metallurgy. No foreign language is required for these degrees.

### Ceramic Engineering

**MASTER OF SCIENCE IN CERAMIC ENGINEERING.** Candidates for this degree select courses and research in accordance with their special interests and objectives. A study of advanced theory is usually part of the work. Courses may be selected in preparation for plant operation, production and management, sales engineering, or research and product development. Graduates of accredited ceramic engineering curricula and graduates of other accredited engineering curricula who complete the basic undergraduate courses in ceramic engineering may become candidates.

**MASTER OF SCIENCE IN CERAMICS.** Students with undergraduate majors in science, particularly chemistry or physics, may become candidates for this degree after completing basic undergraduate courses in ceramics.

### COURSES

- |  |                         |
|--|-------------------------|
| 303 Process Ceramics: Coatings (3)   | E. E. Mueller           |
| 306 Ceramic Engineering Excursion (1)  | Staff                   |
| 312 Physical Ceramics: Structure and Reactions (5)   | J. I. Mueller           |
| 313 Physical Ceramics: Colloids and Rheology (3)   | J. I. Mueller           |
| 314 Physical Ceramics: Ceramic Equilibria I (3)  | J. I. Mueller           |
| 315 Vitreous State (4)   | J. I. Mueller           |
| 401 Process Ceramics: Drying and Firing (4)  | E. E. Mueller           |
| 402-403 Equipment and Plant Design (2-2)   | E. E. Mueller, Campbell |
| 410 Physical Ceramics: Ceramic Equilibria II (3)   | E. E. Mueller           |
| 412J X-ray Analytical Techniques (3)<br>Offered jointly with the Division of Metallurgical Engineering.  | J. I. Mueller           |
| 421 Ceramic Bodies Laboratory (3)  | Campbell                |
| 422 Ceramic Petrography (2)  | Kelly                   |
| 440 Glass Technology (3)   | E. E. Mueller           |
| 450 Pyroprocessing of Nonmetallics (3)   | Bauer                   |
| 470 Refractories (3)   | E. E. Mueller           |
| 500 Ceramic Vitreology (3)<br>Composition and formation of glasses in ceramic bodies: their effect on such properties as mechanical and dielectric strength, porosity, hardness, chemical durability, refractoriness, and resistance to erosion.   | E. E. Mueller           |
| 501 Process Ceramics: Production Control (3)<br>Application of industrial management and production control methods in the ceramic industry; production characteristics and their effects on the product; explanation and analysis of standards for products and their effects on manufacturing methods in the ceramic industry.   | Campbell                |
| 502 Process Ceramics: Unit Process Control (3)<br>Principles of process control as applied to the ceramic industry; methods of measurement and evaluation of data for the control of partial size, viscosity, moisture content, fusion points, workability, humidity, temperature, drying rates, furnace atmospheres and pressures, time-temperature relationships, body and glaze textures, and imperfection causes; application of control data to plant production. | Campbell                |
| 503 Process Ceramics: High Temperature Topics (3)<br>Application of the fundamentals of heat transfer, reaction rates, and heat sources to the design and use of high temperature kilns, furnaces, and allied equipment.   | Campbell                |

- 511 Theoretical Physical Ceramics (3)** **J. I. Mueller**  
Theory and application of colloidal phenomena to the use of ceramic raw materials; colloidal state; colloidal crystal structure; surface phenomena; electrokinetics; base exchange. Prerequisite, -312.
- 512 Theoretical Physical Ceramics (3)** **J. I. Mueller**  
Theory and measurement of physical properties of ceramics; reactions of ceramic materials; surface area determinations; zeta potentials; particle size measurement; thermal analysis; laboratory measurements. Prerequisite, 511.
- 513 Applied Physical Ceramics (3, maximum 6)** **J. I. Mueller, Staff**  
Application of physical ceramic principles to the control of ceramic production; instrumentation studies. Prerequisite, 512.
- 520 Seminar (1, maximum 6)** **Staff**  
Required for all graduate students.
- 522 Structure and Analysis of Ceramic Materials (3)** **J. I. Mueller**  
Theory and laboratory practice in use of X-ray diffraction for quantitative analysis; structure determinations. Prerequisite, 521 or equivalent.
- 523 Identification and Structure Problems (3, maximum 6)** **J. I. Mueller**  
Laboratory practice in X-ray diffraction techniques applied to ceramic research. Prerequisite, 522 or equivalent.
- 590 Industrial Minerals Research (\*)** **Staff**
- 600 Research (\*)** **Staff**  
Special problems investigated under staff direction; new products and processes; ceramic resources of the Pacific Northwest.
- 700 Thesis (\*)** **Staff**

## Metallurgical Engineering

**MASTER OF SCIENCE IN METALLURGICAL ENGINEERING.** Candidates for this degree select courses in physical or extractive metallurgy in accordance with their particular interests and objectives. Special fields of study include metallurgical research, physical metallurgy, chemical and extractive metallurgy, and plant operation and management. Graduates of accredited metallurgical engineering curricula and graduates of other engineering curricula who complete the basic undergraduate courses in metallurgical engineering may become candidates.

**MASTER OF SCIENCE IN METALLURGY.** Students with undergraduate majors in science, particularly physics or chemistry, may become candidates for this degree after completing basic undergraduate courses in metallurgy.

## COURSES

- 306 Metallurgy Excursion (1, maximum 2)** **Staff**
- 321 Chemical Metallurgy: Principles (3)** **Lloyd**
- 322 Metallurgical Thermodynamics (3)** **Lloyd**
- 324 Chemical Metallurgy Laboratory (1)** **Lloyd**
- 325 Chemical Metallurgy: Plant Practices (2)** **Staff**
- 361, 362, 363 Physical Metallurgy (4,4,4)** **Roberts**
- 412J X-ray Analytical Techniques (3)** **J. I. Mueller**  
Offered jointly with the Division of Ceramic Engineering.
- 421 Chemical Metallurgy: Advanced (4)** **Lloyd**
- 424 Metallurgical Measurements (1)** **Staff**
- 441 Engineering Physical Metallurgy (3)** **Polonis**
- 442 Engineering Physical Metallurgy Laboratory (1)** **Polonis, Staff**  
May be taken concurrently with 441.
- 450 Light Metals (3)** **Roberts**
- 460 Deformation of Metals (3)** **Polonis**
- 461 Advanced Physical Metallurgy (3)** **Roberts**
- 466 Theory of Metals (3)** **Roberts**

- 481J Mineral Industry Economics (3)** **Pifer**  
Offered jointly with the Division of Mining Engineering.
- 520 Seminar (1, maximum 6)** **Staff**  
Review of research problems and recent literature. Required for all graduate students.
- 522 X-ray Metallography (3)** **J. I. Mueller**  
Precision diffraction methods and their application to simple crystal structure and parameter determinations; chemical composition; grain size and distortion measurements; single-crystal orientation; determination of preferred orientation in polycrystalline metals; stress measurements. Prerequisite, 521 or equivalent.
- 523 X-ray Metallography (3)** **Polonis, Roberts**  
Laboratory practice on specific problems; application technique studies, research methods. Prerequisite, 522.
- 531 Advanced Metallurgy (\*)** **Staff**  
Study of selected problems, with particular attention to recent publications and scientific applications in physical or extractive metallurgy.
- 541 Theoretical Structural Metallurgy (3)** **Polonis**  
Advanced study of structural imperfections in metals; vacant lattice sites; influence of foreign atoms; fundamentals and applications of dislocation theory. Prerequisite, 363.
- 542 Theoretical Structural Metallurgy (3)** **Polonis**  
Metal crystal growth; detailed consideration of solidification including experimental techniques; single crystals, substructure, segregation phenomena and zone melting; interfaces and internal boundaries. Prerequisite, 541.
- 543 Theoretical Structural Metallurgy (3)** **Polonis**  
The fundamental view of mechanical properties and deformation of metals; special X-ray methods; elasticity, anelasticity, and internal friction; plasticity, geometry of slip, work hardening. Prerequisite, 541.
- 561 Phase Transformations in Solid Metals (3)** **Roberts**  
Phase transformations in solid metals and alloys. An advanced treatment of phase transformations from the standpoint of crystallography, reaction kinetics, and thermodynamics. Prerequisite, 363.
- 562 Phase Transformations in Solid Metals (3)** **Roberts**  
Kinetics of tempering carbon and low-alloy steels, theories of nucleation and grain growth phenomena, recrystallization, precipitation hardening. Prerequisite, 561.
- 563 Phase Transformations in Solid Metals (3)** **Roberts**  
Diffusion theory, martensitic transformations, and other solid state transformations. Prerequisite, 562.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## Mining Engineering

**MASTER OF SCIENCE IN MINING ENGINEERING.** Candidates for this degree may elect work in mining or mineral dressing in accordance with their special interests. Special study in the fields of labor relations and management is available. The student may select courses in preparation for exploration and development, operation and management, engineering, or mining geology. Graduate studies in mineral dressing cover the fields of metallic and nonmetallic minerals and coal, with special work on advanced theory and practice. Graduates of accredited mining engineering curricula and graduates of other accredited engineering curricula who complete the basic undergraduate courses in mining engineering and geology may become candidates.

**MASTER OF SCIENCE IN COAL MINING ENGINEERING.** Candidates for this degree may undertake research in the laboratories of the United States Bureau of Mines Northwest Experiment Station in cooperation with the staff of the Bureau. Study is available in mine engineering, operation, labor relations, and management. Graduates of other accredited engineering curricula must complete basic undergraduate courses in mining engineering and fuels technology in order to become candidates.

## COURSES

- 306 Mine Excursion (1, maximum 2)** **Staff**
- 322 Methods of Mining (4)** **Anderson**
- 325 Mineral Land Valuation (2)** **Anderson**

330	Mine Surveying (3)	Anderson
331	Mine Mapping (1)	Anderson
361	Mineral Dressing: Preparation (3)	Brien
362	Mineral Dressing: Concentration (4)	Brien
425	Rock Mechanics (2)	Pifer
426	Exploration and Development of Mineral Deposits (3)	Pifer
427	Exploration Geophysics: Introduction (2)	Anderson
432	Mine Engineering (5)	Anderson
433	Mine Ventilation (3)	Anderson
463	Mineral Dressing: Flotation (3)	Brien
464	Mineral Dressing: Hydrometallurgy (4)	Brien
465	Mineral Dressing: Microscopy (2)	Brien
466	Mineral Dressing Practices (2)	Brien
467	Mineral Dressing Design (2)	Brien
476	Coal Preparation (2)	Brien
478	Coal Preparation Machinery (2)	Brien
481J	Mineral Industry Economics (3) Offered jointly with the Division of Metallurgical Engineering.	Pifer
483	Mining Laws (1)	Pifer
485	Industrial Minerals (3)	Brien
520	Seminar (1, maximum 6) Lectures and discussions; review of research problems and recent literature. Required for all graduate students.	Staff
521	Metal Mining (*) Production methods; mining control; support; applied efficiency methods; administration; equipment and machinery; deep-level mining; health and safety; special problems. Arranged in accordance with student's major interest.	Anderson, Pifer
522	Mine Shafts (3) Location and design, surface plant, and collar preparation; sinking, support, stations and bottoms, equipment and maintenance; safety and costs; rectangular, square, and circular shafts.	Pifer
523	Coal Mining (*) Studies in coal mining, preparation, or coking with particular reference to the Pacific Northwest. Prerequisite, graduate standing	Pifer
525	Rock Mechanics (3)	Pifer
560	Mineral Dressing (*) Special problems and research.	Brien
561	Advanced Mineral Dressing Preparation (*) Unit process studies in comminution, sizing, classifying, and auxiliary processes.	Brien
562	Advanced Mineral Dressing Laboratory (*) Experimental study of theoretical principles of preparation and concentration. Arranged concurrently with 561 and 563 or as required.	Brien
563	Advanced Mineral Dressing Theory (*) Physics and chemistry of beneficiation.	Brien
564	Advanced Mineral Dressing Design (*) Plant layout studies, economics, and equipment design.	Brien
571	Cooperative Research with United States Bureau of Mines (6)	Staff
600	Research (*)	Staff
700	Thesis (*)	Staff

## COLLEGE OF FISHERIES

Dean: RICHARD VAN CLEVE, Fisheries Center

The College of Fisheries offers courses leading to the degrees of Master of Science and Doctor of Philosophy. Applicants must have completed the equivalent of an undergraduate major in fisheries or an undergraduate major in a related field. A broad training in the basic sciences is desirable.

Candidates will be expected to attain a general knowledge of fisheries in addi-



tion to their specialization in specific areas of fisheries biology or technology. Graduate students may be required to take supporting courses in other selected departments of the University. The graduate program is determined by a supervisory committee in consultation with the student. All graduate students must complete 6 credits (three quarters) in Fisheries 520.

**MASTER OF SCIENCE.** At least one year of approved study, with the completion of a research project, leads to the master's degree.

A total of not less than 36 credits in course work and thesis must be presented, as well as a certificate of proficiency in one foreign language.

**DOCTOR OF PHILOSOPHY.** Candidates must complete at least three years of graduate study including a dissertation. Credits earned for a master's degree may be applied toward the doctor's degree.

The candidate must present a certificate of proficiency in two foreign languages (one in addition to the Master of Science requirement).

## COURSES

301 Anatomy of Fishes (5)	Welander
302 Microbiology of Fisheries (5)	Liston
303 Introduction to Invertebrate Fisheries (5)	Sparks
402 Economically Important Fishes (5)	Welander
405 Economically Important Mollusca (5)	Sparks
406 Economically Important Crustacea (5)	Sparks
425 Migrations and Races of Fishes (5)	De Lacy
426 Early Life History of Marine Fishes (5)	De Lacy
427 Ecology of Marine Fishes (5)	De Lacy
451 Propagation of Salmonoid Fishes (5)	Donaldson
452 Nutrition of Fishes (5)	Donaldson
453 Fresh-Water Fisheries Management: Biological (5)	Donaldson
454 Communicable Diseases of Fishes (5)	Sparks
460 Water Management and Fish Resources (5) (Offered Spring Quarter only.)	M. C. Bell
461 Water Management and Fish Resources (5) (Offered Autumn Quarter only.)	M. C. Bell
465 Problems in Fisheries Biology (6) (Offered at Friday Harbor Summer Quarter only.)	Staff
480, 481 Introduction to Commercial Fishing Industry (4,4)	F. H. Bell
482, 483 Analysis of Fisheries Products (2,2)	Liston
484 Processing of Edible Fisheries Products (5)	Liston
485 Fish By-Products and Spoilage (5)	Liston
486 Research Problems in Fisheries Technology (5)	Liston
495 Introduction to Fisheries Literature (2, maximum 6)	Staff
501 On-the-Job Training (1-3, maximum 3 for M.S., 9 for Ph.D.) Guided on-the-job training in governmental or industrial fisheries organizations. Prerequisite, permission.	Staff
503 Systematic Ichthyology (5) Principles and procedures of ichthyological taxonomy demonstrated by current problems and research. Prerequisites, 402 and permission.	Welander
504 Principles of Technological Research in Fisheries (3) A lecture and laboratory course designed to familiarize graduate students in fisheries with the methods used in technological research. Prerequisite, permission.	Liston
505 Research Techniques in Shellfish Biology (5) A field and laboratory course dealing with research methods in the reproduction, growth, and mortality of oysters and clams	Sparks

<b>510 Fish Behavior (3)</b>	<b>Fields</b>
Behavior related to sensory-motor equipment. Design of experiments emphasized for studies ranging from naturalistic observation to controlled laboratory and field experiments. Prerequisite, permission.	
<b>520 Graduate Seminar (2, maximum 6)</b>	<b>Staff</b>
Training in methods of searching fisheries literature.	
<b>556 Age and Growth of Fishes (5)</b>	<b>Van Cleave</b>
Principles of growth; methods of determining age and rates of growth in fresh-water and marine fishes. Prerequisites, 402, and Mathematics 383 or permission.	
<b>557 Population Enumeration (5)</b>	<b>Van Cleave</b>
Methods of enumerating animal populations; availability; dominant age groups; gear selectivity. Prerequisite, 556 or permission.	
<b>558 Population Dynamics (5)</b>	<b>Van Cleave</b>
Influence of natural and artificial factors on variation in abundance and yield from animal populations. Prerequisite, 557 or permission.	
<b>604 Research (*, maximum 3 for M.S., 10 for Ph.D.)</b>	<b>Staff</b>
<b>700 Thesis (*)</b>	<b>Staff</b>

## COLLEGE OF FORESTRY

Dean: **GORDON D. MARCKWORTH, 206 Anderson Hall**

The College of Forestry offers courses leading to the degrees of Master of Forestry, Master of Science in Forestry, and Doctor of Philosophy.

There are no foreign language requirements for the master's degrees, but two foreign languages are required for the doctorate.

### COURSES

<b>310 General Forest Soils</b>	<b>Gessel</b>
<b>401 Safety Practices in Forest Industries (2)</b>	<b>Pearce</b>
<b>403 Timber Physics (3)</b>	<b>Bryant</b>
<b>404 Timber Physics (5)</b>	<b>Bryant</b>
<b>406 Microtechnique (3)</b>	<b>Thomas</b>
<b>407 Forest Economics (2)</b>	<b>Turnbull</b>
<b>408 Forest Economics and Finance (5)</b>	<b>Turnbull</b>
<b>409 Forest Policy and Administration (3)</b>	<b>Marckworth</b>
<b>410 Advanced Forest Soils (3)</b>	<b>Gessel</b>
<b>423 Application of Silvicultural Methods (3)</b>	<b>Scott</b>
<b>424 Advanced Silviculture (3)</b>	<b>Scott</b>
<b>430 Advanced Forest Fire Control (3)</b>	<b>Schaeffer</b>
<b>440 Construction (4)</b>	<b>Stenzel</b>
<b>441 Forest Engineering (5)</b>	<b>Pearce</b>
<b>442 Logging Engineering (5)</b>	<b>Pearce</b>
<b>446, 447, 448, 449 Logging Engineering Field Studies (3,5,5,3)</b>	<b>Pearce</b>
<b>455 Forest Influences (4)</b>	<b>Gessel, Scott</b>
<b>460 Forest Management (5)</b>	<b>Robertson</b>
<b>461 Forest Management (3)</b>	<b>Robertson</b>
<b>465 Forest Photo Interpretation (3)</b>	<b>Robertson</b>
<b>466, 467, 468, 469 Senior Management Field Studies (5,5,4,2)</b>	<b>Robertson</b>
<b>470 Forest Products Industries (5)</b>	<b>Erickson</b>
<b>471 Timber Design (3)</b>	<b>Bryant</b>
<b>472 Plywood, Lamination, and Glues (5)</b>	<b>Bryant</b>
<b>476 Wool Pulp (6)</b>	<b>Staff</b>
<b>478 Advanced Wood Technology (5)</b>	<b>Bryant, Erickson</b>
<b>481 Milling (5)</b>	<b>Thomas</b>
<b>482 Manufacturing Problems (5)</b>	<b>Thomas</b>

- 483 Theory and Practice of Kiln Drying (3)** **Staff**
- 484 Forest Products Field Studies (2)** **Thomas**
- 485 Forest Products Seminar (2)** **Staff**
- 495 Research Methods Seminar (3)** **Bryant**
- 500 Graduate Seminar (1, maximum 10)** **Staff**  
Required of graduate students.
- 511 Seminar in Forest Soils (2)** **Gessel**  
Prerequisites, 410 and permission.
- 512 Soil Morphology and Classification (3)** **Gessel**  
An advanced study of the principles of soil formation and classification; intensive coverage of these principles as applied to the survey and classification of forested lands; the factors of the environment that determine soil properties. Prerequisite, permission.
- 513 Methods of Forest Soil Survey (5)** **Gessel**  
A course of field studies to acquaint the student with methods of determining the productive capacity of forested lands from soil properties. Prerequisites, 512 and permission.
- 521 Advanced Silvics (3-5)** **Scott**  
A consideration of current literature and topics in forest tree ecology and physiology. Prerequisite, permission.
- 522 Advanced Silviculture (3)** **Scott**  
A detailed study of the literature dealing with the more recent applications of silviculture in world forestry. Prerequisite, permission.
- 523 Forest Tree Seed (2)** **Campbell, Scott**  
The study of forest tree seed, including structure, development, production, collection, provenance, storage, germination, dormancy, and stimulation. Prerequisite, permission.
- 525 Research Methods in Forest Ecology (2)** **Campbell, Gessel, Scott, Turnbull**  
The study of techniques for measuring environmental factors in silvicultural and soils research; methods used in the assessment of forest vegetation. Required of all graduate students in forest management. Prerequisites, 310, 423 or equivalent, and permission.
- 527 Forest Genetics (3)** **Campbell**  
Tree-improvement breeding theory as related to elementary population genetics, variation in plant populations, and natural and artificial selection. Prerequisite, Biology 451 or permission.
- 541 Advanced Forest Engineering (5)** **Pearce**  
Logging organization and management; logging cost analysis and budgeting. Prerequisite, permission.
- 542 Advanced Logging Engineering (3)** **Pearce**  
Detailed consideration of problems of logging planning and truck road engineering; including the preparation and field layout of logging plans; location, design, and construction of logging truck roads. Prerequisite, permission.
- 571 Advanced Wood Preservation (3)** **Erickson**  
Permeability of wood; theory of penetration; treating plants, their equipment and design. Prerequisites, 370 and 371.
- 572 Wood Chemistry and Analysis (3-5)** **Erickson**  
Techniques for analyzing the chemical constituents of wood; the relationships between chemical properties and the structural properties and uses of various species of wood. Prerequisites, 307, 470, Chemistry 232, and permission.
- 573 Wood-Moisture Relations (2-3)** **Erickson**  
Theories involved in relationships between wood and varying degrees of moisture content, conditions at fiber saturation point and between fiber saturation and zero moisture content. Prerequisites, 307, 404, and permission.
- 574 Wood-Resin Relations (3)** **Bryant**  
The technology of synthetic resins as wood adhesives, wood impregnants, binders, overlays, and surface coatings. Prerequisites, 472 and permission.
- 575 Forest Products Economics (3)** **Thomas**  
Economic considerations in planning for profitable and complete utilization of the forest resource under a variety of circumstances. Prerequisites, 482 and permission.
- 590 Graduate Studies (1-5)** **Staff**  
Study in fields for which there is not sufficient demand to warrant the organization of regular courses.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

Tutorial study designed to meet individual requirements is available to graduate students in the Graduate Studies courses listed below. Such study may include literature review, field, and laboratory work. The courses are offered in all quarters and credits can vary from 1 to 5. Prerequisites include graduate standing and permission of the instructor. Credits are individually arranged for each course.

510 Graduate Studies in Forest Soils (1-5)	Gessel
515 Graduate Studies in Forest Influences (1-5)	Gessel, Scott
520 Graduate Studies in Silvics and Silviculture (1-5)	Scott
526 Graduate Studies in Forest Genetics (1-5)	Campbell
530 Graduate Studies in Forest Fire Control (1-5)	Schaeffer
540 Graduate Studies in Logging Engineering (1-5)	Pearce, Stenzel
550 Graduate Studies in Forest Recreation (1-5)	Brockman
555 Graduate Studies in Wildlife Management (1-5)	Brockman
560 Graduate Studies in Forest History and Policy (1-5)	Marckworth
563 Graduate Studies in Forest Mensuration (1-5)	Turnbull
565 Graduate Studies in Forest Management (1-5)	Robertson
566 Graduate Studies in Forest Photogrammetry (1-5)	Robertson
568 Graduate Studies in Forest Finance and Economics (1-5)	Turnbull
570 Graduate Studies in Forest Products (1-5)	Erickson, Bryant, Thomas

## GRADUATE SCHOOL OF LIBRARIANSHIP

Director: IRVING LIEBERMAN, 111 Library

The program in Librarianship is intended to prepare a selected group of college graduates for a professional career in library work. Programs are offered leading to the degrees of Master of Librarianship and Master of Law Librarianship. The basic professional curriculum is organized around a group of studies designed to provide a sound foundation in the principles and methods of librarianship. These studies are required of all candidates having a degree in librarianship. In addition, the student elects courses which will prepare him for a special field of library service. Programs in special fields of library service are those designed for children and young people's work, school library work, and law librarianship. Other programs may be designed in accordance with the individual needs of the student. The Graduate School of Librarianship is accredited by the American Library Association and is a member of the Association of American Library Schools.

### ADMISSION

The approval of both the Graduate School and the Graduate School of Librarianship is necessary for admission. It is recommended that candidates for admission write to the Graduate School of Librarianship for its *Announcement* which describes in detail the programs offered and the requirements for admission and the degrees.

### SUMMER PROGRAM

The full program is available to Summer Quarter students. Basic required courses for the Master of Librarianship degree are offered every summer, and continuations of these courses are given in alternate summers. Additional course offerings vary from year to year but are planned to enable students to complete requirements for the degree by attendance during summers only.

### LIBRARY FACILITIES

The Graduate School of Librarianship is in the south wing of the Henry Suzzallo Library.

The book collection of the School contains the essential materials on librarianship, the William E. Henry collection of rare books, an outstanding collection of children's books, and a high school library collection. These materials are supplemented by the University Library with its numerous departmental and research libraries containing more than one million volumes. Students have access to

the facilities of the Pacific Northwest Bibliographic Center and to the University's Film Center. The Seattle Public Library, the King County Public Library, and many school, college, and special libraries are available for observation and field work.

## COURSES

- |   |                   |
|---|-------------------|
| 451 Children's Books (3)  | Peterson, Wheeler |
| 452 Storytelling (3)  | Wheeler           |
| 460 School Library Administration (3)   | Turner            |
| 461 School Library Materials (3)  | Turner            |
| 462 Reading of Young People (3)   | Turner            |
| 463 Elementary Classification and Cataloging (4)  | Peterson, Turner  |
| 464 Elements of Technical Processes (3)   | Peterson, Turner  |
| 470 History of the Book (3)   | Bevis             |
| 500 Libraries, Librarians, and Society (2)  | Lieberman         |
| Objectives and principal fields of library services. Major trends and problems.   |                   |
| 501 Libraries, Librarians, and Society (2)  | Bevis             |
| Continuation of 500. Prerequisite, 500.   |                   |
| 502 Library Organization and Administration (3)   | Bauer             |
| Study of public and academic library service, including a consideration of legal structure; finance and statistics; buildings and equipment; personnel; public relations; and other phases of library management. The extension of library service is also considered.  |                   |
| 509 Directed Field Work (2-4)   | Bevis, Lieberman  |
| Four weeks of professionally supervised field work in various types of libraries.   |                   |
| 510 Evaluation of Library Materials (4)   | Bevis             |
| Sources of information about books; criteria of evaluation for selection; evaluation of general reference materials; procedures of reader's services.   |                   |
| 511 Library Materials in the Humanities and Social Sciences (3)   | Bevis             |
| Survey and evaluation of library resources in these fields. Included are reference tools, bibliographies, landmark books, and contemporary literature, with reference to the needs of different kinds of readers. Prerequisite, 510.  |                   |
| 512 Library Materials in Science and Technology (3)   | Bevis             |
| Continuation of 511. Prerequisite, 510.   |                   |
| 513 Government Publications (2)   | Bevis             |
| Government publications of the United States and foreign countries, their acquisition, organization, and use  |                   |
| 514 The Library and Audio-Visual Materials (3)  | Lieberman         |
| Types, cost, utility, and characteristics of modern sensory aids employed in communicating ideas; organization for handling films, film-strips, recordings and transcriptions, slides, pictures, exhibits, and similar materials in the library; experience in operating various types of equipment; techniques in extending the use of audio-visual materials by community groups; sources of information about materials and equipment. |                   |
| 530 Organization of Library Materials: Theory and Principles (4)  | Peterson          |
| The organization of library materials for use; principles of cataloging, classification, and subject analysis: study of the Dewey Decimal and Library of Congress schemes of classification.  |                   |
| 531 Organization of Library Materials: Comparative Methods (4)  | Peterson          |
| Cataloging practices and methods employed to meet varying needs. Prerequisite, 530.   |                   |
| 532 Organization of Library Materials: Advanced Problems (2)  | Peterson          |
| Cataloging of special materials; maps, music, microfilm, and rare books; special classification schemes. Prerequisite, 531.   |                   |
| 540 Advanced Legal Bibliography (2)   | Gallagher         |
| Bibliographical data and use of federal and state law reports and statutes; quasi-legal and commissioners' reports of the states; bar association records, legal periodicals, indexes and digests, and cooperative bibliographies of law collections.   |                   |
| 541 Selection and Processing of Law Library Materials (4)   | Gallagher         |
| Aids to selection, processing, microphotography of legal material, etc.   |                   |
| 542 Legal Reference and Research (5)  | Gallagher         |
| Bibliographical lists, law reference questions, briefing, and annotations.  |                   |
| 543 Law Library Administration (5)  | Gallagher         |
| Staff, patrons and public relations, circulation, architecture, book arrangements, equipment, rules, publicity, publications, budgets, reports, professional societies, regional service.   |                   |
| 550 Introduction to Library Service for Children (3)  | Wheeler           |
| The philosophy, organization, and administration of a children's department in a public library, together with an examination of its relationship to other social agencies in the community.  |                   |

- 553 Library Work with Children (2)** **Wheeler**  
Further study of the organization and function of a children's department in a public library, with special attention to the study of reference books, periodicals, library publicity, and cooperation with the schools. Includes actual practice in conducting library lessons and book talks. Prerequisite, 550.
- 554 Children's Literature (3)** **Wheeler**  
Reading and discussion of children's books of all levels; examination of tools and review media for selection, with practice in selection for various fields of interest. Prerequisite, 550.
- 599 Methods of Research in Librarianship (2)** **Staff**  
A survey of problems and methods.
- 600 Research (\*)** **Staff**  
Systematic investigation under faculty direction of a special project approved by the Director and the instructors concerned.
- 700 Thesis (\*)** **Staff**

## SCHOOL OF MEDICINE

**Dean: GEORGE N. AAGAARD, C304 Health Sciences Building**

In accordance with the general requirements of the Graduate School, the School of Medicine, as an integral part of the Division of Health Sciences, offers programs leading to the degrees of Master of Science and Doctor of Philosophy in the Departments of Anatomy, Biochemistry, Microbiology, Pharmacology, and Physiology and Biophysics. In the Department of Surgery, a program leading to the degree of Master of Science is offered. Students who intend to work toward one of these degrees should confer with the executive officer of the department in which they intend to major.

Several other departments of the School offer courses which may be of interest to graduate students in related fields, and these are listed below. The *School of Medicine Bulletin* contains more complete descriptions of courses numbered below 500.

## ANATOMY

**Executive Officer: H. STANLEY BENNETT, G511 Health Sciences Building**

The Department of Anatomy offers courses leading to the degrees of Master of Science and Doctor of Philosophy. It is desirable that candidates for graduate work in anatomy have a broad and well-correlated knowledge of the general fields of biology, chemistry, physics, and mathematics.

Graduate work in anatomy does not rest upon any rigid or specific list of courses; the program will depend primarily on the applicant's field of interest. In addition to the usual courses in gross and microscopic anatomy, specialized training is offered in the fields of electron microscopy, X-ray diffraction, tracer biology, experimental cytology, cytochemistry, polarization microscopy, and microspectrometry.

## COURSES

- 301 General Anatomy (4)** **Staff**
- 328-329 Gross Anatomy (6-4)** **Bodemer, Everett**
- 330 Microscopic Anatomy (4)** **Roosen-Runge**
- 331 Neuroanatomy (2)** **Everett, Rieke**
- 350-351 Human Function and Structure (6-6) (See Conjoint Courses, page 177.)**
- 401-402-403 Gross Anatomy (6-6-4)** **Bassett**
- 404 Human Embryology (3)** **Blandau**
- 405-406 Microscopic and Submicroscopic Anatomy (5-3)** **Bennett**
- 409 Basis of Neurology (3,5, or 8) (See Conjoint Courses, page 177.)**

- 510 Cytochemistry (4)** **Bennett**  
The finer distribution of chemical substances in cells and tissues; methods of cytochemistry and their theoretical basis and validity. Prerequisite, permission.
- 515 Biological X-ray Structure Analysis (3)** **Jensen**  
Theory of X-ray diffraction, with emphasis on applications to biological systems. Prerequisite, permission.
- 521 Seminar in Molecular and Submicroscopic Anatomy (2)** **Bennett**  
The molecular and micellar basis of bodily structure. Prerequisite, permission.
- 525 Brain Dissection (2)** **Everett**  
Laboratory work in dissection of the human brain, supplemented by lectures emphasizing developmental and functional aspects of neurology. Prerequisite, permission.
- 530 Biological Tracer Techniques (2-4)** **Everett**  
Techniques of using radioactive isotopes as tracers in biological research. Prerequisite, permission.
- 531, 532, 533 Electron Microscopy (2-5,2-5,2-5)** **Bennett, Luft**  
Theoretical and practical aspects of electron microscopy of biological material, including electron diffraction. Prerequisites, 405-406 or permission.
- 535 Histogenesis and Organogenesis (2)** **Blandau**  
Laboratory study and conferences dealing with the ontogenetic maturation of tissues and organs during fetal life. Prerequisite, permission.
- 550 Biological Polarization Microscopy (4)** **Bennett**  
Theory, technique, and application of polarization microscopy in biological studies. Prerequisite, permission.
- 555 Mammalian Reproduction (3)** **Blandau**  
Fundamental processes of reproductive anatomy and physiology of laboratory animals. Prerequisite, permission.
- 557 Seminar (1-3, maximum 9)** **Staff**  
Prerequisite, permission.
- 560 Quantitative Optical Methods in Cytology (3)** **Staff**  
Quantitative studies of cell structure and function using light microscope, phase microscope, polarizing microscope and microspectrograph. Prerequisite, permission.
- 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4) (See Conjoint Courses, page 177.)**
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## BIOCHEMISTRY

**Executive Officer: HANS NEURATH, C408 Health Sciences Building**

Training in biochemistry begins at the advanced undergraduate or graduate level, and studies toward the degree of Doctor of Philosophy are recommended for students planning a career in this field. Biochemists occupy positions in academic teaching and research institutions, in hospitals, and in industry and government laboratories.

The Department offers courses in basic biochemistry for students in various areas of study in the University, including the natural sciences, medicine, dentistry, and others. Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must present a bachelor's degree with a major in chemistry or its equivalent, and should have some background in biology.

### COURSES

- 361 Biochemistry (3)** **Staff**
- 362 Biochemistry Laboratory (3)** **Staff**
- 363 Biochemistry Laboratory (2)** **Staff**
- 401, 402 Biochemistry (4,7)** **Staff**
- 481, 482 Biochemistry (4,3)** **Staff**
- 483 Biochemistry Laboratory (3)** **Staff**
- 497 Medical Students' Elective (\*)** **Staff**  
(Graduate students by permission.)
- 520 Seminar (1-3, maximum 9)** **Staff**  
Prerequisite, permission.
- 521 Physical Biochemistry Seminar (1)** **Kraut**  
Prerequisite, permission.

- 562 Physical Biochemistry (2)** **Kraut**  
This course acquaints the student with certain specialized applications of physical chemistry and their use in biochemical research. Quantitative aspects of methods especially applicable to the study of high molecular weight compounds and systems of biological interests are considered. (Offered 1960-61.) Prerequisites, 482 and Chemistry 357 or permission.
- 563, 564 Proteins (2,2)** **Kraut, Neurath, Wilcox**  
The chemistry and biological activity of proteins and naturally occurring protein structures are considered from the viewpoints of the properties of protein solutions, molecular structure, and biological function. Proteins found in a wide variety of tissues, both plant and animal, are discussed. (Offered 1960-61.) Prerequisites, 562 or permission for 563; 563 for 564.
- 565, 566, 567 Enzymes and Enzyme Action (2,2,2)** **Fischer, Huennekens**  
Preparation and properties of enzymes and enzyme systems, including methods of measurement, kinetic analysis, and theory of enzyme catalysis; classification and properties of individual enzymes, coenzymes, and enzyme systems. (Not offered 1959-60.) Prerequisites, 482 and Chemistry 357, or permission for 565; 565 for 566; 566 for 567.
- 568 Biochemistry of Lipides (2)** **Hanahan**  
The structure and metabolism of sterols, steroids, fatty acids, and the complex lipides will be treated on an advanced level. Prerequisite, 402 or 482 or permission.
- 569 Biochemistry of Nucleic Acids (2)** **Gordon**  
Chemistry and structure of nucleic acids, enzymes active on nucleic acids, and the biosynthesis and metabolism of the components of nucleic acids are considered. Current concepts of the replication of nucleic acids, information transfer, and the biological functions of nucleic acids including the infectivity of viruses will be discussed. Prerequisite, permission.
- 570 Topics in Mammalian Biochemistry (2)** **Krebs**  
An advanced treatment of topics related to metabolism in the intact animal: organ function, body pools, hormonal control, energy balance, nitrogen balance, and nutrition. Biochemical changes in certain diseases are discussed. Prerequisite, 402 or 482, or permission.
- 583 Advanced Biochemistry Laboratory (3)** **Staff**  
Biochemical preparations and investigations of physical and chemical properties by special techniques, including spectrophotometry, polarimetry, manometric method, electrophoresis, isotope tracer applications, etc. Prerequisites, 483 and permission.
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## MICROBIOLOGY

**Executive Officer: CHARLES A. EVANS, G305 Health Sciences Building**

The Department of Microbiology offers courses leading to the degrees of Master of Science and Doctor of Philosophy. Candidates for these degrees may specialize in general bacteriology, immunology, parasitology, medical mycology, virology, or physiology of bacteria. Course requirements vary according to the field chosen.

### COURSES

- 300 Fundamentals of Bacteriology (\*, maximum 6)** **Douglas, Ordal**
- 301 General Microbiology (5)** **Rickenberg**
- 320 Media Preparation (\*, maximum 5)** **Duchow**
- 322 Applied Bacteriology (5)** **Staff**
- 430 Industrial Microbiology (3 or 5)** **Douglas**
- 441-442 Medical Bacteriology, Virology, and Immunology (\*-, maximum 5-, \*-, maximum 5-)** **Evans, Groman, Henry, Weiser**
- 443 Medical Mycology (\*, maximum 2)** **Henry**
- 444 Medical Parasitology (\*, maximum 4)** **Groman**
- 510 Physiology of Bacteria (3)** **Douglas, Eaton, Groman, Ordal, Rickenberg, Whiteley**  
Fundamental physiological and metabolic processes of bacteria. (Offered alternate years; offered 1960-61.) Prerequisite, permission of instructor.
- 515 Methods and Applications of Tissue Culture (4)** **Rickenberg**  
A survey of techniques of animal and plant tissue culture and their applications in biological and medical research. Students' individual research projects will be considered, if feasible. Prerequisites, one course in microbiology, one course in biochemistry, and permission.
- 520 Seminar (1)** **Staff**



- 530 Comparative Morphology and Physiology of the Higher Bacteria (4)** **Ordal**  
Enrichment, isolation, and comparative morphology and physiology of selected representatives of the following groups of bacteria: Nitrobacteriaceae, Rhodobacteriaceae, Caulobacteriaceae, Actinomycetales, Myxobacteriales, Chlamydoxanthales, Caryophanales, and Borrelomyxetaceae. (Offered alternate years; offered 1959-60.) Prerequisite, permission.
- 540 Filterable Viruses (\*, maximum 4)** **Evans, Groman**  
(Offered alternate years; offered 1959-60.) Prerequisites, -442 and permission; histology is recommended.
- 550 Advanced Immunology (\*, maximum 4)** **Weiser**  
(Offered alternate years; offered 1960-61.) Prerequisites, 441- and permission.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## PATHOLOGY

**Executive Officer: EARL P. BENDITT, D505 Health Sciences Building**

### COURSES

- 321, 322-323-424-425, 426 Medical Technology (5,6-6-6-6,16)** **Staff**
- 441-442-443 General and Special Pathology (5-5-5)** **Staff**
- 446-447 Laboratory Procedures (4-2) (See Conjoint Courses, page 177.)**
- 470 Surgical Pathology (\*)** **Staff**
- 476 Clinical Pathological Conference (\*)** **Staff**
- 500 Principles of Pathology (5)** **Staff**  
The material covered is concerned primarily with the fundamental alterations in tissues and organs in disease processes and the results of these changes. This course is open to selected graduate students in the basic sciences.
- 520 Seminar (2, maximum 10)** **Staff**  
Review of current problems of both research and practical nature by various members of the Department of Pathology with discussion of presentations by senior members of the Department. Prerequisite, permission of Executive Officer.
- 521 Seminar in Contemporary Professional Literature (1)** **Staff**  
A review of current literature as applied to the field of pathology. Discussion of presentations by senior members of the Department. Prerequisite, permission of Executive Officer.
- 551 Experimental Pathology (2-5, maximum 20)** **Staff**  
Assignments depend upon the background and interest of the individual. Problems may be concerned with animal experimentation or with specimens obtained from human beings. Special techniques and specialized equipment are utilized when indicated. Methods of keeping data and statistics are considered. Open only to graduate students and fellows who are assigned to work with senior members of the staff. Prerequisite, permission of Executive Officer.
- 552 Clinical Pathology (2-5, maximum 20)** **Staff**  
A study of the principles and techniques of the usual clinical chemical procedures or of the tests used to study diseases of the hematopoietic system. The control of precision and accuracy is stressed, as is the interpretation of the results obtained. The work in either biochemistry or hematology may be taken in the appropriate sequence. For graduate students and fellows who are assigned to the laboratory in clinical biochemistry.
- 553 Pediatric Pathology (\*, maximum 10)** **Staff**  
Assignments according to need and background. By arrangement, for fellows and graduate students.
- 600 Research (\*)** **Staff**  
Selected problems arranged in accordance with the student's needs. Prerequisite, permission of Executive Officer.

## PHARMACOLOGY

**Executive Officer: JAMES M. DILLE, F421 Health Sciences Building**

The Department of Pharmacology offers courses leading to the degrees of Master of Science and Doctor of Philosophy. Students who intend to work toward one of these degrees must present a bachelor's degree with a major in one of the sciences, such as zoology, chemistry, physics, pharmacy, psychology, or physiology.

### COURSES

- 442-443 General Pharmacology (5-4)** **Staff**
- 507 Journal Seminar (\*, maximum 6)** **Staff**  
Presentation of comprehensive reports on recent medical and scientific literature in fields of current importance. Prerequisites, -443 and permission.

- N508 Research Seminar (0)** **Staff**  
Research progress reports and reports on results of completed research. Prerequisites, -443 and permission.
- 509 Pharmacology Laboratory Methods (\*)** **Staff**  
Advanced and special techniques of pharmacological investigation. Material is changed from quarter to quarter to fit students' needs, and the course may be repeated for credit provided the subject matter is not duplicated. Prerequisites, -443 and permission.
- 600 Research (\*)** **Staff**  
Participation in research projects already set in progress by members of the Department staff. Directed experience in research investigation. Prerequisites, -443 and permission.
- 700 Thesis (\*)** **Staff**

## PHYSIOLOGY AND BIOPHYSICS

**Executive Officer: T. C. RUCH, G405 Health Sciences Building**

The Department of Physiology and Biophysics offers courses leading to the degree of Master of Science and Doctor of Philosophy.

Physiology is based upon zoology, physics, chemistry, and mathematics. It interlocks closely with the other basic medical sciences—anatomy, biochemistry, pharmacology, and pathology—and with psychology. For this reason, physiology appeals to students with quite diverse backgrounds and goals. In the organization of the graduate program in physiology and biophysics, several specializations within the broad field of physiology are recognized, and the requirements and curricula are different for each, although there is considerable overlapping. The areas of specialization may be described as (1) mammalian and pathological physiology, (2) biophysics, for which undergraduate mathematics and physics are prerequisites, (3) physiology of behavior, in which undergraduate psychological training is a prerequisite, and (4) applied physiology, with emphasis on environmental stresses and human engineering.

Biophysics emphasizes the physical aspects of organs and control systems, studied by the instruments and methods of thinking used by physicists. A bachelor's degree in physical science or equivalent is required.

The basic graduate courses in physiology and biophysics include 401-402 and Conjoint 409 (Basis of Neurology).

Graduate students in physiology and biophysics with a medical degree will have their curricula adjusted in accordance with their training.

## COURSES

- 350-351 Human Function and Structure (6-6)** (See Conjoint Courses, page 177.)
- 401-402 Advanced Human Physiology (7-7)** **Ruch, Staff**
- 409 Basis of Neurology (3,5, or 8)** (See Conjoint Courses, page 177.)
- 411 Introductory Biophysics (4)** **Carlson, Woodbury, Young**
- 416 Biophysics (5)** **Woodbury, Young**
- 481 Pathological Physiology of Pain (\*)** **Patton, Ruch**
- 483 Neurology of Emotional Behavior (\*)** **Patton, Ruch**
- 484 Endocrinological Reaction to Stress (\*)** **Carlson, Patton, Woodbury, Staff**
- 491 Medical Physics (2)** **Carlson, Young**
- 492 Selected Topics in Physiology and Biophysics (2)** **Staff**
- 493 Techniques in Cardiopulmonary Diagnosis (2)** **Carlson, Rushmer, Staff**
- 494 Neurological Study Unit (2) Physiology, Neuroanatomy, Neurology, Neuropathology, Neurosurgery, and Psychiatry** **Staff**
- 497 Medical Students' Elective (\*)** **Staff**  
(Graduate students by permission.)
- 520 Physiology Seminar (2-5)** **Staff**  
Selected topics in physiology.
- 521 Biophysics Seminar (2-5)** **Young**  
Selected topics in biophysics.

- 522 Biophysics of External Respiration (2-5)** **Carlson, Young**  
Viscous and elastic properties of chest-lung system; flow of gases in tubes. Generalized alveolar air equations. Principle of infrared absorption and emission type of rapid gas analyzers. Prerequisite, permission.
- 523 Heat Transfer and Temperature Regulation (2-5)** **Carlson, Young**  
Prerequisite, B.S. in physical science or permission.
- 524 Membrane Potentials (2-5)** **Woodbury, Young**  
Theories of ionic transport. Planck-Fokker equations. Theory of absolute reaction rates. Unidirectional and net transport of ions. Active transport. Prerequisite, B.S. in physical science or permission.
- 525, 526, 527 Advanced Mammalian and Clinical Physiology (\*,\*,\*)** **Staff**  
Guided study of the experimental literature of physiology and biophysics. Reports are written at a proseminar or discussed with the staff. Emphasis is placed on critical analysis, accuracy of expression, bibliographical technique, and other factors of good scholarship. Prerequisite, permission.
- 528 Physiological Control Systems (2-5)** **Young**  
Theories of nonlinear mechanics and their applications to physiological control systems. Prerequisite, B.S. in physical science or permission.
- 532 Basic Principles of Physiological Instrumentation (2-5)** **Woodbury, Young**  
Pulse generator; A.C. and D.C. high-gain amplifier circuits; oscilloscopes and oscillographs; recording of pressure, volume, and flow in liquids and gases; calorimetry and pyrometry; continuous gas analysis. Prerequisite, permission.
- 533 Applied Physiological Instrumentation (2-5)** **Carlson, Patton, Rushmer, Scher**  
Study and use of research instruments applicable to the nervous system (stimulators, amplifiers, and oscilloscopes), the cardiovascular system (cinefluorograph, electro- and stetho-cardiograph, oximeter, strain gauge manometers, etc.), and respiratory and metabolic activity (flow meters, minute volume integrator, infrared and paramagnetic gas analyzers, cardiostachometer, thermocouples, gradient calorimeter). Prerequisites, 532 and permission.
- 535 Operative Techniques in Neurophysiology (2-5)** **DeVito, Patton, Smith**  
Deafferentation, decerebration and Sherrington reflex preparation; osteoplastic bone flap, Horsley-Clarke apparatus, implanted electrodes, and reconstruction of lesions; primate colony and operating room management. Prerequisite, permission.
- 536 Behavioral Techniques in Neurophysiology (2-3)** **Smith, Towe, Staff**  
Study and use of behavioral methods applicable to nervous system studies, quantification of activity and physiological variables, interpretation of neural lesions and chronic electrode implants. Prerequisite, permission.
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## PUBLIC HEALTH AND PREVENTIVE MEDICINE

Executive Officer: **WILLIAM E. REYNOLDS**, B506 Health Sciences Building

### COURSES

- 420 Principles of Public Health I (2)** **Reynolds**
- 421 Principles of Public Health II (3)** **Staff**
- 422 Principles of Public Health III (3)** **Staff**
- 423 Principles of Public Health IV (3)** **Staff**
- 440 Environmental Health I (3)** **Hatlen, Kusian**
- 441 Environmental Health II (3)** **Hatlen**
- 442 Environmental Health III (3)** **Hatlen**
- 450 Measurement and Control of Air Pollution (2)** **Kusian**
- 453 Industrial Hygiene Techniques (3)** **Kusian**
- 460J Field Training in Health Education (5)** **Vavra**  
Offered jointly with the College of Education. (Offered Summer Quarter only.)
- 461 School and Community Health Programs (5)** **Mills, Reeves**
- 463 Community Organization for Health Education (3)** **Vavra**
- 464 Community Health Education Techniques (3)** **Vavra**
- 470 Introduction to Biometry (3)** **Reynolds**
- 472 Applied Statistics in Health Sciences (2-4)** **Bennett**
- 476 Advanced Biometry (5)** **Reynolds**
- 477 Statistical Methods in Biological Assay (3)** **Bennett**
- 480 Public Health Problems (\*, maximum 6)** **Staff**

- 482 Field Practice in Public Health (2-6)** **Staff**
- 483 Field Practice in Public Health (6)** **Staff**
- 484 Field Practice in Public Health (3)** **Staff**
- 485J School Health Problems (2)** **Leahy, Vavra**  
Offered jointly with the School of Nursing.
- 492J Problems in International Health (2)** **Leahy, Reynolds**  
Offered jointly with the School of Nursing.
- 502J Applied Group Development Principles (3)** **Burke, Vavra**  
A study of the factors that contribute to productive group effort with application of group development principles for professional health personnel. Offered jointly with the School of Nursing. Prerequisites, permission, Speech 332 or equivalent, and background in the health field.

## CONJOINT COURSES

Conjoint courses are offered cooperatively by departments in the School of Medicine. They are designed to integrate basic medical training with clinical work and, in some cases, to integrate basic medical training in two or more fields. In the descriptions of these courses, the name of the department with primary responsibility for each course precedes the names of the other sponsoring departments.

## COURSES

- 350-351 Human Function and Structure (6-6)** **Skahen, Staff**  
For master's degree candidates in psychology and other students not majoring in anatomy or physiology. Offered by the Departments of Anatomy and Physiology. Prerequisite, permission.
- 409 Basis of Neurology (3,5, or 8)** **Everett, Patton, Ruch**  
Offered by the Departments of Anatomy and Physiology. Prerequisite, permission for graduate students.
- 446-447 Laboratory Procedures (4-2)** **Staff**  
Offered by the Departments of Pathology and Medicine. Prerequisite, permission for graduate students.
- 496 Concept of the Child (3)** **Delsher, Jensen, Staff**  
Offered by the Departments of Pediatrics and Public Health and Preventive Medicine. For nonmedical students. Prerequisite, permission.
- 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4)** **Staff**  
An intensive course devoted to one region of the body each quarter, i.e., thorax, abdomen, upper extremity, head, and neck. Offered by the Departments of Anatomy and Surgery. Prerequisite, permission for nonmedical students.

## PEDIATRICS

**Executive Officer: ROBERT A. ALDRICH, BB807 University Hospital**

## COURSES

- 496 Concept of the Child (3)** (See Conjoint Courses, page 177.)
- 505 Physical Growth of the Well Child (2)** **Jensen, Staff**  
Weekly seminars, eighteen hours. The correlation between growth and development and diseases in the child as pertaining to dental health. For graduate students in dentistry. Prerequisite, permission.

## • PSYCHIATRY

**Executive Officer: HERBERT S. RIPLEY, B516 Health Sciences Building**

The Department of Psychiatry offers courses designed to help students in medicine, nursing, psychology, social work, education, and others concerned with human problems to attain a scientific grasp of psychiatric principles. Using these principles, students will be able to evaluate interpersonal relationships and use to the greatest advantage their potentialities for understanding and dealing with personality reactions.

**COURSES**

- 450 Principles of Personality Development (2)** **Kaufman**
- 451 Principles of Personality Development (2)** **Heilbrunn**
- 452 Clinical Psychiatry (2)** **Schwartz**  
 Discussion of clinical psychiatry considering causation, prevention, treatment, and rehabilitation. Not open to students who have taken 457 or 557. Prerequisite, 267 or 451, or permission.
- 553 Psychodynamics and Psychopathology (2)** **Heilbrunn**  
 Heredity, constitution, physical changes, and family and social relationships as determinants in psychodynamics are discussed. Attention is paid to defense mechanisms such as anxiety, depression, resentment, evasion, withdrawal, repression, projection, and overcompensation as commonly encountered in psychopathology. Prerequisite, 267 or 451, or permission.
- 558 Seminar: Interviewing (2)** **Sayer**  
 Case studies are presented by individual students for discussion of the psychodynamics and methods of dealing with personality problems. For graduate students who are having practical experience in interviewing. Prerequisite, permission.
- 559 Child Psychiatry (2)** **Kaufman**  
 Series of discussions and lectures dealing with psychopathology of children. Prerequisite, 267 or 451, or permission.
- 565 Biological Foundations of Psychiatry (2)** **Heilbrunn**  
 Anatomical and physiological factors involved in various forms of psychopathology. Prerequisite, permission.

**SURGERY**

**Executive Officer: HENRY N. HARKINS, BB477 University Hospital**

The Department of Surgery offers courses leading to the degree of Master of Science. The purpose of this program is not to train students in the art of surgery or in surgical techniques, but to encourage basic science research in surgical problems on a graduate level.

Departmental requirements for candidacy include an M.D. degree from an approved medical school and preferably a year of internship in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

Candidates must earn a minimum of 45 credits, including not less than 15 credits of course work, exclusive of research, in surgery and allied graduate courses. A minor is to be taken in one of the basic sciences—anatomy, biochemistry, microbiology, pathology, pharmacology, or physiology and biophysics. The thesis must be based upon research carried out under the supervision of a member of the full-time teaching staff. The student must appear at an oral examination in which his thesis is defended and knowledge of his major and minor fields is demonstrated.

The examiners will consist of a committee appointed by the Department of Surgery.

**COURSES**

- 520 Seminar (5)** **Harkins, Merendino, Fletcher, Nyhus, Stevenson**  
 Conferences, seminars, and round-table discussions of advanced surgical topics and recent literature in the field.
- 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4) (See Conjoint Courses, page 177.)**
- 590 Surgical Experimental Techniques (5)** **Harkins, Merendino, Fletcher, Nyhus, Stevenson**  
 Basis for graduate research and advanced thesis work.
- 598 Seminar in Urology (\*)** **Ansell, Staff**  
 Problems in the field of urology discussed by various visiting members of the faculty of urology and of other departments, to provide a well-rounded basic scientific and clinical presentation.
- 600 Research (\*)** **Ansell, Bell, Clawson, Fletcher, Foltz, Frederickson, Harkins, Merendino, Morris, Nyhus, Stevenson, Ward, Staff**
- 700 Thesis (\*)** **Staff**

## SCHOOL OF NURSING

**Dean: MARY S. TSCHUDIN, C303 Health Sciences Building**

The School of Nursing offers courses leading to the degrees of Master of Arts and Master of Nursing. Programs of study provide for advanced professional preparation and research in a selected clinical area, in teaching or administration in schools of nursing, or in nursing services in hospitals or public health agencies. They are designed to develop superior professional competence, and to prepare the graduate for positions of administrative, teaching, or advanced clinical responsibility.

Each student's background and goals are considered individually in the planning of the program.

The patterns outlined below are the usual ones for the master's degrees.

**MASTER OF ARTS.** The requirements for the Master of Arts are:

	CREDITS
Course work in major field.....	18
Nursing 521.....	2
Education 591.....	3
Thesis.....	10
Course work in minor field.....	12
	<hr/> 45

The minor may be chosen in a field such as sociology, education, social work, business administration, psychology, psychiatry, history, or creative writing.

**MASTER OF NURSING.** The Master of Nursing is a professional degree with emphasis on advanced preparation and background in the field of specialization.

	CREDITS
Course work in major field.....	18
Nursing 521.....	2
Education 591.....	3
Thesis.....	10
Supporting courses from allied fields.....	12
	<hr/> 45

The supporting courses may be chosen in fields such as sociology, business administration, journalism, or anthropology.

There is no foreign language requirement for this degree.

**POST-MASTER'S STUDY.** Students who hold the master's degree in nursing may enroll for an additional period of study. Individual programs are planned to include advanced work in supporting sciences, advanced clinical field work, and independent research in nursing.

## COURSES

430 Advanced Nursing Field Work (3)	Staff
431 Advanced Nursing Field Work (2)	Staff
435 Practice Supervision in Nursing (3)	Staff
436 Practice Teaching in Nursing (3)	Staff
454 Administration in Nursing (2)	Smith
455 Administration of Schools of Nursing (3)	Hoffman
456 Nursing Service Administration (3)	Smith
462 Teaching in Schools of Nursing (3)	Mansfield
463 Personnel Guidance Programs in Nursing (3)	Batey
464 The Nurse in Mental Health (2-3)	Burroughs
466 In-Service Education in Nursing (3)	Smith
467 Evaluation of Performance in Nursing (3)	Olcott
485J School Health Problems (2)	Leahy
Offered jointly with the Department of Public Health and Preventive Medicine.	

- 492J Problems in International Health (2)** **Leahy**  
Offered jointly with the Department of Public Health and Preventive Medicine.
- 498 Methods of Supervision in Public Health Nursing (3)** **Leahy**
- 501 Development of Nursing Procedures (2)** **Mansfield**  
Nursing procedures as a basis for nursing service planning and as a teaching tool. Procedures analyzed against selected criteria. Development of procedures according to clinical needs.
- 502J Applied Group Development Principles (3)** **Murray**  
A study of the factors that contribute to productive group effort with application of group development principles for professional health personnel. Offered jointly with the Department of Public Health and Preventive Medicine. Prerequisites, permission, Speech 332 or equivalent, and background in the health field.
- 505 Seminar in Administration of Schools of Nursing (3)** **Hoffman, Tschudin**  
Discussion, analysis of situations in administration of schools of nursing. Prerequisite, 455 or equivalent.
- 506 Seminar in Nursing Service Administration (3)** **Smith**  
Includes over-all planning for the nursing department with study of administrative problems; policy making, budget planning, control, and other administrative practices. Prerequisite, 456 or equivalent.
- 507 Seminar in Nursing Problems in Mental Hygiene (2)** **Burroughs**  
Nursing case material analyzed to provide a working concept of the principles of mental hygiene and to clarify the functions of the nurse in this area. Prerequisite, permission.
- 508 Seminar in Advanced Psychiatric Nursing (2)** **Batey**  
Weekly two-hour seminar in exploration of interpersonal relations and the complex system of forces affecting these relationships in a psychiatric setting. Emphasis is placed upon the nurse's role in the total therapeutic milieu and upon identification and development of interpersonal experiences to promote emotional growth of the individual psychiatric patient. Case material is drawn from student experiences in current advanced psychiatric nursing practice.
- 510 Curriculum Development in Nursing Education (5)** **Hoffman, Tschudin**  
Current curriculum patterns and trends in nursing education; the development of curriculum materials; problems in the study and implementation of nursing curriculum. Prerequisite, 417 or equivalent.
- 511 Psychosomatic Nursing (3)** **Nehren**  
Attention will be focused on the solution of nursing problems in the care of patients whose problems are primarily psychophysiologic in nature. Three hours of conference and four hours of clinical laboratory experience weekly. Prerequisites, basic course in psychiatric nursing and permission.
- 512 Advanced Fields in Psychiatric Nursing (3)** **Batey**  
Practicum devoted to the solution of nursing problems in psychiatric situations. Emphasis on specific interpersonal and intraprofessional relationships in the care of mental patients. Prerequisite, permission.
- 515 Special Fields in Public Health Nursing (3)** **Leahy**  
Investigation of public health nursing responsibilities in special fields such as rheumatic fever and cerebral palsy. Emphasis varies with interest and needs of the students. Prerequisite, permission.
- 521 Methods of Research in Nursing (2)** **Hoffman**  
Methods of research applied to the solution of problems in all fields of nursing.
- 600 Research (\*)** **Hoffman, Staff**
- 700 Thesis (\*)** **Hoffman, Staff**

## COLLEGE OF PHARMACY

Dean: JACK E. ORR, 102 Bagley Hall

The College of Pharmacy is accredited by the American Council on Pharmaceutical Education and is a member of the American Association of Colleges of Pharmacy. The degrees of Master of Science and Doctor of Philosophy are offered.

The basic requirements for admission to graduate study in the pharmaceutical sciences are met by an undergraduate degree in pharmacy. Students with undergraduate majors in the biological or physical sciences may also be admitted, but they will be required to complete courses basic to their chosen field of study during their graduate careers. Applicants must demonstrate above average scholastic ability and promise.

Undergraduates who have decided to pursue graduate work may expedite their programs by selection of pertinent electives. Although the choice of electives will vary with the identity of the student's selected field in the pharmaceutical sciences, it should be emphasized that graduate studies in the College of Pharmacy

require adequate preparation in the physical and biological sciences, in mathematics, and in foreign language. Students who have not completed certain desired courses during their undergraduate work may be permitted to do so during their graduate programs.

Specialization is offered in pharmaceutical chemistry, pharmacognosy, and pharmacy. Graduate study and work toward an advanced degree in pharmacology is directed by the Department of Pharmacology of the Division of Health Sciences.

A course of study with specialization in hospital pharmacy, consisting in part of an internship program, is being initiated. Students interested in hospital pharmacy should write to the Dean, College of Pharmacy, for further details.

Graduate programs of study vary with the specialization selected, and although they are flexible and are adapted to the needs of the individual student, certain general recommendations may be made. For majors in pharmacy and pharmaceutical chemistry, courses in physical chemistry (calculus is a prerequisite), biochemistry, qualitative organic chemistry, and statistical methods are basic to all programs, in addition to courses in the major fields. These may be supplemented by advanced courses in the physical or biological sciences.

For pharmacognosy majors, courses in organic chemistry, biochemistry, and plant physiology are basic to most programs. These are generally best supplemented in the biological areas by courses in plant anatomy, taxonomy, microbiology, and mycology. In the physical area, specialized courses in organic chemistry, analytical chemistry, and physical chemistry are utilized.

All graduate students are encouraged to pursue additional courses in the pharmaceutical sciences other than their fields of specialization. Specific recommendations based upon individual interests may be obtained from the chairman of the department concerned or from the Dean, College of Pharmacy.

**MASTER OF SCIENCE.** The candidate must present at least 27 credits of course work, exclusive of thesis and nonthesis research. He must complete a research project, prepare an acceptable thesis (unless specifically excepted in a particular program), and pass a final examination. He must present a certificate of proficiency in one foreign language.

**DOCTOR OF PHILOSOPHY.** The candidate must present a minimum total of 56 credits of course work, exclusive of thesis and nonthesis research. The credits earned for the master's may be applied toward the doctor's degree. The candidate must pass a general examination for admission to candidacy for the doctor's degree, complete a research project, prepare an acceptable thesis, and pass a final examination. The research for the doctor's degree must be done at the University of Washington (this does not apply to candidates beginning their graduate studies prior to September, 1958). The candidate must present a certificate of proficiency in two foreign languages (one in addition to the Master of Science requirement).

## COURSES

### PHARMACEUTICAL CHEMISTRY

- |  |                |
|--|----------------|
| <b>430 Inorganic Medicinal Products (3)</b>  | <b>Krupski</b> |
| <b>440, 441, 442 Organic Medicinal Products (3,3,3)</b>  | <b>Fischer</b> |
| <b>480 Advanced Organic Medicinal Products Laboratory (3)</b>  | <b>Huitric</b> |
| <b>497 Pharmaceutical Chemistry and Toxicology (5)</b><br>(Last time offered, Spring Quarter, 1960.)   | <b>Fischer</b> |
| <b>497 Toxicology (3)</b><br>(First time offered, Spring Quarter, 1961.)   | <b>Fischer</b> |
| <b>511, 512, 513 Advanced Pharmaceutical Chemistry (3,3,3)</b><br>pH determination and buffer systems, fluorometry, chromatography, ion exchange, and the use of various instruments for scientific investigations and vitamin determinations.<br>(Offered every third year; offered 1961-62.) | <b>Krupski</b> |
| <b>520 Seminar (1, maximum 5)</b><br>Graduate students must attend seminars and make one formal presentation per year while in residence; 1 credit per year is allowed.  | <b>Staff</b>   |



**521, 522 Advanced Organic Medicinal Products (3,3)** **Huitric**  
Application of integrated data from the physical and biological sciences to problems of chemotherapy, including transport of drugs to site of action, biotransformation of drugs, interaction of drugs with enzyme systems and recent advances in drug design. Prerequisites, Chemistry 357, 531, and Biochemistry 482, or permission. (Offered every third year; offered 1960-61.)

**531, 532, 533 Plant Chemistry (3,3,3)** **McCarthy**  
Alkaloids, volatile oils, steroids, and glycosides, including methods of isolation, proof of structure and configuration, and synthesis, with emphasis on materials of pharmaceutical interest. (Offered every third year; offered 1959-60.)

**600 Research (\*)** **Staff**

**700 Thesis (\*)** **Staff**

#### PHARMACOGNOSY

**405 Advanced Pharmacognosy (3)** **Tyler**

**406 Medicinal Plants (2)** **Tyler**

**411 Hormones and Glandular Products (3)** **Staff**  
(Last time offered, Winter Quarter, 1960.)

**411 Hormones and Glandular Products (2)** **Staff**  
(First time offered, Winter Quarter, 1961.)

**412 Serums, Vaccines, and Allergens (2)** **Staff**  
(Last time offered, Spring Quarter, 1960.)

**412 Immunological Agents (3)** **Staff**  
(First time offered Spring Quarter, 1961.)

**520 Seminar (1, maximum 5)** **Staff**  
Graduate students must attend seminars and make one formal presentation per year while in residence; 1 credit per year is allowed.

**600 Research (\*)** **Staff**

**700 Thesis (\*)** **Staff**

#### PHARMACY AND PHARMACY ADMINISTRATION

**420 Manufacturing Pharmacy (3)** **Plein**

**473 Cosmetic Manufacturing (3)** **Rising**

**483 Hospital Pharmacy (3-5)** **Plein**

**520 Seminar (1, maximum 5)** **Staff**  
Graduate students must attend seminars and make one formal presentation per year while in residence; 1 credit per year is allowed.

**540 Pharmaceutical Emulsions (2)** **Rising**  
Problems in the preparation of emulsions in pharmaceutical manufacturing. Prerequisites, Pharmaceutical Chemistry 239 and Chemistry 357, or equivalent.

**550 Solvents and Solvent Extraction (2)** **Plein**  
Theories of solvent extraction and the use of solvents applied to pharmaceutical manufacturing. Prerequisite, permission.

**600 Research (\*)** **Staff**

**700 Thesis (\*)** **Staff**

## SCHOOL OF SOCIAL WORK

Dean: VICTOR I. HOWERY, 102 Social Work Hall

The School of Social Work offers a two-year, six-quarter program leading to the professional degree of Master of Social Work. The professional program is accredited by the Council on Social Work Education. During the course of study, students may emphasize an interest in social case work, social group work, social community organization, social agency administration, or social research. Among the areas of practice for which students are prepared by completion of the course of study are: adoptions, foster home care, institutional care, child protection, child guidance, family counseling, probation and parole, medical social work, school social work, public assistance service, community planning, community center work, and social group work programs.

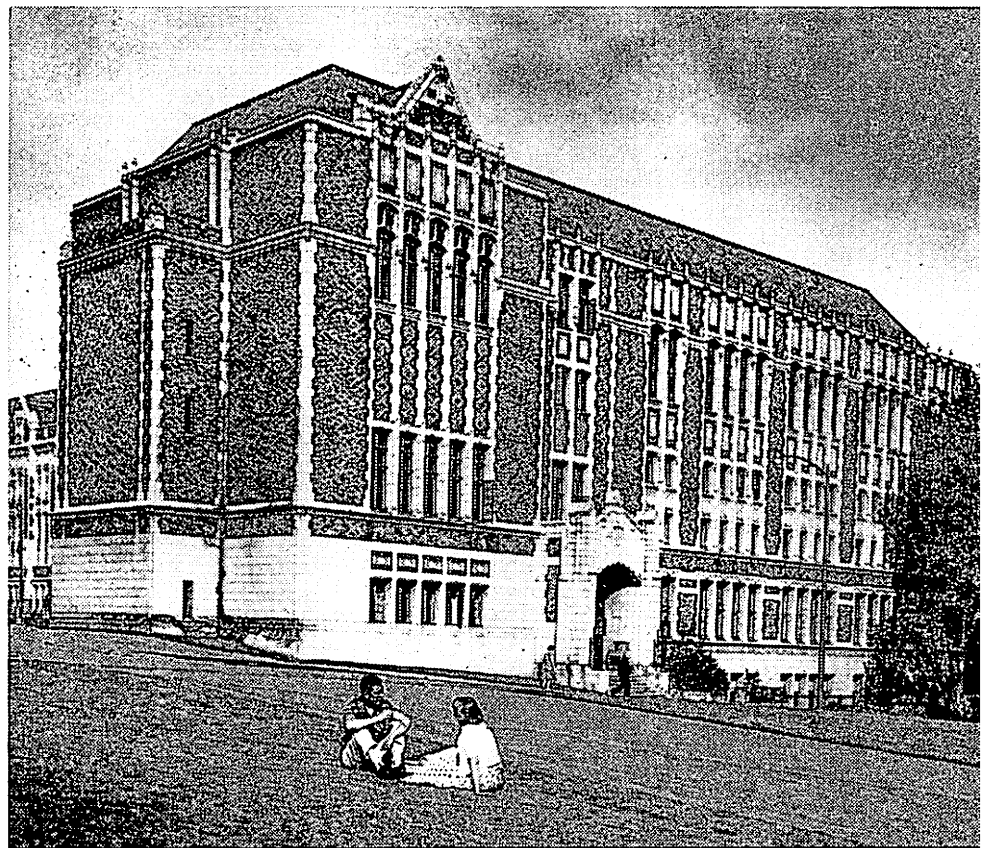
**MASTER OF SOCIAL WORK.** Requirements for the degree include completion of the prescribed curriculum, a minimum of three quarters of residence at this School, the equivalent of field work in six quarters, and completion of either an individual thesis or a research project.

## COURSES

- 300 Survey of Social Service Programs (3)** Lawrence, Mundt
- 400 Field of Social Welfare (5)** Lawrence
- 401 Principles of Interviewing (2)** Lawrence, Reiss
- 502 Development of Social Service Programs (2)** Lawrence, Smith  
A study of social service programs developed to meet individual, group, and community needs. The relationship of such programs to social, familial, and economic patterns of society. Prerequisite, permission.
- 509 Readings in Social Work (\*, maximum 6)** Staff  
Prerequisite, permission.
- 510 Social Case Work (2)** Abrahamson, Gronewold, Reiss  
The case work process in a variety of settings through the analysis and discussion of case records; consideration of basic interviewing principles; development of understanding of motivations in human behavior and application of this understanding in case work. Prerequisite, permission.
- 511 Social Case Work (2)** Abrahamson, Gronewold, Reiss  
Continuation of generic case-work theory, with emphasis on diagnosis and case-work treatment. Prerequisite, 510.
- 512 Social Case Work (2)** Abrahamson, Gronewold, Reiss  
Elaboration and intensification of basic case-work concepts and their application in practice to various types of agencies. Prerequisites, 511 and permission.
- 515 Field Work (4, maximum 12)** Macdonald, Staff  
Prerequisite, permission.
- 520 Seminar (\*, maximum 6)** Staff  
Prerequisite, permission.
- 521 Social Group Work (2)** Walter  
Professional group work as a method and process within the whole field of social work; objectives, techniques, skills and media of group work, and criteria for evaluation of results. Prerequisite, permission.
- 522 Social Group Work Process (2)** Walter  
An analysis of social group work process in groups within social service programs. Identification and examination of methods and skills which promote productivity in social groups. Prerequisite, 521.
- 530 Advanced Case Work (2)** Abrahamson, Hunt  
Intensive study of the case-work process to deepen and broaden the caseworker's knowledge and understanding of the dynamics of human behavior and to enable him to develop greater skill in interviewing. Prerequisite, permission.
- 531 Advanced Case Work (2)** Abrahamson, Hunt  
Continuation of intensive study of case material, with emphasis on sound direction in case-work treatment. Prerequisite, 530.
- 532 Advanced Case Work (2)** Abrahamson, Hunt  
Intensive drill in case analysis, seeing the case as a whole, achieving a balanced perspective on the relationship between inner and outer forces, and planning appropriate treatment. Prerequisite, 531.
- 533 Trends in Social Case Work (2)** Abrahamson, Hunt, Reiss  
Generic and differential factors in understanding and utilizing various administrative settings in social case-work practice. Study of developments and trends in social case-work practice. Prerequisite, permission.
- 534 Trends in Social Case Work (2)** Abrahamson, Hunt, Reiss  
Continuation of 533. Prerequisite, permission.
- 535 Advanced Field Work (4, maximum 12)** Macdonald, Staff  
Prerequisite, 515.
- 556 Medical Information for Social Work (2)** Ferguson  
Physical growth and change of the individual as correlated with factors of emotional and social development; consideration of specific medical problems. Prerequisite, permission.
- 557 Medical Information for Social Work (2)** Ferguson  
Continuation of 556. Prerequisite, 556.
- 570 Administration of Social Agencies (2)** Staff  
Problems of administration that confront the administrator and his staff in any public or private agency; relations with board and staff; problems of finance and budget making, office management. Emphasis on dynamic principles of the administrative process. Prerequisite, permission.

- 572 Community Organization for Social Welfare (2)** **Walter**  
Problems of adjusting social welfare needs and resources; understanding the social forces of the community; methods used by public and private agencies to organize to meet social welfare needs; interpretation of agency programs to the community; the place of boards and committees. Prerequisite, permission.
- 573 Social Welfare Planning Process (2)** **Walter**  
An examination of the process of promoting and sustaining an adjustment between social welfare resources and social welfare needs. Analysis of personal and social factors in specific community organization efforts and the nature of the professional worker's participation in them. Discussion based upon records of specific community situations. Prerequisite, 572.
- 580 Introduction to Public Welfare (2)** **Parsons**  
Care of needy under poor laws, emergency relief and modern public assistance programs; characteristics of state assistance plans; administration of work relief; federal grants-in-aid; adult probation and parole; vocational rehabilitation services. Prerequisite, permission.
- 586 Statistics in Social Work (2)** **Staff**  
Elementary statistical method applied to social welfare problems; sources for continuing statistical reports; interpretation and use of statistics in welfare administration. Prerequisite, permission.
- 587 Law and Social Work (2)** **Gronewold**  
The basis of law, its philosophy and development, its broad principles, and the procedure by which it operates; specific aspects of law pertinent to social work orientation, including law in relation to the family, children, guardianships, and acts against society, and property laws. Prerequisite, permission.
- 590 Social Work Research (2)** **Stutsman, Smith**  
Methods used in the study of social work practice, program evaluation, and community needs and resources. Study of current social work research field practice through group research projects. Presentation and evaluation of research projects currently carried by students in the research program.
- 591 Social Work Research (2)** **Stutsman, Smith**  
Continuation of study of research methods. Prerequisite, 590.
- 592 Social Work Research (2)** **Stutsman, Smith**  
Continuation of study of research methods. Prerequisite, 591.
- 593-594-595 Field Practice in Research (2-2-2)** **Staff**  
Field practice in a group project in lieu of an individual thesis. Includes development of research design, collection of data, tabulation and analysis, and report writing. Prerequisite, 590 or its equivalent.
- 700 Thesis (\*)** **Staff**

**BULLETIN • UNIVERSITY OF WASHINGTON**



**SCHOOL OF LAW**

**1960-1962**

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Division of Correspondence Study and the Division of Evening Classes, the correspondence study and evening class announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Addressograph Service.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS  
INTRODUCTION TO THE UNIVERSITY  
UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING  
COLLEGE OF ARTS AND SCIENCES  
COLLEGE OF BUSINESS ADMINISTRATION  
SCHOOL OF DENTISTRY  
COLLEGE OF EDUCATION  
COLLEGE OF ENGINEERING  
COLLEGE OF FISHERIES  
COLLEGE OF FORESTRY  
GRADUATE SCHOOL  
SCHOOL OF LAW  
SCHOOL OF MEDICINE  
SCHOOL OF NURSING  
COLLEGE OF PHARMACY  
SCHOOL OF SOCIAL WORK

### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT  
SUMMER QUARTER ANNOUNCEMENT  
CENTER FOR GRADUATE STUDY AT HANFORD  
CORRESPONDENCE STUDY  
EVENING CLASSES

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## CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	7
Board of Regents	
Officers of Administration	
School of Law Faculty	
GENERAL INFORMATION . . . . .	13
Facilities	
Student Activities and Services	
Admission	
Korean Veterans	
Disabled Veterans	
Children of Deceased Veterans	
World War I or II Veterans	
Study Programs Offered	
Tuition and Fees	
Estimate of Yearly Expenses	
Awards, Scholarships, and Loans	
THE PROGRAM IN LAW . . . . .	31
Grading	
Objectives and Methods of Instruction	
Curriculum	
LL.B. Degrees Conferred, 1957-58; 1958-59	
Honors, Prizes, Scholarships, and Awards, 1957-58; 1958-59	

## CALENDAR

### SUMMER QUARTER, 1960

#### REGISTRATION PERIOD

JUNE 6-JUNE 10 Registration for Summer Quarter

#### ACADEMIC PERIOD

JUNE 13—MONDAY	First term begins
JULY 4—MONDAY	Independence Day holiday
JULY 20—WEDNESDAY	First term ends
JULY 21—THURSDAY	Second term begins
AUG. 26—FRIDAY	Second term ends

### AUTUMN QUARTER, 1960

#### REGISTRATION PERIOD

MAY 24-25	Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
AUG. 15	Deadline for ALL new students to submit Applications for Admission with complete credentials.
SEPT. 15	All new first-year students must register in person.
SEPT. 16-20	Orientation program for first-year students.
SEPT. 20	In-person Registration for new transfer students with at least full second-year standing. Also, In-Person Registration for former students not in residence Spring Quarter, 1960, and those attending Spring Quarter, 1960, who failed to complete Advance Registration. Former students may obtain Registration Permits by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Permits is September 13.</i>

#### ACADEMIC PERIOD

SEPT. 21—WEDNESDAY	Instruction begins (8 a.m.)
SEPT. 27—TUESDAY	Last day to add a course
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 10—SATURDAY	End of examination period

### WINTER QUARTER, 1961

#### REGISTRATION PERIOD

Nov. 2-4	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
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DEC. 27-29

In-Person Registration for former students not in residence Autumn Quarter, 1960, and those attending Autumn Quarter, 1960, who failed to complete Advance Registration. Registration Permits may be obtained by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Permits is December 9.*

**ACADEMIC PERIOD**

JAN. 3—TUESDAY

Instruction begins

JAN. 9—MONDAY

Last day to add a course

FEB. 22—WEDNESDAY

Washington's Birthday and Founder's Day holiday

MAR. 18—SATURDAY

End of examination period

**SPRING QUARTER, 1961****REGISTRATION PERIOD**

FEB. 1-3

Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that Quarter.

MAR. 21-23

In-Person Registration for former students not in residence Winter Quarter, 1961, and those attending Winter Quarter, 1961, who failed to complete Advance Registration. Registration Permits may be obtained by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Permits is March 10.*

**ACADEMIC PERIOD**

MAR. 27—MONDAY

Instruction begins

MAR. 31—FRIDAY

Last day to add a course

MAY 30—TUESDAY

Memorial Day holiday

JUNE 9—FRIDAY

End of examination period

JUNE 10—SATURDAY

Commencement

**SUMMER QUARTER, 1961****REGISTRATION PERIOD**

JUNE 5-9

Registration for Summer Quarter

**ACADEMIC PERIOD**

JUNE 12—MONDAY

First term begins

JULY 4—TUESDAY

Independence Day holiday

JULY 19—WEDNESDAY

First term ends

JULY 20—THURSDAY

Second term begins

AUG. 25—FRIDAY

Second term ends



**AUTUMN QUARTER, 1961****REGISTRATION PERIOD**

- MAY 23-24** Advance Registration only for students in residence Spring Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- AUG. 15** Deadline for ALL new students to submit Applications for Admission with complete credentials.
- SEPT. 14** All new first-year students must register in person.
- SEPT. 15-19** Orientation program for first-year students.
- SEPT. 19** In-Person Registration for new transfer students with at least full second-year standing. Also, In-Person Registration for former students not in residence Spring Quarter, 1961, and those attending Spring Quarter, 1961, who failed to complete Advance Registration. Former students may obtain Registration Permits by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Permits is September 15.*

**ACADEMIC PERIOD**

- SEPT. 20—WEDNESDAY** Instruction begins (8 a.m.)
- SEPT. 26—TUESDAY** Last day to add a course
- NOV. 11—SATURDAY** State Admission Day holiday
- NOV. 22-27** Thanksgiving recess (6 p.m. to 8 a.m.)
- DEC. 9—SATURDAY** End of examination period

**WINTER QUARTER, 1962****REGISTRATION PERIOD**

- Nov. 1-3** Advance Registration only for students in residence Autumn Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- DEC. 26-28** In-Person Registration for former students not in residence Autumn Quarter, 1961, and those attending Autumn Quarter, 1961, who failed to complete Advance Registration. Registration Permits may be obtained by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Permits is December 8.*

**ACADEMIC PERIOD**

- JAN. 2—TUESDAY** Instruction begins
- JAN. 8—MONDAY** Last day to add a course
- FEB. 22—THURSDAY** Washington's Birthday and Founder's Day holiday
- MAR. 17—SATURDAY** End of examination period

**SPRING QUARTER, 1962****REGISTRATION PERIOD**

JAN. 30-FEB. 1	Advance Registration only for students in residence Winter Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that Quarter.
MAR. 20-22	In-Person Registration for former students not in residence Winter Quarter, 1962, and those attending Winter Quarter, 1962, who failed to complete Advance Registration. Registration Permits may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Permits is March 9.</i>

**ACADEMIC PERIOD**

MAR. 26-MONDAY	Instruction begins
MAR. 30-FRIDAY	Last day to add a course
MAY 30-WEDNESDAY	Memorial Day holiday
JUNE 8-FRIDAY	End of examination period
JUNE 9-SATURDAY	Commencement

**ADMINISTRATION****BOARD OF REGENTS**

JOHN L. KING, <i>President</i>	Seattle
JOSEPH DRUMHELLER, <i>Vice-President</i>	Spokane
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ALBERT B. MURPHY	Everett
HAROLD S. SHEFELMAN	Seattle
ROBERT J. WILLIS	Yakima

**OFFICERS OF ADMINISTRATION**

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Provost of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
HAROLD A. ADAMS, M.S.	<i>Director of Admissions</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Treasurer</i>
ERNEST M. CONRAD, B.B.A.	<i>Business Manager</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
GEORGE NEFF STEVENS, S.J.D.	<i>Dean of the School of Law</i>
RICHARD B. AMANDES, LL.M.	<i>Assistant Dean</i>

**SCHOOL OF LAW FACULTY**

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

Amandes, Richard B., 1958 (1960), *Assistant Dean; Associate Professor of Law* (Legal Research and Writing and Appellate Arguments)  
 A.B., 1950, California (Berkeley); LL.B., 1953, University of California, Hastings College of the Law; LL.M., 1956, New York University. Admitted to practice in California and Washington.

- Cosway, Richard, 1958, *Professor of Law*  
(Criminal Law, Commercial Transactions, Creditors' Rights, Social Legislation)  
A.B., 1935 Denison University; LL.B., 1942, Cincinnati. Admitted to practice in Ohio.
- Cross, Harry M., 1943 (1949), *Professor of Law*  
(Real Property, Equity, Community Property. Conveyancing)  
B.A., 1936, Washington State College; LL.B., 1940, Washington. Admitted to practice in Washington.
- Fletcher, Robert L., 1956 (1960), *Professor of Law*  
(Personal Property, Civil Procedure II, Constitutional Law, Future Interests)  
A.B., 1939, LL.B., 1947, Stanford. Admitted to practice in Washington.
- Gallagher, Marian Gould, 1944 (1953), *Professor of Law; Law Librarian*  
(Legal Research and Writing)  
B.A., 1935, B.A. in L.S., 1939, LL.B., 1937, Washington. Admitted to practice in Washington.
- Gose, J. Gordon, 1944 (1946), *Professor of Law*  
(Business Associations, Wills and Administration, Corporation Finance, Taxation)  
A.B., 1926, Whitman College; LL.B., 1929, Washington; LL.D., 1956, Whitman College. Admitted to practice in Washington.
- Harsch, Alfred, 1930 (1940), *Professor of Law*  
(Taxation, Estate Planning, Legislation, State and Local Taxes)  
A.B., 1926, LL.B., 1928, Washington; LL.M., 1940, Columbia. Admitted to practice in Washington.
- Johnson, Ralph W., 1955 (1958), *Associate Professor of Law*  
(Agency, Natural Resources, Real Property, Damages, Personal Property)  
Diploma, 1945, Lehigh; B.S. in Law, 1947, LL.B., 1949, Oregon. Admitted to practice in Oregon and Washington.
- Kehoe, Adlore R., 1957, *Lecturer in Law*  
(Estate Planning)  
LL.B., 1939, Washington; LL.M., 1940, Stanford. Admitted to practice in Washington.
- Levy, Ernst, 1937 (1952), *Professor Emeritus of History, Political Science and Law*  
LL.D., 1906, Berlin.
- Meisenholder, Robert, 1954, *Professor of Law*  
(Business Associations, Evidence, Civil Procedure II, Federal Jurisdiction)  
A.B., 1936, South Dakota; J.D., 1939, S.J.D., 1942, Michigan. Admitted to practice in South Dakota, New York, and Ohio.
- Morris, Arval, 1955 (1959), *Associate Professor of Law*  
(Constitutional Law, Criminal Law, Jurisprudence, Problems in Constitutional Law)  
B.A., 1951, Colorado College; M.A., 1952, LL.B., 1955, Colorado; LL.M., 1958, Yale. Admitted to practice in Colorado.
- Nottelmann, Rudolph H., 1927, *Professor of Law*  
(Equity, Trusts and Fiduciary Administration, Comparative Law)  
B.A., 1912, LL.D., 1952, Monmouth College; M.A., 1913, Illinois; LL.B., 1922, Yale.
- Peck, Cornelius J., 1954 (1958), *Professor of Law*  
(Torts, Administrative Law, Labor Law, Labor Relations)  
B.S., 1944, Harvard; Certificate, 1945, Harvard Business School; LL.B., 1949, Harvard. Admitted to practice in Massachusetts and Washington.
- Richards, John W., 1931 (1937), *Professor of Law*  
(Torts, Evidence, Admiralty)  
B.A., 1923, Wisconsin; LL.B., 1926, LL.M., 1930, S.J.D., 1931, Harvard. Admitted to practice in Wisconsin.
- Rieke, Luvern V., 1949 (1956), *Professor of Law*  
(Contracts, Restitution, Domestic Relations, Government Regulation of Business)  
B.S., 1948, LL.B., 1949, Washington; LL.M., 1953, Chicago; LL.D., 1959, Pacific Lutheran University. Admitted to practice in Washington.

Shattuck, Warren L., 1935 (1941), *Professor of Law*

(Contracts, Credit Transactions, Mortgages, Suretyship)

B.A., 1934, LL.B., 1934, Washington; J.S.D., 1936, Yale. Admitted to practice in Washington.

Stevens, George Neff, 1952, *Dean of the School of Law; Professor of Law*

(Civil Procedure I, Office Management and Professional Responsibility)

A.B., 1931, Dartmouth College; LL.B., 1935, Cornell; M.A., 1941, Louisville; S.J.D., 1951, Michigan. Admitted to practice in New York, Kentucky, Ohio, and Washington.

Taylor, Robert L., 1941 (1945), *Professor of Law*

(Commercial Transactions, Agency, Insurance, Corporation Finance)

B.A., 1927, Yale; J.D., 1930, Northwestern. Admitted to practice in Illinois.

Trautman, Philip A., 1956 (1959), *Associate Professor of Law*

(Conflict of Laws, Trial and Appellate Practice, Administrative Law, Local Government Law, Problems in Metropolitan Planning)

B.A., 1952, LL.B., 1954, Washington. Admitted to practice in Washington.

#### ASSOCIATE JUDGES OF THE PRACTICE COURT

Agnew, Henry Clay.....	Judge, King County Superior Court, Seattle
Birdseye, Story.....	Judge, King County Superior Court, Seattle
Cramer, Henry W.....	Judge, King County Superior Court, Seattle
Denney, Charles R.....	Judge, Snohomish County Superior Court, Everett
Gaines, Donald L.....	Judge, King County Superior Court, Seattle
Hodson, James W.....	Judge, King County Superior Court, Seattle
James, Frank D.....	Judge, King County Superior Court, Seattle
Niles, Donald M.....	Court Commissioner, King County Superior Court, Seattle
Nollmeyer, Edward M.....	Judge, Snohomish County Superior Court, Everett
Revelle, George H.....	Judge, King County Superior Court, Seattle
Roney, Ward .....	Judge, King County Superior Court, Seattle
Royal, Raymond.....	Judge, King County Superior Court, Seattle
Shorett, Lloyd W.....	Judge, King County Superior Court, Seattle
Stiger, Thomas R.....	Judge, Snohomish County Superior Court, Everett
Walterskirchen, F. A.....	Judge, King County Superior Court, Seattle
Wilkins, William J.....	Judge, King County Superior Court, Seattle
Wright, Eugene A.....	Judge, King County Superior Court, Seattle

#### ASSOCIATE LECTURERS IN ESTATE PLANNING

Alkire, Durward.....	C.P.A., Touche, Niven, Bailey and Smart
Bernbaum, Sanford M.....	C.L.U., Bernbaum Insurance Service
Cooper, John M.....	Attorney, National Bank of Commerce
Ellison, David.....	Trust Officer, Seattle-First National Bank
Graves, Victor.....	Trust Officer, People's National Bank
Lewis, Robert E.....	Trust Officer, Pacific National Bank of Seattle
Osborn, Charles F.....	Attorney, Bogle, Bogle, and Gates
Rohlf, Marcus.....	Supervisor, Estate and Gift Tax, Internal Revenue Service
Schneider, William E.....	Attorney, Inheritance Tax Division, Washington Tax Commission
Stone, Charles I.....	Attorney, Holman, Mickelwait, Marion, Black, and Perkins
Stull, Franklin.....	C.L.U., Franklin Stull Agency
Williams, DeWitt.....	Attorney, Rosling, Williams, Lanza, and Kastner

#### **CHANGES IN UNIVERSITY REGULATIONS**

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*



## GENERAL INFORMATION

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# GENERAL INFORMATION

**T**HE SCHOOL OF LAW was established at the University of Washington in 1899. It is presently housed in Condon Hall, named after John T. Condon, the organizer and first dean of the Law School. The building is designed and constructed for the particular needs of a law school.

The School is a member of the Association of American Law Schools and is approved by the Council of Legal Education and Admission to the Bar of the American Bar Association.

## **FACILITIES**

### **LAW LIBRARY**

The Law School Library contains 136,403 volumes; included are decisions of all English and American courts of last resort and the reported decisions of all lower courts in the United States. Extensive collections of English, American, and colonial statutes are available, as are copies of all legal periodicals published in English.

### **STATE AND FEDERAL COURTS**

The School of Law is within a convenient distance of federal and state courts sitting in Seattle, and students can witness the trial of actual cases. The United States District Court is in session and tries cases almost continuously. The United States Court of Appeals for the Ninth Circuit holds a session in the city each year. The superior court for King County, the justice courts, the municipal court, and the juvenile court are in session throughout the school year. The Supreme Court of the State of Washington, at Olympia, is also within comparatively easy reach and provides opportunities for students to hear the argument of cases on appeal.

## **STUDENT ACTIVITIES AND SERVICES**

### **STUDENT BAR ASSOCIATION**

The objectives of this organization are to promote useful activities among the students in the Law School; to foster a professional outlook on the part of such students; to promote and bring about contacts and cooperation between members of the association and members of the bar; to foster a close relationship between members of the association and members of the Law School faculty; and to carry on and promote activities for the best interest of its members, the faculty, and the School. The association sponsors an annual School banquet for members of the judiciary, the bar, the faculty, and the student body and their spouses and guests. Throughout the year, it sponsors other social functions, engages speakers to appear

before the law student body, engages in intramural recreational activities, publishes a newspaper, conducts the School's moot court competition, and aids in the operation of the Legal Aid program.

Every student enrolled in the Law School is a member of this association. The elective officers—president, vice-president, secretary, and treasurer, together with two elected representatives from each class—comprise the executive board.

The Student Bar Association is affiliated with the American Law Student Association, which is sponsored by the American Bar Association.

#### **LEGAL AID BUREAU PROGRAM**

In cooperation with the Seattle-King County Bar Association and under the supervision of a faculty adviser, students of demonstrated ability in the second- and third-year classes are offered the opportunity of assignment to regular weekly office hours at the Legal Aid Bureau in Seattle. The services of the Bureau are available to persons who are unable to afford the services of an attorney. Students are given the fullest responsibility consistent with their experience and ability. They interview clients to determine the nature of their problems; after consulting with the Bureau director or the faculty adviser, they dispose of those cases which require only advice; they conduct negotiations for settlements with opposing parties or their attorneys; and they prepare cases for litigation under the supervision of the Bureau director or one of a panel of volunteer attorneys, with whom they appear in court. The practical experience thus acquired and the honor which attaches to selection for membership in the program are of considerable assistance to the young attorney embarking on his professional career.

#### **MOOT COURT PROGRAM**

With the assistance and cooperation of the faculty, the Student Bar Association conducts an extensive moot court competition. Competing students research assigned problems, prepare appropriate briefs, and present oral argument before courts composed of judges, lawyers, and faculty members.

Each student is required to compete in one round during his first year in conjunction with the course in Legal Research and Writing; a second argument is required of all students in their second year. Additional voluntary rounds determine the moot court finalists, who present their arguments before Judges of the Supreme Court of the State of Washington. Prizes donated by law book publishers are awarded to the four finalists.

#### **ORDER OF THE COIF**

The Order of the Coif is a national honorary legal society with a chapter at the University. The order encourages scholarship and the advancement of the ethical standards of the legal profession. Membership is restricted to students who have demonstrated outstanding scholarship, and who are within the upper ten per cent of the graduating class.

#### **"WASHINGTON LAW REVIEW"**

The *Washington Law Review* (which has been combined with the *Washington State Bar Journal*) is a quarterly legal periodical. It is published by a student board consisting of approximately twenty-five select second- and third-year students under the direction of five student editorial officers and with assistance from the law faculty. Funds are provided by the Washington State Bar Association and the University. The *Review* serves as a medium of expression for legal scholars and is devoted particularly to the interpretation, advancement, and harmonious development of the law. It contains scholarly articles by judges, lawyers, teachers, and authorities in related business and professional fields. Surveys and discussions, based on thorough research by student members of the board, of important recent court decisions and topics of concern and interest to members of the profession are included. A place on the student editorial board, one of the goals of law students, is an invaluable experience for professional life.



**LEGAL FRATERNITIES**

Three law fraternities are represented at the School of Law: Story Senate of Delta Theta Phi, Dunbar Chapter of Phi Alpha Delta, and Ballinger Inn of Phi Delta Phi International. Composed of and governed by law students, these fraternities serve to promote and develop comradeship, loyalty to the School and to the law, and an understanding of and devotion to the finest traditions of the legal profession.

**ASSOCIATED STUDENTS**

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

**LAW SCHOOL ALUMNI ASSOCIATION**

The Alumni Association of the School of Law has been active since 1922. Originally an informal association of graduates of the School, the association was formally organized as a nonprofit corporation August 17, 1949, and is governed by elected officers independently of the School of Law.

The association is designed to give graduates information about the location and activities of the Law School alumni, as well as the current accomplishments, objectives, and problems of the School itself. Among its goals are keeping the law alumni in closer touch with each other in the practice of law and stimulating the younger practitioners to greater activity in their local and state bar associations. Committees of the association assist in placement of graduating students, relocation of graduates, and procurement of student loan funds and scholarships. Membership in the Alumni Association, on a dues-paying basis, is open to any graduate.

Association officers for the year 1959-60 are: Doane Brodie, '32, Olympia, president; William J. Walsh, Jr., '43, Seattle, vice-president; James Gay, '43, Seattle, treasurer; and Luvern V. Rieke, '49, Law School, executive secretary. Trustees: Dale M. Green, '50, Spokane; William E. Rohrs, '50, Tacoma; Condon V. Barclay, '36, Sedro-Woolley; William E. Clancy, Jr., '49, Seattle; John Gavin, '35, Yakima; B. Franklin Heuston, '40, Shelton; and Philip A. Trautman, '54, Law School. Overseers of the Law School Alumni Fund: J. S. Applegate, '42, Yakima; Donald Simpson, '40, Vancouver; Frederick M. Crollard, Sr., '10, Wenatchee; Arthur R. Paulsen, '46, Tacoma; C. Parker Williams, '36, Everett; Howard Tuttle, '35, Seattle; and Harry M. Cross, '40, Law School.

**HOUSING**

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the

Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time sub-faculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

### HEALTH SERVICES

The University maintains a health center and infirmary which help to guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week, a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

Health and accident insurance for students is available at the time of registration.

### GRADUATE PLACEMENT

The School maintains a placement service to assist students in finding legal positions upon graduation, and provides assistance to alumni who are seeking new associations. It also aids students in finding legal positions for the summer months. Of course, the securing of employment remains the ultimate responsibility of the individual. However, the experience of the recent past indicates that virtually all graduates can be suitably placed.

### WORK PLACEMENT

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Department and the ASUW Personnel Office.

## ADMISSION

### PRELEGAL EDUCATION

The School of Law does not prescribe a definite prelegal curriculum for its applicants. The wide range of lawyers' tasks and the difference in offerings from school to school preclude such an approach. However, there are certain goals which every prelegal student should keep before him in planning his college program. He should strive to acquire the ability to read, write, and speak the English language well; to gain a critical understanding of values and human institutions, political, economic, and social; and to understand and develop in himself creative power in thinking. Not only memory, but accomplishment in understanding, not just knowing, but knowing why and how, should be the objectives.

College advisers will help students decide what courses in their college or university will best accomplish these ends. The School of Law faculty will be glad to assist in program planning.

**ACCOUNTING REQUIREMENT**

Because of the possibility of its being overlooked, we do suggest that a course in the general principles of accounting should be taken as a part of the prelaw work. The Law School rule reads:

An applicant should present evidence that he has successfully completed, with a grade of C or better, and has received college credit for a complete course in the general principles of accounting. Students are encouraged to fulfill this requirement before entering the School of Law. A student who has not successfully completed a course in accounting at the college level prior to admission to Law School must fulfill this requirement before starting his second year in the School.

**COMBINED-DEGREE PROGRAM**

At the University of Washington, the College of Arts and Sciences offers combined-degree programs in arts-law and science-law, and the College of Business Administration offers a combined-degree program in business-law, under which the appropriate undergraduate degree is awarded by the college upon the successful completion of the first-year program in the School of Law. The preprofessional programs are described in the bulletins of the two colleges, which may be obtained from the Addressograph Service.

Students at other institutions should consult their prelegal advisers concerning combined-degree programs in their schools.

The student's prelegal program should be planned with an eye to the Law School Admission requirements listed in the following paragraphs.

**ADMISSION TO THE FIRST-YEAR CLASS**

To meet the minimum requirements for admission to the first-year class in the School of Law, an applicant must:

**Rule 1.** Be of good moral character and at least eighteen years of age.

*Comment.* Good moral character is a requirement for admission to the Bar of every state in the United States. A character investigation is a routine part of the procedure for admission to the Bar. In some jurisdictions a preliminary character investigation is conducted when the applicant begins his work in law school; in other jurisdictions it is not made until the applicant applies for permission to take the Bar examination, or to take the Oath of Attorney.

The age limit is set to comply with the age requirement of most, if not all, jurisdictions for admission to the Bar.

**Rule 2.** Either (a) hold the degree of Bachelor of Arts or Bachelor of Science from a college or university of recognized standing, or (b) have successfully completed three-fourths of the work required for a bachelor's degree granted on the basis of a four-year period of residence in a college or university of recognized standing, with a scholarship average of at least 2.50 on a 4.00 basis. A nondegree applicant must have the registrar, dean, or department head submit directly to the School of Law a certificate stating that he has successfully completed three-fourths of the requirements for a degree, is in good standing, and is eligible to return.

*Comment.* This provision is technical. Since it is strictly enforced, an explanation of its exact meaning is in order.

1. *Recognized standing* means a college or university approved or conditionally or provisionally approved by the American Association of Collegiate Registrars and Admissions Officers.
2. *Quantity of prelegal work required.*

a. *Degree applicants* must present a degree of Bachelor of Arts or Bachelor of Science, based upon a four-year period of residence in a college or university of recognized standing.

*Work done in residence* means work done in class in a college or university of recognized standing, as defined above. If done off the campus of such college or university, it means work done in a class meeting in regular sessions each week under the personal supervision and instruction of a member of the instructional staff of the college or university.

*If the applicant is a degree candidate, a limited amount of correspondence work acceptable by a college or university of recognized standing may be included.*

b. *Nondegree applicants* must have successfully completed three-fourths of the work required for a bachelor's degree granted on the basis of a four-year period of residence in a college or university of recognized standing. Compliance with this requirement must be supported by a certificate stating that the applicant has successfully completed the requirement, is in good standing, and is eligible to return.

To meet this requirement the nondegree applicant must be able to demonstrate, and the officer certifying him to us should be satisfied, that the applicant is ready to advance into his fourth and final year, with nothing left to do but to complete the fourth-year requirements. For example, such an applicant would not meet this requirement unless,

(1) All high-school or other admission deficiencies, if any, had been satisfied.

(2) All lower-division (freshman and sophomore) requirements had been met, whether academic or non-academic, whether scholastic or extra-curricular (such as ROTC, or physical education, or the like).

(3) All major and/or minor requirements up to and including the third year had been completed.

(4) He could, if he remained, complete the requirements for his bachelor's degree in one more year.

Before qualifying as a nondegree candidate three additional conditions must be met and should be considered by the certifying officer,

(1) The work must be *work done in residence* as defined in 2a, above.

(2) *No correspondence work whatsoever should be considered* in determining whether the applicant has successfully completed three-fourths of the work required for a degree, since we are not permitted to accept correspondence work from nondegree applicants.

(3) Not more than 10 per cent of the credits presented for admission shall be in *nontheory courses* in military science, hygiene, domestic arts, physical education, vocal or instrumental music, or courses without intellectual content of substantial value. This means that if the applicant's first three years are heavily loaded with such nontheory courses and light with respect to the substantive courses required for his major and minors, if any, he might not be able to show compliance with the three-fourths requirement even though he has accumulated three-fourths of the number of credits required for a degree. If a question arises as to whether a particular course is a nontheory course, we would be glad to discuss the matter with the interested college or university officials.

### 3. *Quality of Prelegal Work Required—Scholarship.*

a. A *degree applicant's* prelegal work must have been passed with a scholastic average at least equal to the average required for graduation from the institution granting the degree. It will be assumed that this requirement has been met upon presentation of evidence that the applicant holds a bachelor's degree from an accredited college or university, as defined above.

b. *The nondegree applicant* must have successfully completed his prelegal studies with at least a 2.50 scholarship average on a 4.00 basis. In testing his work for compliance, we require that the nondegree candidate must have obtained the required 2.50 scholastic average on (1) *all* work undertaken in his undergraduate curriculum, and (2) in addition, on *all* work undertaken

excluding nontheory courses in military science, hygiene, domestic arts, physical education, vocal or instrumental music, or courses without intellectual content of substantial value.

For example, a student with a 2.50 or better average on *all* work undertaken by virtue of several high grades in nontheory courses such as physical education or vocal or instrumental music, but less than a 2.50 with such courses excluded, would not be eligible for admission under (b) of Rule 2 above. From the other side, a student with a 2.50 or better average on theory courses alone who has less than a 2.50 average on *all* work undertaken because of poor grades in nontheory courses is equally ineligible. The nondegree applicant must be consistently better than average.

**Rule 3.** Take the Law School Admission Test administered by the Educational Testing Service. *No application will be processed unless the applicant has taken this test prior to August 15 of the year in which he desires to enter Law School.* The tests are given at many points throughout the United States on specified dates in November, February, April, and August. Completed applications to take the test must be in the hands of the Educational Testing Service at least two weeks prior to the date set for any particular test. *This means that the applicant who has not taken, or made arrangements to take, this test by mid-July will not be eligible for admission to this Law School during the forthcoming school year.*

Application forms and brochures may be obtained by writing to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, or may be picked up at the School of Law. The charge for this examination is \$10.00.

An applicant should indicate on the test application form that his score should be reported to the University of Washington School of Law.

No special preparation for this test is necessary. It is designed to measure intellectual and legal aptitudes rather than knowledge of any particular subject matter.

*Comment.* We urge all students who are considering a legal education to take this test during February of the year in which they plan to enter Law School. Delay in taking the test may jeopardize or eliminate an applicant's chances for admission to this or some other Law School during the next school year.

**Rule 4.** Have a Law School Prediction Index Score of at least 7 if a degree candidate, or 8 if a nondegree candidate, this score to be based upon the student's grade-point average and his Law School Admission Test score.

*Comment.* Until changed, and subject to change at any time by Faculty action, the Law School Prediction Index Score will be determined as follows:

The applicant will be given from 1 to 10 points for, and depending upon, his undergraduate grade-point average, and from 1 to 10 points for, and depending upon, his Law School Admission Test score. The two figures so ascertained, when added together, will give the applicant's Law School Prediction Index Score.

In order to determine Prediction Index scores, use the table below.

Law School Admission		Grade-Point Average
Test Score		(on a 4.00 basis)
L.S.A.T.	Points	G.P.A.
609 and above	10	3.32 and above
565 - 608	9	3.09 - 3.31
537 - 564	8	2.90 - 3.08
514 - 536	7	2.77 - 2.89
490 - 513	6	2.65 - 2.76
465 - 489	5	2.55 - 2.64
439 - 464	4	2.46 - 2.54
412 - 438	3	2.32 - 2.45
370 - 411	2	2.18 - 2.31
369 and below	1	2.17 and below

For example, a degree applicant with a grade-point average of 2.36 would earn 3 points. If his Law School Admission Test score was 415 he would earn 3 points.

This applicant would not be eligible for admission to this Law School. If his Law School Admission Test had been 439 or higher, he would have earned 4 or more points, and he would be eligible under this rule. So also, had his Law School Admission Test score been 415, but his grade-point average been 2.46 or higher, he would have earned 4 or more points, and would be eligible for admission.

The nondegree candidate is held to a higher requirement. Since he must have at least a 2.50 grade-point average to start with, which will give him at least 4 points, he must score at least 439 on the Law School Admission Test to obtain the additional 4 points needed for eligibility. We are convinced from past experience that this higher requirement is justified. The nondegree applicant runs a greater risk in that if he fails to successfully complete his Law School program he has lost not only a year's time but also the degree which he could have earned had he remained an undergraduate.

**Rule 5. 1.** The prospective student must submit an application for admission on a form obtained from the University of Washington School of Law, 205 Condon Hall.

2. Two official transcripts of all college work must be sent by the student's college or university *directly* to the School of Law; however, students applying for admission who last attended, or are attending, the University of Washington need have only one complete transcript forwarded directly to the School of Law.

3. Each applicant must submit two permanent passport-size facial photographs (approximately 2 x 2 inches) on or before date of registration.

*Comment.* Students should arrange to have their transcripts sent directly to the Law School. These arrangements should be made as early as possible. *However, we suggest that the student instruct the Office of Admissions to delay mailing the transcripts until all grades and the degree, if any, upon which the applicant is relying for admission, are recorded.*

**Rule 6. Time Limits.**

To be eligible for consideration for enrollment in the Autumn Quarter:

(1) An application on the official form must be received at the School of Law by 5:00 p.m. August 15; and

(2) Arrangements must be made by the applicant, not later than August 15, to have complete transcripts of his undergraduate work mailed to the School of Law as early as possible, but not later than September 5.

*Comment.* The applicant should understand that this Rule will be enforced. It will not be waived. Failure to comply in any respect will mean the loss of a year. This rule is not arbitrary. It takes time to process an application. The applicant who is really interested in attending Law School need have no trouble with it. *Apply early.* Applicants who delay, or who come to the University before their credentials have been submitted, or before officially notified of acceptance, *do so at their own risk.*

#### **ADMISSION WITH ADVANCED STANDING IN LAW**

To qualify for admission with advanced standing, an applicant must meet the following minimum requirements.

1. Meet all the requirements for admission to the first-year class in this Law School. If the applicant has not yet taken the Law School Admission Test (see Rule 3, page 19, he must do so. If he has taken the test, he should have his test score forwarded to this School by the Educational Testing Service.

2. Be a student in good standing in a Law School which is a member of the Association of American Law Schools. The applicant must have the Dean of the Law School last attended forward *directly* to the School of Law a certification that the applicant is in good standing and eligible to return.

3. Have forwarded *directly* to the School of Law two official transcripts of all law work previously taken, in addition to two transcripts of all prelegal college study.

4. Forward a letter stating why he desires to transfer to this School of Law.

While transfers with advanced standing are accepted, it is generally advisable for a student to complete his study of law at one school. Where the applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Even though a student is otherwise acceptable, no credit will be given for courses in which he has received a grade lower than the graduation average required at his school (generally a C grade or its equivalent).

#### **ADMISSION OF SPECIAL STUDENTS**

A person who is not working for a degree and who is not planning a career in law may apply for admission as a special student. The applicant must be at least twenty-three years old, and his general education must entitle him to admission to the freshman class at the University of Washington. The number of those who can be granted this privilege is restricted. A special student must make application for admission in the same manner as first-year students.

#### **ACCEPTANCE**

All applicants whose application papers are complete will be notified by letter of the action taken on their applications. If accepted, they will be given an appointment date for their registration.

Applicants whose records are incomplete and who must take summer work or finish work in progress to complete their requirements will, if otherwise satisfactory, be accepted, subject to the successful completion of this work within a time limit to be determined by the facts of the case.

#### **MEDICAL EXAMINATION**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the Student Health Center a form containing his health history and a report of a physical examination by a physician. The form will be sent to new students by the Office of Admissions and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the Student Health Center without charge.

With the exception of Canadian students, who will follow the above instructions, foreign students must take the required physical examination at the Student Health Center when they arrive on campus.

#### **KOREAN VETERANS**

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree.

#### **KOREAN CERTIFICATE**

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented, along with his Program of Studies, to the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

There are restrictions for veterans returning to training following an interruption in excess of twelve months. Korean veterans should consult with the Veterans Division, 1B Administration, or the nearest Veterans Administration office to see if they are eligible for further benefits.

#### QUARTERLY CREDIT REQUIREMENTS FOR LAW STUDENTS (PUBLIC LAW 550)

12 credits .....	Full subsistence
8 to 11 credits .....	Three-fourths subsistence
6 to 7 credits .....	One-half subsistence
5 credits or less .....	Established tuition and fees

or credits  $\div 14 \times \$110.00$ , whichever is the lesser

*Veterans planning to attend Law School during the summer should consult with the Veterans Division, 1B Administration Building, regarding the credit requirements for subsistence.*

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service or by January 31, 1965, whichever is earlier.

### DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

### CHILDREN OF DECEASED VETERANS

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented along with the Program of Studies to the Veterans Division, 1B Administration Building, on the date of registration.

### WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 23).

### STUDY PROGRAMS OFFERED

#### REGULAR PROGRAM FOR FULL-TIME STUDENTS

The program leads to an LL.B. degree at the end of three academic years, autumn through spring. Students are encouraged to follow this program whenever possible. It is the position of the faculty of the School of Law that no student can do justice to himself in the regular program if he is engaged in any substantial amount of outside employment or activities.

#### ACCELERATED PROGRAM

It is possible for a student to accelerate the date of his graduation by completing successfully a full program of study during the summers between his first and second, and second and third years in the School of Law. For example, under this



program a student who enters the School of Law in the Autumn of 1960 will be able to graduate in December, 1962, and thus be eligible for the state bar examination in January, 1963. To accelerate, a student must have the approval of the Dean's Office. The School policy is to permit only those students whose grades at the end of the first year indicate that they have at least an average, as compared with a minimum, proficiency for the study of the law to undertake the accelerated program.

#### PART-TIME PROGRAMS

A systematic program for students who are unable to attend Law School on a full-time basis is available. The primary purpose of the program is to allow students who must maintain employment to attend Law School. Wherever and whenever possible, classes will be scheduled in the mornings, thus permitting students to obtain or continue afternoon and/or evening employment. The part-time program requires fifteen quarters of study over a four-year period. To finish on schedule, the student will be required to attend three summer sessions. His credit load per quarter will average slightly less than nine instead of the normal fifteen credits required of full-time students.

An intermediate program in which a student may average twelve hours per quarter for eleven quarters may also be arranged for students requiring less outside employment.

Students who start Law School on a part-time program are not permitted to switch to the full-time program without special permission of the Dean.

#### SUMMER SCHOOL

The Law School offers a limited number of courses for its own students who are qualified and who desire to accelerate, or who are following a prescribed part-time program, or who desire to take additional subject-matter and for students from other law schools who have completed at least one year of study and who wish to do additional work for credit in their respective schools.

Several of the courses offered deal with subjects in which local law is of unusual significance. These courses will be of particular interest to students from other schools who plan to practice in this state. The Summer School courses also afford opportunity for further study by practicing lawyers who desire systematic instruction in specialized areas of expanding significance.

Students with advanced standing who wish to transfer to this Law School as degree candidates and who desire to begin their study in the Summer Quarter must comply with the admission procedures set forth above.

#### TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

##### *Tuition*

Resident students, per quarter	\$35.00
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A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter	105.00
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Prospective students are classified as nonresident when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter	12.00
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Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are

United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one-half the nonresident tuition. This exemption is not granted to Summer Quarter students.

***Incidental Fee, per quarter***

Full-time resident students	27.50
Part-time resident students (registered for 6 credits or less, exclusive of ROTC)	10.00
Full-time nonresident students	52.50
Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC)	35.00

Auditors do not pay an incidental fee; there are no other exemptions.

***ASUW Fees***

Membership, per quarter	8.50
Optional for auditors and part-time students.	
Athletic admission ticket (optional for ASUW members)	3.50-6.50
Ticket for Autumn, Winter, and Spring Quarters, \$6.50; for Winter and Spring Quarters only, \$3.50; for Spring Quarter only, \$3.50.	

***Law Library Fee, per quarter***

10.00

***Grade Sheet Fee***

.50

One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.

***Transcript Fee***

1.00

One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.

***Graduation Fee***

10.00

(If this is a second University of Washington bachelor's degree, the graduation fee is \$5.00.)

**SPECIAL FEES**

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Appointments or Permits to register by In-Person Registration. A late registration fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University.

**REFUND OF FEES**

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one-half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

**ESTIMATE OF YEARLY EXPENSES**

***Tuition, Incidental, and ASUW Membership Fees***

Resident students	\$213.00
Nonresident students	498.00

***Law Library Fees***

30.00

***Athletic Admission Ticket (optional)***

6.50

<i>Accident and Health Insurance</i> (optional)	12.90
<i>Books and Supplies</i>	115.00
<i>Board and Room</i>	
Double room and meals in Men's Residence Halls	675.00
Room and meals in Women's Residence Halls	540.00-720.00
Room and meals in fraternity or sorority house (Including dues and social fees.)	670-760.00
Initial cost of joining a fraternity or sorority is not included; this information may be obtained from the Interfraternity or Panhellenic Councils.	
<i>Personal Expenses</i>	300.00

## AWARDS, SCHOLARSHIPS, AND LOANS

Applications for most grants are considered by the Law School Committee on Scholarships in July on the basis of information reflecting the financial situation of the applicant on July 1. It is suggested, however, that applicants inquire of the Dean's Office at an earlier date for consideration of grants which may be made before the normal time.

Additional information and application forms may be secured from the Dean's Office, 205 Condon Hall.

### SCHOLARSHIPS

**JAMES M. BAILEY MEMORIAL SCHOLARSHIP.** Awards totaling \$500 to "out-standing students in law" are made during the summer for the following academic year by the trustees of Consolidated Charities. The awards are made on the basis of scholastic promise and achievement and financial need.

**THE CARKEEK SCHOLARSHIP.** The Vivian M. Carkeek scholarship fund of \$450 annually was established by the will of Florence L. Carkeek in memory of her husband's devotion to the ideals of justice and law.

**DELTA THETA PHI-STORY SENATE FOUNDERS' SCHOLARSHIP FUND.** This scholarship was established by Clarence W. Pierce, one of the founders of Delta Theta Phi-Story Senate. The income from the fund will be awarded each year as a scholarship to that member of Story Senate, Delta Theta Phi, having the highest cumulative two-year law school grade average.

**JUDGE ROBERT M. JONES MEMORIAL AWARD.** Established by Mrs. Marjorie M. Jones in memory of her late husband to promote appreciation of the fundamental purposes of the American legal system and particularly the Constitution of the United States. The amount available each year is expected to be \$500 to be awarded to the law student or students best demonstrating this appreciation according to rules established each year.

**KARR, TUTTLE, CAMPBELL, KOCH, AND GRANBERG SCHOLARSHIP.** An award of \$250 established by the named Seattle law firm to a deserving student matriculated in the Law School. Consideration is to be given to demonstrated scholastic achievement, need, and good citizenship.

**KING COUNTY BAR AUXILIARY SCHOLARSHIP.** A scholarship awarded annually by the King County Bar Auxiliary to a third-year law student based upon need, scholarship, and character, with special emphasis on need.

**LAW WIVES ASSOCIATION OF UNIVERSITY OF WASHINGTON SCHOLARSHIP.** A \$250 scholarship awarded annually by the Law Wives to a married law student for his second or third year based upon financial need.

**MACDONALD, HOAGUE AND BAYLESS AWARD.** Established by the named Seattle law firm as a grant to the applicant, for his third year in Law School, whose interests and activities inside and outside of Law School best meet criteria indicating civic responsibility and leadership. An award of \$600 is made in the Spring of the applicant's second year in Law School.

**WARREN G. MAGNUSON SCHOLARSHIPS.** Awarded to the University each year, one of which will be awarded to a law student interested in Admiralty Law.

**NATIONAL ASSOCIATION OF CLAIMANTS AND COMPENSATION ATTORNEYS** (Washington Chapter). An annual award of \$200 to stimulate interest in the responsibility of attorneys in representing the injured and improving medical-legal relationships in the field of personal injury litigation.

**UNIVERSITY TRAFFIC COURT JUDGE.** A third-year law student appointed by the Dean on recommendation from the Faculty Committee on Scholarships. Any student in good standing is eligible but preference will normally be given to members of the Law Review or Legal Aid Program. \$25.00 monthly.

**WILLIAM WALLACE WILSHIRE MEMORIAL SCHOLARSHIP FUND.** This fund was established under the will of the late Fannie Belden Shepherd. The will provides that the net income from the fund shall be expended and disbursed in the form of scholarships to students enrolled in the School of Law, and that in awarding the scholarships "the Board of Regents shall be governed by the financial need, general character, and demonstrated scholastic ability of the applicants for such scholarships." The maximum amount awarded under any one scholarship is \$500. Prospective first-year students are eligible for consideration.

## PRIZES

**APPELLATE MOOT COURT.** Each year the Student Bar Association sponsors an Appellate Moot Court Competition. It is designed to develop skill in research and brief writing and to encourage forensic ability. Prizes donated by law book publishing houses are awarded to the four finalists.

**NATHAN BURKAN MEMORIAL COMPETITION.** The American Society of Composers, Authors, and Publishers awards annually in each of the approved law schools of the country a first prize of \$150 and a second prize of \$50 for the best papers by graduating students on subjects within the field of copyright law.

**THE CARKEEK PRIZE.** The Vivian M. Carkeek prize of \$50 is awarded annually "for the best student contribution to the *Washington Law Review* on a point of Washington law or any point of peculiar interest to Washington attorneys."

**THE W. G. McLAREN PRIZE.** An award of \$100 is made annually to the first-year student submitting the best solution to a problem in legal draftsmanship. The award is presented by W. G. McLaren, a leading Seattle citizen and lawyer.

**LAW WEEK AWARD.** The United States *Law Week* Award, a prize of approximately \$100 value, is given to the graduating student in law who, in the judgment of the faculty committee, has made the most satisfactory scholastic progress in his final year. The award consists of a year's complimentary subscription to *Law Week*.

**LEGAL AID BUREAU PROGRAM AWARD.** An award made annually to a student participant in the Legal Aid Bureau Program for superior performance in the program.

**IVOR LUSTY AWARD.** An award of \$50 will be made annually to the third-year student who submits the best solution to a problem involving a security transaction in international trade. Interested students who are not enrolled in the course in Credit Transactions may receive a copy of the problem and appropriate instructions in the Dean's Office. The award is made by Ivor Lusty, a graduate of the School.

**THE SEATTLE LIFE INSURANCE AND TRUST COUNCIL WILL CONTEST.** During each academic year awards are made to the four law students who, in the opinion of the judges, draft the best will based on a stipulated set of facts. The prizes are \$350, \$250, \$150, and \$75.

**UNIVERSITY OF WASHINGTON LAW SCHOOL ALUMNI SCHOLASTIC IMPROVEMENT PRIZES.** Two prizes will be awarded annually, depending upon the availability of

funds, one to a student entering the third year and one to a graduating student showing the greatest scholastic improvement in the second and third year, respectively.

#### LOAN FUNDS

**CLASS OF 1939 LOAN SCHOLARSHIP.** The members of the class of 1939 have contributed a loan scholarship of approximately \$350 annually to be awarded to a third-year student. The class requests that the recipient, though without legal obligation, expresses a willingness to replenish the fund when in the future his financial position makes it possible for him to do so.

**HICKMAN LOAN FUND.** A loan fund administered by the Peoples National Bank of Washington which is available to properly qualified young men from King County to further their education.

**JUDGE RALPH OLSON MEMORIAL LOAN FUND.** An emergency loan fund established by Mrs. Olson and her sons through contributions of friends and associates in memory of Judge Olson for second- and third-year law students.

**ISABELLA MARGARET SCOTT MEMORIAL LOAN.** A loan fund for deserving law students from the estate of Isabella M. Scott.

**UNIVERSITY SCHOLARSHIP AND LOAN FUNDS.** University scholarships are granted on application and on a competitive basis. Usual requirements include scholarly achievement and promise, excellence of character, and financial need. The University also administers several funds from which loans are made to students who have successfully completed at least one quarter at the University. A handbook listing scholarships is available from the Office of the Dean of Students.

**UNIVERSITY OF WASHINGTON LAW SCHOOL ALUMNI FUND.** This fund, established and maintained through a program of annual giving by alumni, makes available money to students and the School to foster the aims of the School in such manner as a Board of Overseers of the fund may determine. A portion of the money is available for loans to qualified students. No interest will be charged on any portion of the loan repaid within three years after the student's anticipated graduation date. Interest will be charged on principal payments thereafter.



## THE PROGRAM IN LAW

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# THE PROGRAM IN LAW

**T**HE DEGREE OF BACHELOR OF LAWS (LL.B.) is conferred upon all regular students who have completed satisfactorily the prescribed course of study in residence, consisting of a minimum of 132 quarter credits in professional law subjects, including required courses, with a scholarship average of at least 68, extending over at least nine quarters.

## GRADING

The grading system of the School of Law is as follows: 85-100=A; 77-84=B; 68-76=C; 60-67=D; 0-59=E.

A copy of the probation, drop, and reinstatement rules is distributed to each student the first day of instruction.

## EXAMINATIONS

Examinations are conducted under an honor system administered by the Student Bar Association.

## ABSENCE RULE

Regular and punctual class attendance is required of every student. The right to take examinations, as well as the privilege of continuing in the Law School, is conditioned upon compliance with this rule.

## OBJECTIVES AND METHODS OF INSTRUCTION

The objective of the faculty of the School of Law is to train young men and women for the practice of law anywhere in the United States, whether it be as advocate, counsellor, judge, or law teacher, in accordance with the highest traditions of professional responsibility. The study of law may also serve as the stepping-stone to a career in government, politics, or business. The curriculum and the methods of instruction are designed to develop in the student his highest potential, whatever may have been his reason for entering the school.

Since the problems of the individual litigant or client are at the same time a part of the larger problems of an enormously complex and competitive society, it is necessary in the training of effective practicing lawyers and judges to provide the widest possible perspective of history, economics, social sciences, and philos-

ophy. It is essential that the student see and understand the law, not as a self-contained system designed primarily for the settlement of disputes between individuals, but as a decisive, if not the dominant, factor of social control in a society which is in constant flux. Thus the law is not, and cannot be, static. The man who is "learned in the law," as the old phrase put it, is still the one who has developed the ability to find sound solutions to new problems by developing and using, rather than merely echoing, the teachings of the past.

Methods of instruction vary with the instructor and the course. The basic materials are the actual decisions of appellate courts, supplemented by selected readings from other sources which shed light on the nature of judicial, administrative, and legislative processes. Classroom techniques encourage the student to rely upon his own initiative and to develop his powers of perception and communication.

The first two years of the curriculum are devoted to the study of basic courses and are required of all students. The third year is almost wholly elective, so that the student, in the light of his own developed interests, may delve more deeply into those subjects which he thinks will best suit his needs.

## CURRICULUM

The first and second years of law study are composed of a program of required courses. Except for Law 341, Office Management and Professional Responsibility, the third-year program is entirely elective.

### FIRST YEAR

100	Contracts (3-3-4)	<i>Rieke, Shattuck</i>
110	Civil Procedure I (3)	<i>Stevens</i>
111	Civil Procedure II (2-2)	<i>Fletcher, Meisenholder</i>
120	Personal Property (4)	<i>Fletcher, Johnson</i>
121	Real Property (3-3)	<i>Cross, Johnson</i>
132	Criminal Law and Procedure (3-2)	<i>Cosway, Morris</i>
140	Torts (3-3-4)	<i>Peck, Richards</i>
160	Orientation (0)	<i>Gallagher, Amandes, and Group Instructors</i>
161, 162	Legal Research and Writing (2-1)	<i>Gallagher, Amandes, and Group Instructors</i>

### SECOND YEAR

200	Commercial Transactions (3-4)	<i>Cosway, Taylor</i>
201	Business Associations (2-4)	<i>Meisenholder, Gose</i>
202	Agency (3)	<i>Johnson, Taylor</i>
210	Evidence (3-3)	<i>Meisenholder, Richards</i>
212	Equity (3-3)	<i>Cross, Nottelmann</i>
230	Constitutional Law (3-4)	<i>Fletcher, Morris</i>
231	Taxation (2-3)	<i>Harsch, Gose</i>
234	Administrative Law (4)	<i>Peck, Trautman</i>
260	Appellate Arguments (1)	<i>Amandes and Group Instructors</i>

### THIRD YEAR

300	Credit Transactions (3-3)	<i>Shattuck</i>
301	Corporation Finance and Related Tax Problems (2-2)	<i>Taylor, Gose</i>
302	Creditors' Rights (3)	<i>Cosway</i>
307	Insurance (3)	<i>Taylor</i>
*308	Mortgages (3)	<i>Shattuck</i>
**309	Suretyship (3)	<i>Shattuck</i>
310	Trial and Appellate Practice (3-2)	<i>Trautman</i>
312	Damages (2)	<i>Johnson</i>
313	Restitution (2)	<i>Rieke</i>
*Will not be offered 1961-62		
**Will not be offered 1960-61		



314	Federal Jurisdiction and Procedure (3)	<i>Meisenholder</i>
320	Trusts and Fiduciary Administration (3-3)	<i>Nottelmann</i>
322	Future Interests (3)	<i>Fletcher</i>
323	Community Property (2)	<i>Cross</i>
325	Estate Planning (2-2)	<i>Harsch, Kehoe</i>
328	Conveyancing (4)	<i>Cross</i>
329	Natural Resources (3)	<i>Johnson</i>
331	Legislation (3)	<i>Harsch</i>
332	State and Local Taxes (3)	<i>Harsch</i>
334	Labor Law (3)	<i>Peck</i>
335	Local Government Law (3)	<i>Trautman</i>
336	Government Regulation of Business (4)	<i>Rieke</i>
339	Labor Relations (3)	<i>Peck</i>
†341	Office Management and Professional Responsibility (0)	<i>Stevens</i>
342	Admiralty (3)	<i>Richards</i>
343	Conflict of Laws (4)	<i>Trautman</i>
344	Domestic Relations (3)	<i>Rieke</i>
348	Wills and Administration (4)	<i>Gose</i>
350	Social Legislation (2)	<i>Cosway</i>
352	Comparative Law (3)	<i>Nottelmann</i>
353	Problems in Metropolitan Planning (2)	<i>Trautman</i>
354	Problems in Constitutional Law (2)	<i>Morris</i>
355	Jurisprudence (3)	<i>Morris</i>
398	Research Problems in Law (1-5)	<i>Staff</i>
†Required		

**SUMMER, 1960**

309a	Suretyship (3)	<i>Shattuck</i>
312a	Damages (3)	<i>Johnson</i>
323b	Community Property (3)	<i>Cross</i>
324b	Landlord and Tenant (3)	<i>Peck</i>
327a	Trusts (3)	<i>Nottelmann</i>
328a	Conveyancing (3)	<i>Cross</i>
342b	Admiralty (3)	<i>Richards</i>
343b	Conflict of Laws (3)	<i>Trautman</i>
344a	Domestic Relations (3)	<i>Rieke</i>
349b	Wills (3)	<i>Fletcher</i>

**SUMMER, 1961 (Tentative)**

301	Corporation Finance and Related Tax Problems (4)	<i>Staff</i>
302	Creditors' Rights (3)	<i>Staff</i>
308	Mortgages (3)	<i>Staff</i>
312	Damages (3)	<i>Staff</i>
314	Federal Jurisdiction and Procedure (3)	<i>Staff</i>
323	Community Property (3)	<i>Staff</i>
324	Landlord and Tenant (3)	<i>Staff</i>
327	Trusts (3)	<i>Staff</i>
334	Labor Law (3)	<i>Staff</i>
349	Wills (3)	<i>Staff</i>

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 Wicks, Mary A.  
 Zelensky, Eugene D.

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## LAW SCHOOL HONORS, PRIZES, SCHOLARSHIPS AND AWARDS FOR THE ACADEMIC YEAR 1957-58

### Honor Graduate in Law

John A. Hamill

### With Honors in Law

John A. Hamill

### Order of the Coif

Allen L. Carr

John A. Hamill

Mary Ellen Hanley

Donald R. Holman

Stanley M. Johanson

David H. Olwell

### James M. Bailey Memorial Scholarship

J. Jerome Farris

### Nathan Burkan Memorial Prize

(Not awarded 1957-58)

### Vivian M. Carkeek Prize in Law

Rex M. Walker

### Vivian M. Carkeek Scholarship

Allan D. Loucks

### Judge Robert M. Jones Memorial Award

John A. Hamill

### Law Class of 1939 Scholarship

Jack N. Bishop

### Law School Alumni Scholarship

Efrem Z. Agranoff

Landon R. Estep

Richard M. Holt

Wesley C. Uhman

### Law School Alumni Scholastic Improvement

#### Prizes

Richard T. Hilmen (3rd year)

John A. Hallock (2nd year)

### Warren G. Magnuson Scholarship

Stanley M. Johanson

### Law Week Award

Richard T. Hilmen

### Legal Aid Bureau Program Award

Glendon B. Boothe

### Ivor Lusty Award

John A. Hamill

### W. G. McLaren Prize

Donald C. Dahlgren

### Moot Appellate Court Competition

1st Prize—Jerry G. Jesseph

2nd Prize—James M. Hilton

3rd Prize—R. George Ferrer

4th Prize—Edwin S. Thomas

### Seattle Life Insurance and Trust Council

#### Will Drafting Contest

1st Prize—Clark B. Snure

2nd Prize—Glendon B. Boothe

3rd Prize—Mary Ellen Hanley

4th Prize—Jerome M. Johnson

### William Wallace Wilshire Memorial

#### Scholarship

S. Fred Bruhn

Allen L. Carr

R. George Ferrer

Robert L. Harris

Arthur R. Hart

Cedric B. Hollenbeck

Kenneth F. Ingalls

James V. O'Connor

David H. Olwell

Robert F. Patrick  
Dennis L. Runyan  
Wesley C. Uhman

**Women's Auxiliary to the Seattle Bar  
Association Scholarship**  
Gilbert J. Price, Jr.  
Roland I. Saylor

## **LAW SCHOOL HONORS, PRIZES, SCHOLARSHIPS AND AWARDS FOR THE ACADEMIC YEAR 1958-59**

### **Honor Graduate in Law**

Allan D. Loucks

### **With Honors in Law**

Allan D. Loucks

### **Order of the Coif**

Philip H. Austin

Douglas M. Fryer

James M. Hilton

Allan D. Loucks

Floyd L. Newland

William B. Stoebeck

### **James M. Bailey Memorial Scholarship**

Charles J. McMurchie

### **Nathan Burkan Memorial Prize**

(Not awarded 1958-59)

### **Vivian M. Carkeek Prize in Law**

William B. Stoebeck

### **Vivian M. Carkeek Scholarship**

Allan D. Loucks

### **Judge Robert M. Jones Memorial Award**

Theodore O. Torve

### **Law Class of 1939 Scholarship**

Walter D. Palmer

### **Law School Alumni Scholastic Improvement Prizes**

A. Wesley Hodge (3rd year)

Judith Callison (2nd year)

### **Law Week Award**

A. Wesley Hodge

### **Warren G. Magnuson Scholarship**

Douglas M. Fryer

### **Law Wives Association Scholarship**

Walter D. Palmer

### **Legal Aid Bureau Program Award**

R. George Ferrer

### **Ivor Lusty Award**

Robert P. Piper

### **W. G. McLaren Prize**

Donna Duckey

### **Moot Appellate Court Competition**

1st Prize—W. Ronald Groshong

2nd Prize—Robert W. McKisson

3rd Prize—Robert H. Lamb

4th Prize—Donald C. Dahlgren

### **Seattle Life Insurance and Trust Council**

### **Will Drafting Contest**

1st Prize—William B. Stoebeck

2nd Prize—David R. Tuell

3rd Prize—Donald P. Marinkovich

4th Prize—David A. Welts

### **William Wallace Wilshire Memorial Scholarship**

Philip H. Austin

James A. Alfieri

Timothy R. Clifford

Robert C. Erwin

Thomas B. Grahn

William M. Johnson

Charles B. Manca

Richard A. Mattsen

Thomas C. Reeves

Richard W. Shelton

David C. Spencer

James R. Thomas

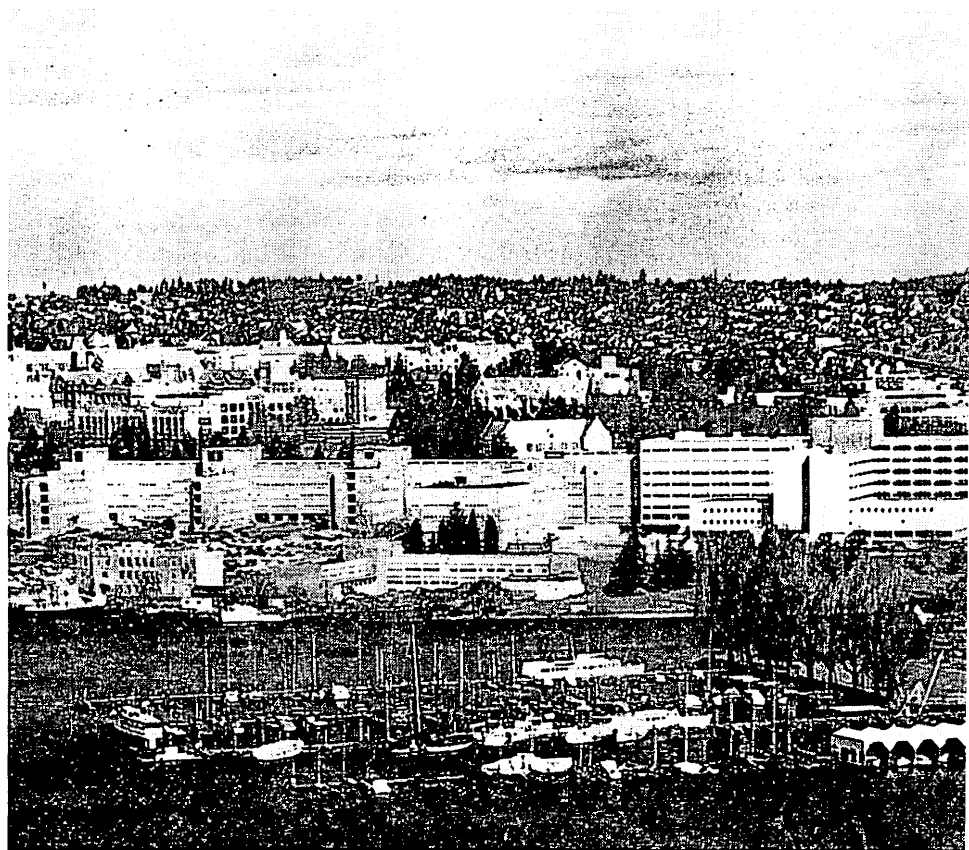
P. Bruce Wilson

### **Women's Auxiliary to the Seattle Bar Association Scholarship**

James Vernon O'Conner

Philip H. Austin

**BULLETIN • UNIVERSITY OF WASHINGTON**



**SCHOOL OF MEDICINE**

**1960-1962**

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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Division of Correspondence Study and the Division of Evening Classes, the correspondence study and evening classes announcements.

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CORRESPONDENCE STUDY

EVENING CLASSES

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UNIVERSITY OF WASHINGTON

General Series No. 954

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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	6
Board of Regents	
Officers of Administration	
Faculty, School of Medicine	
Committees	
THE DIVISION OF HEALTH SCIENCES . . . . .	31
Health Sciences Plant	
Hospital Affiliations	
Veterans	
Part-Time Employment	
Housing	
Medical Examination	
Associated Students	
THE SCHOOL OF MEDICINE . . . . .	39
Admission	
Application Procedure	
Transfer Students	
Processing of Applications	
Tuition and Fees	
Estimate of Yearly Expenses	
Financial Aid to Students	
Student Achievement and Promotion	
Class Schedules	
Honors	
Research and Training Grants	
THE DEPARTMENTAL PROGRAMS . . . . .	57
Degrees	
Licensure	
Postgraduate Medical Education	
Course-Numbering System	
Courses	
Basic Health Sciences	
Conjoint Courses and Medical Practice	
Clinical Medical Sciences	
ROSTER OF STUDENTS . . . . .	86

## CALENDAR

### AUTUMN QUARTER, 1960

SEPT. 20—TUESDAY	Instruction begins, Medicine III and IV, Term 1 (8 a.m.)
SEPT. 26—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
NOV. 5—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
NOV. 7—MONDAY	Instruction begins, Medicine IV, Term 2 (8 a.m.)
NOV. 11—FRIDAY	State Admission Day holiday, Medicine I and II
NOV. 19—SATURDAY	Instruction ends, Medicine III (1 p.m.)
NOV. 21—MONDAY	Instruction begins, Medicine III, Term 2 (8 a.m.)
NOV. 23-28	Thanksgiving recess (5 p.m. to 8 a.m.)
DEC. 8-13	Examinations, Medicine I and II
DEC. 13—TUESDAY	Instruction ends, Medicine I and II (5 p.m.)
DEC. 23—FRIDAY	Christmas recess begins, Medicine III and IV (5 p.m.)
JAN. 3—TUESDAY	Christmas recess ends, Medicine III and IV (8 a.m.)

### WINTER QUARTER, 1961

JAN. 3—TUESDAY	Instruction begins, Medicine I and II (8 a.m.)
JAN. 7—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
JAN. 9—MONDAY	Instruction begins, Medicine IV, Term 3 (8 a.m.)
JAN. 28—SATURDAY	Instruction ends, Medicine III (1 p.m.)
JAN. 30—MONDAY	Instruction begins, Medicine III, Term 3 (8 a.m.)
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
FEB. 25—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
FEB. 27—MONDAY	Instruction begins, Medicine IV, Term 4 (8 a.m.)
MAR. 13-16	Examinations, Medicine I and II
MAR. 16—THURSDAY	Instruction ends, Medicine I and II (5 p.m.)

### SPRING QUARTER, 1961

MAR. 27—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
APR. 1—SATURDAY	Instruction ends, Medicine III (1 p.m.)
APR. 3—MONDAY	Instruction begins, Medicine III, Term 4 (8 a.m.)
APR. 15—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
APR. 17—MONDAY	Instruction begins, Medicine IV, Term 5 (8 a.m.)
MAY 30—TUESDAY	Memorial Day holiday
JUNE 5-8	Examinations, Medicine I, II, and III
JUNE 8—THURSDAY	Instruction ends, Medicine I, II, III, and IV (5 p.m.)
JUNE 10—SATURDAY	Commencement

### AUTUMN QUARTER, 1961

SEPT. 19—TUESDAY	Instruction begins, Medicine III and IV, Term 1 (8 a.m.)
SEPT. 25—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
NOV. 4—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
NOV. 6—MONDAY	Instruction begins, Medicine IV, Term 2 (8 a.m.)



NOV. 11—SATURDAY	State Admission Day holiday, Medicine I and II
NOV. 18—SATURDAY	Instruction ends, Medicine III (1 p.m.)
NOV. 20—MONDAY	Instruction begins, Medicine III, Term 2 (8 a.m.)
NOV. 22-27	Thanksgiving recess (5 p.m. to 8 a.m.)
DEC. 7-12	Examinations, Medicine I and II
DEC. 12—TUESDAY	Instruction ends, Medicine I and II (5 p.m.)
DEC. 23—SATURDAY	Christmas recess begins, Medicine III and IV (1 p.m.)
JAN. 2—TUESDAY	Christmas recess ends, Medicine III and IV (8 a.m.)

## WINTER QUARTER, 1962

JAN. 2—TUESDAY	Instruction begins, Medicine I and II (8 a.m.)
JAN. 6—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
JAN. 8—MONDAY	Instruction begins, Medicine IV, Term 3 (8 a.m.)
JAN. 27—SATURDAY	Instruction ends, Medicine III (1 p.m.)
JAN. 29—MONDAY	Instruction begins, Medicine III, Term 3 (8 a.m.)
FEB. 22—THURSDAY	Washington's Birthday and Founder's Day holiday
FEB. 24—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
FEB. 26—MONDAY	Instruction begins, Medicine IV, Term 4 (8 a.m.)
MAR. 12-15	Examinations, Medicine I and II
MAR. 15—THURSDAY	Instruction ends, Medicine I and II (5 p.m.)

## SPRING QUARTER, 1962

MAR. 26—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
MAR. 31—SATURDAY	Instruction ends, Medicine III (1 p.m.)
APR. 2—MONDAY	Instruction begins, Medicine III, Term 4 (8 a.m.)
APR. 14—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
APR. 16—MONDAY	Instruction begins, Medicine IV, Term 5 (8 a.m.)
MAY 30—WEDNESDAY	Memorial Day holiday
JUNE 4-7	Examinations, Medicine I, II, and III
JUNE 7—THURSDAY	Instruction ends, Medicine I, II, III, and IV (5 p.m.)
JUNE 9—SATURDAY	Commencement

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## CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*

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JOHN R. HOGNESS, M.D.	<i>Assistant Dean</i>
MARY ADAMS, B.A.	<i>Assistant to the Dean</i>

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DERWIN R. DE MERS	<i>Business Manager</i>
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WAYNE F. QUINTON, B.S.	Director of Medical Instrument Shop
SEYMOUR STANDISH, JR., B.A.	Assistant to the Chairman of the Board of Health Sciences
DAVID WILLIAMS, B.S.	Personnel

#### UNIVERSITY HOSPITAL ADMINISTRATIVE OFFICERS

LEROY S. RAMBECK, B.A.	Hospital Administrator
JOHN R. HOGNESS, M.D.	Medical Director
PHILIP J. GILLETTE, M.P.H.	Assistant Hospital Administrator
HELEN F. WATTERS, R.N., B.S.	Assistant Hospital Administrator and Director of Nursing Service

## FACULTY, SCHOOL OF MEDICINE

The following lists include all faculty members except those at the assistant and associate levels.

The first date following a name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

### ADMINISTRATION

- AAGAARD, George N., 1954  
Dean of the School of Medicine  
B.S., 1934, M.B., 1936, M.D., 1937,  
Minnesota
- BLANDAUI, Richard J., 1949 (1955)  
Assistant Dean of the School of Medicine  
A.B., 1935, Linfield College; Ph.D., 1939,  
Brown; M.D., 1948, Rochester
- HOGNESS, John R., 1951 (1959)  
Assistant Dean of the School of Medicine  
and Medical Director of the University  
Hospital  
B.S., 1943, M.D., 1946, Chicago
- NOLAN, Donald E., 1951  
Administrative Consultant  
M.D., 1936, Minnesota
- SHERWOOD, Kenneth K., 1947  
Administrative Consultant  
B.S., 1923, B.M., 1925, M.D., 1926,  
Minnesota

- BODEMER, Charles W., 1956 (1959)  
Assistant Professor of Anatomy  
B.A., 1951, Pomona College; M.A., 1952,  
Claremont Graduate School; Ph.D.,  
1956, Cornell
- DI DIO, Liberato, J. A., 1960  
Visiting Professor of Anatomy  
B.S., 1939, M.D., 1945, Faculdade  
Medical University (Brazil)
- EVERETT, Newton B., 1946 (1957)  
Professor of Anatomy; Administrative  
Officer of the Department of Anatomy  
B.S., 1937, M.S., 1938, North Texas  
State College; Ph.D., 1942, Michigan
- GREENWALD, Gilbert S., 1956 (1959)  
Assistant Professor of Anatomy  
A.B., 1949, M.A., 1951, Ph.D., 1954,  
California
- JENSEN, Lyle H., 1949  
Associate Professor of Anatomy  
B.A., 1939, Walla Walla College;  
Ph.D., 1943, Washington
- LUFT, John H., 1956 (1958)  
Assistant Professor of Anatomy and  
Senior Research Fellow, National  
Institutes of Health  
B.A., 1949, M.D., 1953, Washington
- RIEKE, William O., 1958  
Instructor in Anatomy  
M.D., 1958, Washington
- ROOSEN-RUNGE, Edward C., 1952 (1959)  
Professor of Anatomy  
M.D., 1936, Hamburg (Germany)
- SKAHEN, Julia G., 1946  
Assistant Professor of Anatomy,  
Physiology and Biophysics  
B.S., 1926, M.S., 1928, Washington;  
Ph.D., 1940, Chicago
- SMITH, Orville, 1958 (1960)  
Assistant Professor of Anatomy,  
Physiology and Biophysics  
B.A., 1949, Arizona; M.A., 1950,  
Ph.D., 1953, Michigan State

### BASIC HEALTH SCIENCES

#### ANATOMY

- BASSETT, David L., 1959  
Professor of Anatomy  
A.V., 1934, M.D., 1939, Stanford
- BENNETT, Henry Stanley, 1948  
Professor of Anatomy; Executive Officer  
of the Department of Anatomy  
A.B., 1932, Oberlin College; M.D.,  
1936, Harvard
- BLANDAUI, Richard J., 1949 (1951)  
Professor of Anatomy; Assistant Dean,  
School of Medicine  
A.B., 1935, Linfield College; Ph.D.,  
1939, Brown; M.D., 1948, Rochester

WOOD, Richard L., 1959  
*Instructor in Anatomy*  
B.A., 1950, Linfield College;  
Ph.D., 1957, Washington

### RESEARCH APPOINTMENTS

BOYDEN, Edward A., 1955 (1956)  
*Research Professor of Anatomy*  
A.B., 1909, A.M., 1911, Ph.D., 1916,  
Harvard

RUMERY, Ruth E., 1955 (1960)  
*Research Assistant Professor of Anatomy*  
B.S., 1943, New Hampshire; M.S.,  
1947, Ph.D., 1952, Rochester

### CLINICAL APPOINTMENTS

DEMARSH, Quin B., 1947 (1955)  
*Clinical Associate Professor of Anatomy*  
B.S., 1935, Washington; M.S., 1937,  
M.B., 1939, M.D., 1940, Northwestern

LASHER, Earl Parsons, 1946 (1955)  
*Clinical Assistant Professor of Anatomy*  
B.A., 1931, M.D., 1934, Cornell

LINDAHL, Wallace W., 1947 (1953)  
*Clinical Instructor in Anatomy*  
B.S., 1933, Washington State; M.D.,  
1938, Northwestern

NORGORE, Martin, 1946 (1955)  
*Clinical Instructor in Anatomy*  
B.S., 1921, Washington; M.D., 1926,  
Oregon

ODLAND, George F., 1955  
*Clinical Instructor in Anatomy*  
M.D., 1946, Harvard

OSMUN, Paul M., 1949  
*Clinical Instructor in Anatomy*  
A.B., 1932, Brown; M.D., 1938, McGill

SWARTZ, Edgar, 1950 (1955)  
*Clinical Instructor in Anatomy*  
A.B., 1942, Ohio; M.D., 1945, Cincinnati

WATSON, Wilbur E., 1946 (1955)  
*Clinical Instructor in Anatomy*  
B.S., 1930, Washington; M.D., 1935,  
McGill (Canada)

### BIOCHEMISTRY

COX, David J., 1960  
*Instructor in Biochemistry*  
B.A., 1956, Wesleyan; Ph.D., 1960,  
Pennsylvania

FISCHER, Edmond H., 1953 (1956)  
*Associate Professor of Biochemistry*  
Ph.D., 1947, Geneva (Switzerland)

GOLDSWORTHY, Patrick D., 1952 (1957)  
*Lecturer in Biochemistry*  
A.B., 1941, M.A., 1947, Ph.D., 1952,  
California

GORDON, Milton P., 1959  
*Assistant Professor of Biochemistry*  
B.A., 1950, Minnesota; Ph.D., 1953,  
Illinois

HANAHAN, Donald James, 1950 (1959)  
*Professor of Biochemistry*  
B.S., 1941, Ph.D., 1944, Illinois

HUENNEKENS, Frank M., 1951 (1954)  
*Associate Professor of Biochemistry*  
B.S., 1943, Ph.D., 1948, California

KAPLAN, Alex, 1960  
*Associate Professor of Biochemistry*  
A.B., 1932, California (Los Angeles);  
Ph.D., 1936, California

KRAUT, Joseph, 1953 (1958)  
*Assistant Professor of Biochemistry*  
B.S., 1950, Bucknell; Ph.D., 1953,  
California Institute of Technology

KREBS, Edwin G., 1948 (1957)  
*Professor of Biochemistry*  
A.B., 1940, Illinois; M.D., 1943,  
Washington University

LABBE, Robert, 1957  
*Lecturer in Biochemistry*  
B.S., 1947, Oregon; M.S., 1949,  
Ph.D., 1951, Oregon State

NEURATH, Hans, 1950  
*Professor of Biochemistry; Executive  
Officer of the Department of  
Biochemistry*  
Ph.D., 1933, Vienna (Austria)

WILCOX, Philip E., 1952 (1957)  
*Associate Professor of Biochemistry*  
B.S., 1943, California Institute of  
Technology; Ph.D., 1949, Wisconsin

### RESEARCH APPOINTMENTS

GABRIO, Beverly W., 1950 (1959)  
*Research Assistant Professor of  
Biochemistry*  
A.B., 1944, Lindenwood College; Ph.D.,  
1950, Rochester

KELLER, Patricia J., 1955 (1956)  
*Research Assistant Professor of  
Biochemistry*  
B.S., 1945, Detroit; Ph.D., 1953,  
Washington University

SILBER, Robert, 1960  
*Research Instructor*  
A.B., 1950, New York University;  
M.D., 1954, State University of  
New York

STEIN, Eric A., 1954 (1958)  
*Research Assistant Professor of  
Biochemistry*  
Ph.D., 1954, Geneva (Switzerland)

THOMPSON, Guy A., Jr., 1960  
*Research Associate*  
B.S., 1953, Mississippi State; Ph.D.,  
1959, California Institute of Technology

WALSH, Kenneth A., 1959  
*Research Instructor in Biochemistry*  
B.Sc., 1951, McGill (Canada); M.S.,  
1953, Purdue; Ph.D., 1959, Toronto  
(Canada)

### MICROBIOLOGY

CHAMBERS, Velma C., 1956 (1958)  
*Instructor and Research Instructor in  
Microbiology*  
R.N., 1937, Mercy Hospital; B.S., 1942,  
M.S., 1948, Ph.D., 1954, Washington

DOUGLAS, Howard Clark, 1941 (1958)  
*Professor of Microbiology*  
A.B., 1936, Ph.D., 1949, California

DUCHOW, Esther A., 1940 (1954)  
*Instructor in Microbiology*  
B.S., 1934, M.S., 1952, Washington

EVANS, Charles A., 1946  
*Professor of Microbiology; Executive  
Officer of the Department of  
Microbiology*  
B.S., 1935, B.M., 1936, M.D., 1937,  
Ph.D., 1942, Minnesota

GROMAN, Neal B., 1950 (1958)  
*Associate Professor of Microbiology*  
B.S., 1947, Ph.D., 1950, Chicago

HENRY, Bernard S., 1931 (1946)  
*Professor of Microbiology*  
B.S., 1925, M.A., 1926, Ph.D., 1931,  
California

HOLLAND, John J., 1960  
*Assistant Professor of Microbiology*  
B.S., 1953, Loyola; Ph.D., 1957,  
California (Los Angeles)

LANCASTER, Louis J., 1959  
*Instructor in Microbiology*  
B.S., 1952, Virginia Polytechnic Institute;  
M.D., 1956, Maryland

- ORDAL, Erling J., 1937 (1957)  
*Professor of Microbiology*  
 A.B., 1927, Luther College (Iowa);  
 Ph.D., 1936, Minnesota
- RICKENBERG, Howard V., 1956 (1958)  
*Assistant Professor of Microbiology*  
 B.S., 1950, Cornell; Ph.D., 1954, Yale
- SHERRIS, John C., 1959  
*Associate Professor of Microbiology;*  
*Director, Hospital Clinical Microbiology*  
*Laboratory*  
 M.B., B.S., 1948, M.D., 1950, London
- WEISER, Russell S., 1934 (1949)  
*Professor of Microbiology (Immunology)*  
 B.S., 1930, M.S., 1931, North Dakota  
 State; Ph.D., 1934, Washington

## RESEARCH APPOINTMENTS

- BINGHAM, Margaret N., 1956  
*Research Instructor in Microbiology*  
 B.A., 1936, Stanford; M.D., 1940, Oregon
- EATON, Norman R., 1957  
*Research Instructor in Medicine and*  
*Microbiology*  
 B.A., 1951, California; M.S., 1953, Ph.D.,  
 1955, Washington
- OH, Jang O., 1960  
*Research Instructor in Microbiology*  
 M.D., 1948, Severance Medical College  
 (Korea)
- RIDGWAY, George, 1956  
*Research Instructor in Microbiology*  
 B.S., 1949, M.S., 1951, Ph.D., 1954,  
 Washington
- WHITELEY, Helen R., 1953 (1958)  
*Research Assistant Professor of*  
*Microbiology*  
 B.A., 1942, California; M.S., 1947, Texas;  
 Ph.D., 1951, Washington

## CLINICAL APPOINTMENTS

- BRANCATO, Frank P., 1958  
*Clinical Instructor in Microbiology*  
 B.S., 1948, Long Island; A.M., 1949,  
 Boston; Ph.D., 1952, Washington State
- VENNESLAND, Kirsten, 1954  
*Clinical Instructor in Microbiology*  
 B.S., 1934, M.D., 1942, Chicago

## PATHOLOGY

- BENDITT, Earl P., 1957  
*Professor of Pathology; Executive*  
*Officer of the Department of Pathology*  
 B.A., 1937, Swarthmore; M.D., 1941,  
 Harvard
- BRESLOW, Alexander, 1959  
*Instructor of Pathology*  
 B.S., 1948, M.S., M.D., 1953, Chicago
- BROWN, David V., 1951 (1960)  
*Associate Professor of Pathology*  
 B.A., 1935, Reed College; M.D., 1939,  
 Oregon
- ELLERBROOK, Lester D., 1946 (1949)  
*Associate Professor of Pathology*  
 A.B., 1932, Hope College; Ph.D.,  
 1936, New York
- MARTIN, George M., 1957 (1960)  
*Assistant Professor of Pathology*  
 B.S., 1949, M.D., 1953, Washington
- MOTTET, N. Karle, 1959  
*Assistant Professor of Pathology*  
 B.S., 1947, Washington State;  
 M.D., 1952, Yale
- PREHN, Richmond T., 1958 (1960)  
*Associate Professor of Pathology*  
 M.D., 1947, Long Island College  
 of Medicine
- SREEBNY, Leo M., 1957  
*Associate Professor of Pathology*  
 D.D.S., 1945, Ph.D., 1954, Illinois
- WAGNER, Bernard M., 1958  
*Associate Professor of Pathology,*  
*Robert L. King Chair of*  
*Cardiovascular Research*  
 M.D., 1949, Hahnemann Medical College
- WIEGENSTEIN, Louise, 1948 (1953)  
*Instructor of Pathology (Part-time)*  
 B.S., 1938, Simmons College;  
 M.D., 1946, Tufts

## RESEARCH APPOINTMENTS

- ERIKSEN, Nils, 1949 (1957)  
*Research Assistant Professor of Pathology*  
 B.S., 1939, Ph.D., 1944, Washington
- FRENCH, John E., 1959  
*Visiting Research Professor of Pathology*  
 D.M., 1950, Radcliffe Infirmary,  
 Oxford (England)
- PRIEST, Robert E., 1957 (1960)  
*Research Assistant Professor of Pathology*  
 B.A., 1950, Reed College; M.D.,  
 1954, Chicago

## CLINICAL APPOINTMENTS

- BITAR, Emmanuel, 1949  
*Clinical Instructor in Pathology*  
 B.S., 1935, Washington; M.D.,  
 1939, Oregon
- CREIGHTON, S. Allison, 1949 (1958)  
*Clinical Assistant Professor of Pathology*  
 B.S., 1930, New Brunswick; M.D.,  
 C.M., 1935, McGill (Canada)
- HABERMAN, Clayton R., 1954 (1959)  
*Clinical Instructor in Pathology*  
 B.S., 1947, M.D., 1949, Wisconsin
- HOLYOKE, John B., 1955  
*Clinical Assistant Professor of Pathology*  
 B.S., 1937, M.D., 1940, Nebraska
- JENSEN, Clyde Reynolds, 1947  
*Clinical Assistant Professor of Pathology*  
 A.B., 1923, Dartmouth; M.D., 1925,  
 Rush Medical College
- JONES, Hugh Warren, 1949 (1958)  
*Clinical Assistant Professor of Pathology*  
 B.S., 1934, M.D., 1938, Arkansas
- KNUDTSON, Kenneth P., 1953  
*Clinical Assistant Professor of Pathology*  
 B.S., 1938, M.D., 1941, Wisconsin
- KRAUEL, Louis H., 1948 (1957)  
*Clinical Instructor in Pathology*  
 M.D., 1940, Iowa
- LARSON, Charles P., 1947 (1948)  
*Clinical Assistant Professor of Pathology*  
 B.A., 1931, Gonzaga; M.D., C.M.,  
 1936, McGill (Canada)
- LAZERTE, Gordon D., 1958  
*Clinical Instructor in Pathology*  
 M.D., 1948, Tufts
- LUND, Paul K., 1947  
*Clinical Assistant Professor of Pathology*  
 B.A., 1934, Carleton College; M.D.,  
 C.M., 1940, McGill (Canada)
- MARSHALL, Charles E., 1959  
*Clinical Instructor in Pathology*  
 M.D., 1940, Australia; D.C.P., 1952,  
 London University
- MASON, David G., 1947 (1949)  
*Clinical Assistant Professor of Pathology*  
 B.A., 1930, M.D., 1935, Oregon
- RICKER, Walter A., 1946 (1954)  
*Clinical Associate Professor of Pathology*  
 M.D., 1939, Marquette
- SCHULDBERG, Irving I., 1953 (1958)  
*Clinical Assistant Professor of Pathology*  
 B.A., 1937, M.D., 1940,  
 Southern California

- TESLUK, Henry, 1956  
*Clinical Instructor in Pathology*  
A.B., 1941, M.D., 1943, Cornell
- THORSON, Theodore A., 1952 (1959)  
*Clinical Assistant Professor of Pathology*  
M.D., 1950, Washington

## PHARMACOLOGY

- DILLE, James Madison, 1946  
*Professor of Pharmacology; Executive Officer of the Department of Pharmacology*  
B.S., 1930, M.S., 1933, Nebraska; Ph.D., 1935, Georgetown; M.D., 1946, Illinois
- ELDER, John T., 1957  
*Instructor in Pharmacology*  
B.S., 1953, M.S., 1955, Massachusetts College of Pharmacy; Ph.D., 1960, Washington
- FALK, Gertrude, 1954 (1957)  
*Assistant Professor of Pharmacology*  
B.S., 1947, Antioch College; Ph.D., 1952, Rochester
- HORITA, Akira, 1954 (1958)  
*Assistant Professor of Pharmacology*  
B.A., 1950, M.S., 1951, Ph.D., 1954, Washington
- LOOMIS, Ted Albert, 1947 (1957)  
*State Toxicologist; Professor of Pharmacology*  
B.S., 1939, Washington; M.S., 1941, Ph.D., 1943, Buffalo; M.D., 1946, Yale
- MAGEE, Donal F., 1951 (1957)  
*Associate Professor of Pharmacology*  
B.A., 1944, M.A., B.M., B.Ch., 1948, Oxford (England); Ph.D., 1952, Illinois
- WEST, Theodore C., 1949 (1959)  
*Associate Professor of Pharmacology*  
B.S., 1948, M.S., 1949, Ph.D., 1952, Washington

## RESEARCH APPOINTMENTS

- HOLLIDAY, Audrey R., 1957 (1959)  
*Research Assistant Professor in Pharmacology*  
B.A., 1945, Oregon; M.S., 1949, Ph.D., 1957, Washington
- THIERSCH, John B., 1950 (1954)  
*Research Associate Professor of Pharmacology*  
M.D., 1935, Bern (Switzerland); M.D., 1935, Freiburg (Germany); Med. Habil., 1938, Adelaide (Australia); M.D., 1951, Washington

## PHYSIOLOGY AND BIOPHYSICS

- BROWN, Arthur C., 1960  
*Instructor in Physiology and Biophysics*  
B.A., 1948, M.S., 1954, Chicago; Ph.D., 1960, Washington
- PATTON, Harry D., 1947 (1956)  
*Professor of Physiology and Biophysics*  
B.A., 1939, Arkansas; Ph.D., 1943, M.D., 1946, Yale
- RUCH, Theodore C., 1946  
*Professor of Physiology and Biophysics, Executive Officer of the Department of Physiology and Biophysics*  
B.A., 1927, Oregon; M.A., 1928, Stanford; B.A., 1930, B.Sc., 1932, Oxford (England); Ph.D., 1933, Yale
- RUSHMER, Robert F., 1947 (1956)  
*Professor of Physiology and Biophysics*  
B.S., 1936, Chicago; M.D., 1939, Rush Medical College

- SCHER, Allen M., 1950 (1957)  
*Associate Professor of Physiology and Biophysics*  
B.A., 1942, Ph.D., 1951, Yale
- SKAHEN, Julia G., 1946  
*Assistant Professor of Physiology and Biophysics and Anatomy*  
B.S., 1926, M.S., 1928, Washington; Ph.D., 1940, Chicago
- SMITH, Orville A., Jr., 1958 (1959)  
*Assistant Professor of Physiology and Biophysics and Anatomy*  
B.A., 1949, Arizona; M.A., 1950, Michigan State; Ph.D., 1953, Pennsylvania
- TOWE, Arnold L., 1953 (1957)  
*Assistant Professor of Physiology and Biophysics*  
B.A., 1948, Pacific Lutheran College; Ph.D., 1953, Washington
- WATROUS, Marie (1956)  
*Lecturer*  
B.S., 1951, Washington
- WOODBURY, J. Walter, 1950 (1957)  
*Associate Professor of Physiology and Biophysics*  
B.S., 1943, M.S., 1947, Ph.D., 1950, Utah
- YOUNG, Allan C., 1949 (1960)  
*Professor of Physiology and Biophysics*  
B.A., 1930, M.A., 1932, British Columbia (Canada); Ph.D., 1934, Toronto (Canada)

## RESEARCH APPOINTMENTS

- BRAND, Edmund H., 1953 (1956)  
*Research Instructor in Physiology and Biophysics*  
B.S., 1947, Pacific
- KARPELES, Leo, 1956 (1958)  
*Research Instructor in Physiology and Biophysics*  
B.S., 1941, North Carolina; M.D., 1955, Washington
- KENNEDY, Thelma T., 1956 (1958)  
*Research Instructor in Physiology and Biophysics*  
B.S., 1947, M.S., 1949, Ph.D., 1955, Chicago
- KOCH, Alan R., 1957 (1959)  
*Research Instructor in Physiology and Biophysics*  
B.S., 1951, Michigan; Ph.D., 1955, Columbia

## PUBLIC HEALTH AND PREVENTIVE MEDICINE

- BENNETT, Blair M., 1950 (1953)  
*Assistant Professor of Public Health and Preventive Medicine*  
A.B., 1938, Georgetown; M.A., 1941, Columbia; Ph.D., 1950, California
- HATLEN, Jack B., Jr., 1952 (1958)  
*Instructor in Public Health and Preventive Medicine*  
B.S., 1949, M.S., 1958, Washington
- MILLS, Caswell A., 1954 (1960)  
*Assistant Professor of Public Health and Preventive Medicine and Men's Physical Education*  
B.A., 1935, Minot State Teachers College; M.A., 1943, Ph.D., 1959, Washington
- REEVES, G. Spencer, 1950  
*Associate Professor of Public Health and Preventive Medicine and Men's Physical Education*  
B.S., 1933, M.S., 1937, Oregon; M.P.H., 1951, California

- STANDISH, Seymour Myles, Jr., 1956  
*Lecturer in Public Health and Preventive Medicine; Assistant to the Chairman, Board of Health Sciences*  
B.A., 1942, Washington
- VAVRA, Catherine E., 1950 (1956)  
*Lecturer in Public Health and Preventive Medicine*  
R.N., 1930, St. Mary's Hospital (Minneapolis); B.S., 1935, M.P.H., 1946, Minnesota

**RESEARCH APPOINTMENTS**

- BREYSSSE, Peter A., 1957  
*Research Instructor in Public Health and Preventive Medicine; Campus Sanitary Engineer*  
B.S., 1952, Idaho; M.S., 1954, Washington State; M.P.H., 1957, Pittsburgh

**CLINICAL APPOINTMENTS**

- BUCOVE, Bernard, 1957  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
M.D., 1937, D.P.H., 1946, Toronto (Canada)
- DEISHER, Robert W., 1954  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
A.B., 1941, Knox College (Illinois); M.D., 1944, Washington University
- FARNER, Lloyd M., 1947 (1949)  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
A.B., 1930, M.D., 1936, C.P.H., 1937, California
- FISH, John O., 1960  
*Clinical Instructor in Public Health and Preventive Medicine*  
B.S., 1949, Washington; M.P.H., 1959, Michigan
- GIEDT, Walvin R., 1948  
*Clinical Instructor in Public Health and Preventive Medicine*  
B.S., 1933, South Dakota; M.D., 1937, Rush Medical College; M.P.H., 1941, Johns Hopkins
- HANKS, Thrift G., 1952 (1958)  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
B.S., 1934, M.S., M.D., 1939, Illinois
- LEHMAN, Sanford P., 1951  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
B.S., 1928, Wooster College; M.D., 1934, Cincinnati; M.P.H., 1941, Michigan
- MCGILL, Charles M., 1950  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
B.S., 1931, Washington; M.D., 1935, Vanderbilt; M.P.H., 1945, Harvard
- MYKUT, Margaret C., 1951 (1960)  
*Clinical Associate Professor of Public Health and Preventive Medicine*  
B.S., 1938, Oregon; M.A., 1944, Washington
- NORTHROP, Cedric, 1947 (1954)  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
B.A., 1930, M.D., 1936, Oregon
- RAVENHOLT, Reimert T., 1956 (1960)  
*Clinical Assistant Professor of Public Health and Preventive Medicine*  
B.S., 1948, M.B., M.D., 1951, Minnesota; M.P.H., 1956, California
- WILKEY, John R., 1949 (1958)  
*Clinical Associate Professor of Public Health and Preventive Medicine*  
B.A., 1926, Western Ontario (Canada);

- M.D., C.M., 1931, McGill (Canada);  
D.P.H., 1940, Toronto (Canada)

**CLINICAL MEDICAL SCIENCES****ANESTHESIOLOGY**

- ALLEN, Gerald D., 1959  
*Instructor in Anesthesiology*  
M.B., B.S., 1948, Kings College (England)
- BONICA, John J., 1960  
*Professor of Anesthesiology; Executive Office of the Department of Anesthesiology*  
B.S., 1938, New York University; M.D., 1942, Marquette
- CAPPS, Robert T., 1959  
*Associate Professor of Anesthesiology*  
Ph.D., 1950, M.D., 1954, Wisconsin
- FLOWERS, Gerald, 1959 (1960)  
*Instructor in Anesthesiology*  
M.B.C.M.B., 1951, Sheffield (England)
- HOUSEHOLDER, James R., 1955 (1960)  
*Assistant Professor of Anesthesiology*  
M.D., 1948, Iowa
- ROFFEY, Peter J., 1959  
*Instructor in Anesthesiology*  
B.A., 1946, Cambridge; M.B.B. Chir., 1949, St. Bartholemews (London)
- YOUNG, Torrence M., 1959  
*Instructor in Anesthesiology*  
M.B., B.S., 1950, University College Hospital (London)

**CLINICAL APPOINTMENTS**

- EATHER, Kenneth F., 1956  
*Clinical Instructor in Anesthesiology*  
M.D., 1945, Pennsylvania
- MOORE, Daniel C., 1953 (1956)  
*Clinical Assistant Professor of Anesthesiology*  
M.D., 1944, Northwestern
- TURNBULL, Lawrence F., 1956  
*Clinical Instructor in Anesthesiology*  
M.D., 1945, Northwestern
- WANGEMAN, Clayton P., 1949 (1958)  
*Clinical Associate Professor of Anesthesiology*  
B.A., 1929, Ohio Wesleyan; M.D., 1933, Western Reserve

**MEDICAL PRACTICE**

- ADAMS, J. Gordon, 1951  
*Affiliate in General Practice*  
B.S., 1927, Washington; M.D., 1933, California
- ANDERSON, Dorothy B., 1952  
*Affiliate in General Practice*  
B.S., 1935, Washington; M.D., 1941, Women's Medical College of Pennsylvania
- ANDERSON, Richard M., 1953  
*Affiliate in General Practice*  
B.S., 1940, Washington; M.D., 1944, Stanford
- ASHLEY, Grant D., 1952  
*Affiliate in General Practice*  
B.S., 1938, Appalachian State Teachers College; M.D., 1945, Bowman Gray Medical School
- BALDECK, Joseph E., 1960  
*Affiliate in General Practice*  
M.D., 1931, Creighton
- BARDARSON, Baird M., 1960  
*Affiliate in General Practice*  
M.D., 1955, Washington

- BARNES, Kenneth O., 1953  
*Affiliate in General Practice*  
B.S., 1940, Washington; M.D., 1943, Chicago
- BENSON, R. A., 1949  
*Affiliate in General Practice*  
B.A., 1926, St. Olaf College; M.D., 1932, Chicago
- BRILL, John P., Jr., 1949 (1953)  
*Lecturer in Forensic and Legal Medicine*
- BUSSABARGER, Robert A., 1953  
*Affiliate in General Practice*  
B.S., 1932, Washington; M.S., 1935, M.B., 1936, Ph.D., M.D., 1937, Northwestern
- CALDWELL, J. Presley, 1952  
*Affiliate in General Practice*  
B.S., 1930, South Dakota State; B.M., M.D., 1933, Northwestern
- CANNING, Charles M., 1952  
*Affiliate in General Practice*  
M.D., 1925, Oregon
- CHING, Ernest F., 1950  
*Affiliate in General Practice*  
B.S., 1933, Hawaii; M.D., 1939, College of Medical Evangelists
- COFFIN, Stanley, 1960  
*Affiliate in General Practice*  
M.D., 1953, Washington
- COLLIER, Boy N., 1955  
*Affiliate in General Practice*  
A.B., 1921, Northwestern; M.D., 1925, Louisville
- DAY, Charles G., 1949  
*Affiliate in General Practice*  
B.A., 1935, M.D., 1938, Oregon
- DUMOUCHEL, M. L., 1949  
*Affiliate in General Practice*  
M.D., 1932, Alberta (Canada)
- EBELING, Walter W., 1949  
*Affiliate in General Practice*  
B.S., 1924, Washington; M.D., 1928, Pennsylvania
- EDDY, Howard C., 1949  
*Affiliate in General Practice*  
A.B., 1926, M.D., 1929, Western Reserve
- FISHER, William T., 1960  
*Affiliate in General Practice*  
B.S., 1949, M.D., 1953, Washington
- FRITZ, Harold D., 1949  
*Affiliate in General Practice*  
M.D., 1924, Cincinnati
- GAMON, Wilfred A., 1953  
*Affiliate in General Practice*  
B.S. in Medicine, 1941, South Dakota; B.M., M.D., 1943, Northwestern
- GOINEY, Bernard J., 1954  
*Affiliate in General Practice*  
B.S., 1932, Washington; M.D., 1940, Oregon
- GUDGEL, Kenneth E., 1951  
*Affiliate in General Practice*  
B.S., 1945, M.D., 1948, Iowa
- HAHN, John R., 1952  
*Affiliate in General Practice*  
B.S., 1948, M.D., 1950, Nebraska
- HAMMOND, Don R., 1952  
*Affiliate in General Practice*  
B.S., 1942, B.S. in Medicine, 1943, M.D., 1944, Northwestern
- HICKS, W. W., 1952  
*Affiliate in General Practice*  
M.D., 1920, Virginia
- HITCHMAN, Robert N., 1960  
*Affiliate in General Practice*  
B.S., 1944, Washington; M.D., 1948, Marquette
- HUBER, Dale G., 1955  
*Affiliate in General Practice*  
B.S., 1941, Washington; M.D., 1945, Northwestern
- JARED, M. Shelby, 1947  
*Lecturer in Medical Ethics and Medical Economics*  
B.S., 1923, M.D., 1924, Northwestern
- JOHNSON, A. Holmes, 1949  
*Affiliate in General Practice*  
B.A., 1918, Morningside College; B.S., 1919, Oregon; M.D., 1924, Northwestern
- JUDY, Frederick R., 1949  
*Affiliate in General Practice*  
B.A., 1926, Whitman College; M.A., M.D., 1938, Oregon
- JUDY, Harriet E., 1949  
*Affiliate in General Practice*  
B.S., 1926, Whitman College; M.D., 1933, Oregon
- KINZIE, Ralph V., 1949  
*Affiliate in General Practice*  
A.B., 1938, Manchester College; M.D., 1942, Indiana
- KIRKPATRICK, Wendell C., 1960  
*Affiliate in General Practice*  
M.D., 1951, Washington University
- KLAAREN, C. J., 1950  
*Affiliate in General Practice*  
B.S., 1927, William Penn College; M.D., 1931, Iowa
- KRETZLER, Harry H., 1949  
*Affiliate in General Practice*  
B.S., 1921, M.D., 1923, Nebraska
- LEIBOLD, Edwin F., 1952  
*Affiliate in General Practice*  
B.S., 1938, College of St. Thomas (Minnesota); M.D., 1942, Marquette
- LINGENFELTER, John S., 1949  
*Affiliate in General Practice*  
A.B., 1921, Washington State; M.S., 1923, Wisconsin; M.D., 1925, Washington University
- LOCKRIDGE, Thaddeus L., 1954  
*Affiliate in General Practice*  
B.A., 1936, Montana; M.D., 1942, Pennsylvania
- LOEHR, Doyle M., 1950  
*Affiliate in General Practice*  
B.S., 1927, Simpson College (Iowa); M.D., 1931, Iowa
- LOREE, David R., 1954  
*Affiliate in General Practice*  
A.B., 1926, B.S., 1927, Linfield College; M.D., 1934, Oregon
- LUNDY, L. Fred, 1949  
*Affiliate in General Practice*  
Ph.G., 1905, Fremont College of Pharmacy; M.D., 1909, Creighton
- MANSFIELD, Charles O., 1949  
*Affiliate in General Practice*  
B.S., 1939, Washington; M.D., 1943, Oregon
- McARTHUR, Charles E., 1949  
*Affiliate in General Practice*  
A.B., 1926, Bethel College; M.A., 1929, Kansas; M.D., 1938, Oklahoma
- McCONNELL, Graham S., 1951  
*Affiliate in General Practice*  
A.B., 1936, Columbia; B.S., 1940, Washington State; M.D., 1942, Oregon
- MILLIGAN, John O., 1954  
*Affiliate in General Practice*  
B.S., 1934, M.D., 1936, Nebraska
- MUNGER, Irvia C., Jr., 1949  
*Affiliate in General Practice*  
A.B., 1923, Wyoming; B.S. in Medicine, 1924, M.D., 1925, Nebraska



- PROFFITT, J. Claude, 1953  
*Affiliate in General Practice*  
A.B., 1924, M.D., 1932, Oregon
- RAWSON, Errol W., 1949  
*Affiliate in General Practice*  
B.S., 1919, Washington; M.D., 1925,  
Rush Medical College
- RAYMAN, Mortimer S., 1960  
*Affiliate in General Practice*  
S.B. 1941, Harvard; M.D., 1944,  
Columbia
- RESCHKE, Alfred W., 1955  
*Affiliate in General Practice*  
B.S., 1952, M.D., 1953, Illinois
- ROSENBLADT, L. M., 1953  
*Affiliate in General Practice*  
M.D., 1932, Nebraska
- ROWE, Perry E., 1952  
*Affiliate in General Practice*  
B.S., 1935, Washington; M.D., 1941,  
Oregon
- SCHEYER, Carl J., 1949  
*Affiliate in General Practice*  
B.S., 1932, College of Puget Sound;  
M.D., 1936, Louisville
- SCHEYER, Frederick L., 1946 (1951)  
*Senior Consultant in General Practice;*  
*Director, General Practice Externships*  
M.D., 1928, Temple
- SLADE, Erwin R., 1960  
*Affiliate in General Practice*  
B.S., 1940, Washington; M.D., 1943,  
Oregon
- SLIND, Ole, 1953  
*Affiliate in General Practice*  
B.S., 1938, Washington State; M.D.,  
1942, Washington University
- SPENCER, Bob A., 1960  
*Affiliate in General Practice*  
B.S., 1942, North Texas State;  
M.D., 1946, Texas
- STILES, Richard A., 1960  
*Affiliate in General Practice*  
B.S., 1946, Washington State; M.D.,  
1953, Northwestern
- STIMPSON, Edward K., 1949  
*Affiliate in General Practice*  
A.B., 1927, Stanford; M.D., 1932,  
Harvard
- SULKOSKY, Leo F., 1951  
*Affiliate in General Practice*  
B.A., 1935, Washington; M.D., 1944,  
Oregon
- SWEET, Ralph L., 1953  
*Affiliate in General Practice*  
M.D., 1941, Marquette
- STORRS, Henry G., 1955  
*Affiliate in General Practice*  
B.A., 1942, Amherst; M.D., 1945,  
Pennsylvania
- TAIT, Arnold G., 1953  
*Affiliate in General Practice*  
B.S., 1939, Pacific Union College  
(California); M.D., 1940, College  
of Medical Evangelists
- TAYLOR, J. Earl, Jr., 1949  
*Affiliate in General Practice*  
B.S., B.M., M.D., 1940, Illinois
- THALER, Joseph, 1953  
*Affiliate in General Practice*  
A.B., 1929, M.A., 1930, Ph.D., 1933,  
Cornell; M.D., 1937, Rochester
- UNDERHILL, Frank J., 1960  
*Affiliate in General Practice*  
B.S., 1940, Washington;  
M.D., 1943, Oregon
- WAY, John D., 1951  
*Affiliate in General Practice*  
A.B., 1934, M.D., 1940, Kansas
- WEBSTER, Bruce J., 1949  
*Affiliate in General Practice*  
B.S., 1936, Washington; M.D., 1940,  
Oregon
- WILSON, Gale E., 1948  
*Lecturer in Forensic and Legal Medicine*  
B.S., 1926, Washington; M.D., 1930,  
Harvard
- ZIMMERMAN, James E., 1947  
*Affiliate in General Practice*  
B.S., 1942, Washington State; M.D.,  
1945, Oregon

## MEDICINE

- AAGAARD, George N., 1954  
*Professor of Medicine*  
B.S., 1934, M.B., 1936, M.D., 1937,  
Minnesota
- BAKKE, John L., 1951 (1956)  
*Assistant Professor of Medicine*  
B.S., 1943, Washington State; M.D.,  
1945, Harvard
- BIRCHFIELD, Richard I., 1960  
*Instructor in Medicine*  
B.S., 1950, M.D., 1953, Washington
- BRUCE, Robert A., 1950 (1959)  
*Professor of Medicine*  
B.S., 1938, Boston; M.S., 1940, M.D.,  
1943, Rochester
- CASE, James D., 1960  
*Assistant Professor of Medicine*  
B.S., 1949, M.S., 1953, M.D., 1954,  
Oregon
- CHATRIAN, Gian E., 1959  
*Assistant Professor of Neurosurgery*  
*and Neurology*  
M.D., 1951, Naples (Italy)
- COBB, Leonard A., 1957 (1960)  
*Assistant Professor of Medicine*  
B.S., 1949, M.D., 1952, Minnesota
- DECKER, John L., 1958 (1959)  
*Assistant Professor of Medicine*  
B.A., 1942, Richmond; M.D., 1951,  
Columbia
- DODGE, Harold T., 1957  
*Assistant Professor of Medicine*  
M.D., 1948, Harvard
- EVANS, Robert S., 1951 (1959)  
*Professor of Medicine*  
B.S., 1934, Washington; M.D., 1938,  
Harvard
- FINCH, Clement A., 1949 (1955)  
*Professor of Medicine*  
B.S., 1936, Union College; M.D., 1941,  
Rochester
- HOGNESS, John R., 1951 (1960)  
*Associate Professor of Medicine; Medical*  
*Director, University Hospital;*  
*Assistant Dean, School of Medicine*  
B.S., 1943, M.D., 1946, Chicago
- KIRBY, William M. M., 1949 (1955)  
*Professor of Medicine*  
B.S., 1936, Trinity; M.D., 1940, Cornell
- MOTULSKY, Arno G., 1953 (1960)  
*Associate Professor of Medicine and*  
*Genetics*  
B.S., 1945, M.D., 1947, Illinois
- NOYES, Ward D., 1954 (1959)  
*Instructor in Medicine*  
B.A., 1949, M.D., 1953, Rochester
- PETERSDORF, Robert G., 1959  
*Associate Professor of Medicine*  
B.A., 1948, Brown; M.D., 1952, Yale
- PLUM, Fred, 1953 (1958)  
*Associate Professor of Medicine*  
A.B., 1944, Dartmouth; M.D., 1947,  
Cornell
- RICH, Clayton, 1960  
*Assistant Professor of Medicine*  
M.D., 1948, Cornell

- RUBIN, Cyrus E., 1954 (1959)  
*Associate Professor of Medicine*  
A.B., 1943, Brooklyn; M.D., 1945, Harvard
- SCRIBNER, Belding H., 1951 (1958)  
*Associate Professor of Medicine*  
A.B., 1941, California; M.D., 1945, Stanford; M.S., 1951, Minnesota
- SWANSON, August G., 1954 (1959)  
*Assistant Professor of Medicine (Neurology) and of Pediatrics (Neurology)*  
A.B., 1951, Westminster College; M.D., 1949, Harvard
- VANARSDEL, Paul P., Jr., 1953 (1958)  
*Assistant Professor of Medicine*  
B.S., 1947, Yale; M.D., 1951, Columbia
- VOLWILER, Wade, 1949 (1959)  
*Professor of Medicine*  
A.B., 1939, Oberlin College; M.D., 1943, Harvard
- WILLIAMS, Robert H., 1948  
*Professor of Medicine; Executive Officer of the Department of Medicine*  
A.B., 1929, Washington and Lee; M.D., 1934, Johns Hopkins
- RESEARCH APPOINTMENTS**
- EATON, Norman R., 1957  
*Research Instructor in Medicine*  
B.A., 1951, California; M.S., 1953, Ph.D., 1955, Washington
- FELLER, David D., 1952 (1956)  
*Research Assistant Professor of Medicine*  
A.B., 1944, Ph.D., 1950, California
- GARTLER, Stanley M., 1957  
*Research Assistant Professor of Medicine and Assistant Professor of Genetics*  
B.S., 1948, California (Los Angeles); Ph.D., 1952, California
- GLOMSET, John A., 1960  
*Research Assistant Professor of Medicine*  
Med. Kand., 1953, Med. Dr., 1960, Uppsala (Sweden)
- GOLDSWORTHY, Patrick D., 1952 (1957)  
*Research Assistant Professor of Medicine and Lecturer in Biochemistry*  
A.B., 1941, M.A., 1947, Ph.D., 1952, California
- CLINICAL APPOINTMENTS**
- AHERN, James J., 1951 (1957)  
*Clinical Assistant Professor of Medicine*  
B.S., 1938, Washington; M.D., 1945, Chicago
- ALTOSE, Alexander R., 1949  
*Clinical Instructor in Medicine*  
M.B., 1937, M.D., 1938, Northwestern
- ANDRUS, William W., 1955 (1959)  
*Clinical Instructor in Medicine*  
M.D., 1953, Harvard
- ARCESE, Norman, 1956 (1958)  
*Clinical Instructor in Medicine*  
B.S., 1943, Alabama; M.B., M.D., 1946, Northwestern
- ARONSON, Samuel F., 1949 (1958)  
*Clinical Associate Professor of Medicine*  
B.S., 1931, Washington; M.D., 1936, Northwestern
- BAILEY, Richard J., 1954  
*Clinical Affiliate in Medicine*  
M.S., 1926, M.D., 1927, Minnesota
- BANNICK, Edwin G., 1949  
*Clinical Professor of Medicine*  
B.S., 1918, M.D., 1920, Iowa
- BARNES, Robert H., Jr., 1950 (1957)  
*Clinical Assistant Professor of Medicine*  
B.S., 1940, Virginia Military Institute; M.D., 1943, Virginia
- BARRETT, Beach, 1955 (1958)  
*Clinical Instructor in Medicine*  
M.E., 1940, Cornell; M.D., 1952, Washington
- BERGY, Gordon G., 1952 (1959)  
*Clinical Assistant Professor of Medicine*  
A.B., 1947, West Virginia; M.D., 1949, Michigan
- BINGHAM, James B., 1949 (1959)  
*Clinical Associate Professor of Medicine*  
B.S., 1935, M.D., 1937, Wisconsin
- BOBROFF, Arthur, 1950 (1955)  
*Clinical Instructor in Medicine*  
A.B., 1940, New York; M.D., 1944, Louisville
- BRIDGES, William C., 1948  
*Clinical Instructor in Medicine*  
B.S., 1938, Washington; M.D., 1940, Yale
- BRUENNER, Bertram F., 1949 (1955)  
*Clinical Assistant Professor of Medicine*  
B.S., 1926, M.S., 1928, M.D., 1929, Minnesota
- BURNELL, James M., 1950 (1960)  
*Clinical Associate Professor of Medicine*  
M.D., 1949, Stanford
- CAMPBELL, Alexander D., 1949 (1955)  
*Clinical Assistant Professor of Medicine*  
B.A., 1930, Whitman College; M.D., 1934, Johns Hopkins
- CAPACCIO, George D., 1949  
*Clinical Assistant Professor of Medicine*  
M.D., 1931, Virginia
- CASSERD, Fredrick, 1955 (1960)  
*Clinical Instructor in Medicine*  
B.S., 1947, Washington; M.D., 1950, Oregon
- CLEVELAND, Fred Edward, 1951 (1957)  
*Clinical Assistant Professor of Medicine and Lecturer in Nursing*  
B.S., 1937, M.D., 1941, Virginia
- COLEMAN, Daniel, 1950 (1960)  
*Clinical Associate Professor of Medicine*  
B.S., 1942, Carroll College; M.D., 1945, Jefferson Medical College
- COLLINS, John D., 1949 (1956)  
*Clinical Assistant Professor of Medicine*  
B.S., 1933, Washington; M.D., 1938, Northwestern
- CRAMPTON, Joseph H., 1949 (1960)  
*Clinical Associate Professor of Medicine*  
B.S., 1938, Idaho; M.D., 1941, Vanderbilt
- CROSBIE, James, 1952 (1960)  
*Clinical Associate Professor of Medicine*  
M.D., 1945, Chicago
- DARVILL, Fred T., Jr., 1954 (1960)  
*Clinical Instructor in Medicine*  
B.S., 1948, M.D., 1951, Washington
- DeMARSH, Quin B., 1947 (1957)  
*Clinical Associate Professor of Medicine*  
B.S., 1935, Washington; M.S., 1937, B.M., 1939, M.D., 1940, Northwestern
- DONOHUE, Dennis M., 1952 (1958)  
*Clinical Assistant Professor of Medicine*  
M.D., 1951, Washington
- DUNNING, Marcelle F., 1952 (1957)  
*Clinical Assistant Professor of Medicine*  
B.A., 1935, Hunter College; M.A., 1936, Columbia; M.D., 1940, New York University
- EGGERS, Rolf van Kervall, 1949 (1954)  
*Clinical Assistant Professor of Medicine*  
B.A., B.S., 1930, North Dakota; M.D., 1933, Rush Medical College
- ELGEE, Neil J., 1952 (1960)  
*Clinical Assistant Professor of Medicine*  
B.S., 1946, New Brunswick (Canada); M.D., 1950, Rochester

- EVANS, Ernest M., 1949  
*Clinical Instructor in Medicine*  
A.B., 1935, Haverford College; M.D., 1939, Pennsylvania
- FEIN, Sherwood B., 1954 (1958)  
*Clinical Instructor in Medicine*  
B.S., 1948, M.D., 1951, Western Reserve
- FERGUS, Emily B., 1953 (1960)  
*Clinical Assistant Professor of Medicine*  
A.B., 1946, Mount Holyoke; M.D., 1950, Pittsburgh
- FEY, Louis D., 1949  
*Clinical Instructor in Medicine*  
B.S., 1934, Washington; M.B., 1938, M.D., 1939, Northwestern
- FISHER, Peter, 1956 (1958)  
*Clinical Instructor in Medicine*  
M.D., 1948, Pennsylvania
- FODOR, Oscar A., 1950 (1957)  
*Clinical Instructor in Medicine*  
B.S., 1938, Franklin and Marshall College; M.D., 1942, Indiana
- FOE, Adrian A., 1952 (1956)  
*Clinical Instructor in Medicine*  
M.D., 1945, Nebraska
- FOSTER, Robert F., 1948  
*Clinical Assistant Professor of Medicine*  
B.S., 1925, Washington; M.D., 1930, Northwestern
- FRANCIS, Byron F., 1949  
*Clinical Professor of Medicine*  
B.S., 1922, Washington; M.D., 1926, Washington University
- FRANKLIN, Abby, 1955 (1960)  
*Clinical Assistant Professor of Medicine*  
M.D., 1948, Ohio State
- FRAYSER, Lois, 1950 (1960)  
*Clinical Assistant Professor of Medicine*  
B.A., 1928, Richmond; M.S., 1935, M.D., 1943, Michigan
- GIBLETT, Eloise R., 1952 (1958)  
*Clinical Assistant Professor of Medicine*  
B.S., 1942, M.S., 1947, M.D., 1951, Washington
- GREENLEAF, Richard Cranch, 1950 (1957)  
*Clinical Assistant Professor of Medicine*  
B.S., 1939, Yale; M.D., 1942, Columbia
- HACKEDORN, Howard M., 1953 (1960)  
*Clinical Assistant Professor of Medicine*  
B.S., 1935, Washington State; M.D., 1940, Harvard; M.S., 1951, Oregon
- HAGEN, John M. V., 1952 (1958)  
*Clinical Assistant Professor of Medicine and Lecturer in Nursing*  
B.A., 1942, Wyoming; M.D., 1950, Rochester
- HAVILAND, James W., 1949 (1956)  
*Clinical Professor of Medicine and Lecturer in Nursing*  
A.B., 1932, Union College; M.D., 1936, Johns Hopkins
- HENLEY, Elaine D., 1956 (1958)  
*Clinical Instructor in Medicine*  
B.A., 1947, California (Los Angeles); M.D., 1951, California
- HILDEBRAND, Alice G., 1949  
*Clinical Assistant Professor of Medicine*  
B.S., 1932; M.D., 1936, Nebraska; M.S., 1940, Minnesota
- HOGUE, Philip N., 1949 (1957)  
*Clinical Assistant Professor of Medicine*  
B.S., 1936, Washington; M.B., 1940, M.D., 1941, Northwestern
- HOUGHTON, Benjamin C., 1951 (1956)  
*Clinical Associate Professor of Medicine*  
M.D., 1934, Iowa
- HUDSON, Dean G., 1953 (1959)  
*Clinical Instructor in Medicine*  
B.S., 1946, Washington; M.D., 1950, Cornell
- JOBB, Emil, 1949 (1959)  
*Clinical Assistant Professor of Medicine and Lecturer in Nursing*  
B.S., 1937, B.M., 1941, M.D., 1942, Wayne
- JOHN, Gregory G., 1953 (1959)  
*Clinical Instructor in Medicine*  
B.S., 1949, Washington; M.D., 1952, Oregon
- JONES, Richard F., 1955 (1957)  
*Clinical Instructor in Medicine*  
B.A., 1943, M.D., 1946, Oregon
- KATSMAN, Alvin, 1952 (1957)  
*Clinical Instructor in Medicine*  
B.S., 1944, Washington; M.D., 1948, Nebraska; M.S., 1950, Iowa
- KELLY, William J., 1954 (1957)  
*Clinical Instructor in Medicine*  
B.S., 1941, Seattle University; M.D., 1945, Temple
- KING, Robert L., 1949 (1954)  
*Clinical Associate Professor of Medicine and Lecturer in Nursing*  
M.D., 1928, B.S., 1931, Virginia
- KOHLI, Daniel R., 1951 (1954)  
*Clinical Instructor in Medicine*  
A.B., 1938, Wisconsin; M.B., 1941, M.D., 1942, Northwestern
- KOLER, John J., 1956 (1959)  
*Clinical Instructor in Medicine*  
B.S., 1950, M.D., 1953, Washington
- KOREY, Herman G., 1951 (1953)  
*Clinical Instructor in Medicine*  
B.S., 1932, Chicago; M.D., 1936, Rush Medical College
- KRANTZ, Clement I., 1949  
*Clinical Assistant Professor of Medicine*  
A.B., 1920, M.D., 1924, Johns Hopkins
- KROUSE, Howard, 1956 (1960)  
*Clinical Assistant Professor of Medicine (Neurology)*  
B.A., 1939, M.D., 1943, Iowa
- LANE, Fenton J., 1954 (1957)  
*Clinical Instructor in Medicine*  
M.D., 1945, Michigan
- LAWS, E. Harold, 1949 (1958)  
*Clinical Associate Professor of Medicine*  
B.S., 1938, M.D., 1940, Indiana
- LAYMAN, James D., Jr., 1953 (1958)  
*Clinical Instructor in Medicine*  
B.S., 1944, Seattle University; M.D., 1947, St. Louis
- LEEDE, William E., 1949  
*Clinical Instructor in Medicine*  
B.S., 1934, M.D., 1937, Oregon
- LEFFMAN, Henry, 1956  
*Clinical Assistant Professor of Medicine (Neurology)*  
M.D., 1935, Prague
- LEHMANN, John Hans, 1950 (1956)  
*Clinical Instructor in Medicine*  
M.D., 1935, Perugia (Italy)
- LEVENSON, Robert M., 1955 (1959)  
*Clinical Instructor in Medicine*  
M.D., 1946, Louisville
- LINDAHL, Wallace W., 1949 (1960)  
*Clinical Associate Professor of Medicine (Neurology)*  
B.S., 1933, Washington State; M.D., 1938, Northwestern
- LINDBERG, John H., 1955 (1957)  
*Clinical Instructor in Medicine*  
B.S., 1946, Washington; B.M., M.D., 1948, Northwestern
- LINELL, Michael A., 1955 (1958)  
*Clinical Instructor in Medicine*  
M.R.C.S., L.R.C.P., 1938, Kings College (England)

- LOGAN, Gordon A., 1952 (1958)  
*Clinical Assistant Professor of Medicine*  
B.S., 1945, M.S., 1947, Purdue; M.D., 1951, Columbia
- LUCAS, John E., 1952 (1960)  
*Clinical Associate Professor of Medicine*  
B.S., 1940, Washington; M.D., 1943, Harvard; M.S., 1951, Minnesota
- MAGID, George J., 1959  
*Clinical Instructor in Medicine*  
B.A., 1947, New York University; M.D., 1951, Chicago
- MANCHESTER, Robert C., 1949 (1960)  
*Clinical Assistant Professor of Medicine*  
A.B., 1927, Ohio Wesleyan; M.S., 1930, M.D., 1932, Rochester
- MARSHALL, Helen S., 1950 (1956)  
*Clinical Instructor in Medicine*  
B.S., 1939, M.D., 1942, Wisconsin
- MARTIN, Carroll J., 1952 (1960)  
*Clinical Associate Professor of Medicine*  
B.S., M.D., 1940, Iowa
- MARTIN, John K., 1949  
*Clinical Assistant Professor of Medicine*  
B.S., 1926, M.D., 1928, Nebraska
- MERRYFIELD, Lloyd W., 1951 (1958)  
*Clinical Instructor in Medicine*  
B.S., 1942, M.S., 1943, California  
Institute of Technology; M.D., 1950, Harvard
- MICHEL, Jean C., 1951 (1960)  
*Clinical Assistant Professor of Medicine*  
B.S., 1943, Bowdoin College; M.D., 1946, Columbia
- MITTELSTAEDT, Lester W., 1952 (1958)  
*Clinical Instructor in Medicine*  
B.S., 1944, Washington; M.D., 1949, Oregon
- MORGAN, Edward H., 1951 (1957)  
*Clinical Assistant Professor of Medicine and Lecturer in Nursing*  
A.B., 1938, DePauw; B.M., M.D., 1943, Northwestern; Ph.D., 1950, Minnesota
- MORTON, Robert J., 1948 (1954)  
*Clinical Assistant Professor of Medicine*  
A.B., 1939, M.D., 1943, Kansas; M.S., 1947, Minnesota
- MULLINS, John R., 1954 (1955)  
*Clinical Instructor in Medicine (Neurology)*  
B.S., 1942, Gonzaga; M.D., 1945, St. Louis
- NELSON, Averly M., 1949  
*Clinical Instructor in Medicine*  
B.S., 1937, Washington; M.D., 1941, Oregon
- NIELSEN, Robert L., 1952 (1959)  
*Clinical Instructor in Medicine*  
M.D., 1951, Harvard
- NOLAN, Donald E., 1951  
*Clinical Assistant Professor of Medicine; Administrative Assistant*  
B.S., M.B., 1935, M.D., 1936, Minnesota
- ODLAND, George F., 1957 (1960)  
*Clinical Assistant Professor of Medicine*  
M.D., 1946, Harvard
- PACE, William R., Jr., 1951 (1954)  
*Clinical Instructor in Medicine*  
B.S., 1943, M.D., 1945, Arkansas
- PAINE, Robert M., 1951 (1954)  
*Clinical Instructor in Medicine and Lecturer in Nursing*  
B.S., 1942, Bowdoin College; M.D., 1946, Columbia
- PAULSEN, Charles A., 1958 (1960)  
*Clinical Assistant Professor of Medicine*  
B.A., 1947, M.D., 1952, Oregon
- PAXSON, Chauncey G., Jr., 1956 (1960)  
*Clinical Instructor in Medicine*  
M.D., 1950, Jefferson Medical College
- PEARSALL, Herbert R., 1957 (1960)  
*Clinical Assistant Professor of Medicine*  
B.S., 1939, Roanoke College; M.D., 1943, Medical College of Virginia
- PEARSON, Clarence C., 1948 (1954)  
*Clinical Assistant Professor of Medicine and Lecturer in Nursing*  
B.A., 1934, M.D., 1937, Texas; M.S., 1947, Minnesota
- PEIRCE, Charlotte T., 1950 (1954)  
*Clinical Instructor in Medicine*  
B.A., 1937, Bryn Mawr; M.D., 1941, Johns Hopkins
- PETERSON, Philip Leslie, 1949 (1956)  
*Clinical Assistant Professor of Medicine*  
A.B., 1926, St. Olaf College; M.D., 1930, Rush Medical College
- PILLOW, Randolph P., 1951 (1956)  
*Clinical Instructor in Medicine and Lecturer in Nursing*  
B.A., 1942, M.D., 1944, Virginia
- PIRZIO-BIROLI, Giacomo, 1952 (1957)  
*Clinical Instructor in Medicine*  
M.D., 1951, Johns Hopkins
- POMMERENING, Robert A., 1948 (1958)  
*Clinical Associate Professor of Medicine and Lecturer in Nursing*  
A.B., 1938, M.D., 1942, Michigan
- POTTER, Robert T., 1949 (1958)  
*Clinical Associate Professor of Medicine and Lecturer in Nursing*  
B.S., 1937, M.D., 1940, Minnesota; M.S., 1944, Johns Hopkins
- RADKE, Ryle A., 1955 (1958)  
*Clinical Assistant Professor of Medicine*  
B.M., 1933, M.D., 1934, Northwestern; M.S., 1951, Louisville
- RANKIN, Robert M., 1948 (1960)  
*Clinical Associate Professor of Medicine (Neurology)*  
B.S., 1937, Washington; M.D., 1942, Johns Hopkins
- REEVES, Robert L., 1953 (1957)  
*Clinical Assistant Professor of Medicine and Lecturer in Nursing*  
B.S., 1943, Virginia Military Institute; M.D., 1946, Virginia
- REIFF, Robert H., 1958  
*Clinical Affiliate in Medicine*  
A.B., 1939, Whitman College; Ph.D., 1944, Minnesota; M.D., 1949, Tennessee
- ROYS, Harvey C., 1951 (1955)  
*Clinical Instructor in Medicine*  
M.D., 1943, Oklahoma
- RUPRECHT, Archibald L., 1954 (1960)  
*Clinical Instructor in Medicine*  
A.B., 1943, Harvard; M.D., 1946, Columbia
- SATA, William K., 1955 (1957)  
*Clinical Instructor in Medicine*  
B.A., 1945, M.D., 1947, Utah
- SCHALLER, Gilbert K., 1953 (1959)  
*Clinical Instructor in Medicine*  
B.S., 1948, M.D., 1952, Washington
- SCOTT, Michael J., 1952 (1955)  
*Clinical Instructor in Medicine*  
B.S., 1943, Washington; M.D., 1946, Creighton
- SHAW, Joseph W., 1949  
*Clinical Professor of Medicine*  
B.S., 1924, M.D., 1926, M.S., 1930, Michigan
- SHEEHY, Thomas F., Jr., 1952 (1957)  
*Clinical Assistant Professor of Medicine*  
B.S., 1942, Villanova; M.D., 1945, Temple
- SHERWOOD, Kenneth K., 1949  
*Clinical Assistant Professor of Medicine; Administrative Consultant*  
B.S., 1923, B.M., 1925, M.D., 1926, Minnesota

- SIMPSON, Robert W., 1950 (1958)  
*Clinical Associate Professor of Medicine*  
A.B., 1936, M.D., 1942, Stanford
- SKUBI, Kazimer B., 1949 (1954)  
*Clinical Assistant Professor of Medicine*  
B.S., 1932, Washington; M.D., 1940,  
Rush Medical College
- SMART, Thomas B., 1952 (1959)  
*Clinical Assistant Professor of Medicine*  
B.S., 1947, M.D., 1951, Washington
- SODERSTROM, Kenneth M., 1949  
*Clinical Assistant Professor of Medicine*  
M.D., 1931, Nebraska; M.S., 1940,  
Johns Hopkins
- SPARKMAN, Donal Ross, 1949 (1960)  
*Clinical Professor of Medicine and*  
*Lecturer in Nursing*  
B.S., 1930, Washington; M.D., 1934,  
Pennsylvania
- SPICKARD, Warren B., 1948 (1958)  
*Clinical Associate Professor of Medicine*  
B.A., 1940, M.D., 1943, Stanford
- STEENROD, William J., Jr., 1953 (1957)  
*Clinical Instructor in Medicine and*  
*Lecturer in Nursing*  
B.S., 1943, Western Michigan College;  
M.D., 1946, Michigan
- STEVENS, Alexander, Jr., 1951 (1957)  
*Clinical Assistant Professor of Medicine*  
B.A., 1943, Yale; M.D., 1946, Cornell
- STIMSON, William H., 1957 (1959)  
*Clinical Assistant Professor of Medicine*  
M.D., 1939, George Washington
- STROH, James E. S., 1949 (1957)  
*Clinical Associate Professor of Medicine*  
B.S., 1928, South Dakota; M.D., 1931,  
Illinois
- TANNER, Donald C., 1954 (1959)  
*Clinical Instructor in Medicine*  
A.B., 1947, M.D., 1951, Stanford
- ULRICH, Delmont M., 1951 (1958)  
*Clinical Assistant Professor of Medicine*  
B.S., 1940, M.D., 1943, Minnesota
- UYENO, Ben T., 1951 (1959)  
*Clinical Instructor in Medicine*  
B.S., 1943, Washington; M.D., 1949,  
Rochester
- VOEGLIN, Walter L., 1949  
*Clinical Assistant Professor of Medicine*  
B.S., 1929, Washington, M.D., 1934,  
Northwestern
- WATTS, William E., 1950 (1958)  
*Clinical Associate Professor of Medicine*  
*and Lecturer in Nursing*  
B.S., 1938, Washington; M.D., 1942,  
Harvard; M.S., 1949, Minnesota
- WEINSTEIN, Sydney, 1949 (1956)  
*Clinical Assistant Professor of Medicine*  
B.S., 1926, Washington; M.D., 1930,  
Jefferson Medical College
- WILLIAMS, Paul L., 1949  
*Clinical Instructor in Medicine*  
B.S., 1934, M.D., 1937, Oregon
- WILLKENS, Robert F., 1955 (1959)  
*Clinical Instructor in Medicine*  
B.S., 1950, Antioch College; M.D., 1954,  
Rochester
- WOLFE, William A., 1951 (1959)  
*Clinical Instructor in Medicine*  
B.S., 1943, M.D., 1945, Northwestern;  
M.S., 1950, Washington
- ZIMMERMAN, Bruce M., 1949 (1958)  
*Clinical Associate Professor of Medicine*  
B.S., 1935, North Dakota; M.B., 1937,  
M.D., 1938, Northwestern

## OBSTETRICS AND GYNECOLOGY

- AFONSO, Jose Filipe de Sanches, 1954  
(1960)  
*Assistant Professor of Obstetrics and*  
*Gynecology*  
M.D., 1952, Oporto (Portugal)
- ALVORD, Ellsworth C., Jr. (1960)  
*Associate Professor of Pathology*  
B.S., 1944, Haverford College; M.D.,  
1946, Cornell
- DE ALVAREZ, Russell R., 1948  
*Professor of Obstetrics and Gynecology;*  
*Executive Officer of the Department of*  
*Obstetrics and Gynecology*  
B.S., 1933, M.D., 1935, M.S., 1940,  
Michigan
- FIGGE, David C., 1953 (1957)  
*Assistant Professor of Obstetrics and*  
*Gynecology*  
B.S., 1949, M.D., 1950, Northwestern
- HODGES, Robert M., 1958 (1959)  
*Instructor in Obstetrics and Gynecology*  
Sc., 1950, University of Wales; M.B.,  
B.Ch., 1953, D.R.C.O.G., 1955, Royal  
College of Obstetricians and  
Gynecologists
- LAMKEE, Muriel, 1956 (1957)  
*Instructor in Obstetrics and Gynecology*  
B.A., 1949, Augustana College; B.S.,  
1951, South Dakota; M.D., 1953,  
Nebraska
- SALOOM, Lucille, 1958 (1959)  
*Instructor in Obstetrics and Gynecology*  
B.S., 1952, M.D., 1954, Minnesota

## RESEARCH APPOINTMENTS

- WERBIN, Harold, 1960  
*Research Associate Professor of Obstetrics*  
*and Gynecology*  
B.A., 1944, Brooklyn College; M.S., 1947,  
Ph.D., 1950, Polytechnic Institute of  
Brooklyn

## CLINICAL APPOINTMENTS

- BANKS, Albert L., 1957  
*Clinical Instructor in Obstetrics and*  
*Gynecology*  
M.D., 1943, Duke
- BIBACK, Sheldon M., 1957  
*Clinical Instructor in Obstetrics and*  
*Gynecology*  
M.D., 1948, Toronto (Canada)
- CAMPBELL, Robert M., 1949 (1960)  
*Clinical Assistant Professor of Obstetrics*  
*and Gynecology*  
B.S., 1942, Washington; M.D., 1945,  
M.S., 1949, Michigan
- CLANCY, John, 1948 (1957)  
*Clinical Assistant Professor of Obstetrics*  
*and Gynecology*  
A.B., 1932, Montana; M.D., 1936,  
Jefferson Medical College
- CODLING, John W., 1952 (1957)  
*Clinical Instructor in Obstetrics and*  
*Gynecology*  
Ph.C., 1929, B.S., 1931, M.D., 1942,  
Oregon
- DAVIDSON, Samuel H., 1957  
*Clinical Instructor in Obstetrics and*  
*Gynecology*  
A.B., 1939, Yale; M.D., 1943, Harvard
- DAY, Charles W., 1949 (1960)  
*Clinical Assistant Professor of Obstetrics*  
*and Gynecology*  
B.S., 1939, Washington; M.D., 1942,  
Oregon

- DONALDSON, L. Bruce, 1948 (1957)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
B.S., 1935, Northwestern; M.D., 1939, Michigan
- FINE, Charles S., 1948 (1959)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
M.D., 1937, Toronto (Canada)
- GOMBERG, Bernard, 1954  
*Clinical Instructor in Obstetrics and Gynecology*  
B.S., 1939, M.S., M.D., 1941, Illinois
- GRIFFIN, Joe L., 1958  
*Clinical Instructor in Obstetrics and Gynecology*  
A.B., 1941, M.D., 1944, Illinois
- HARRISON, Harold E., 1951 (1957)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
B.S., 1931, M.D., 1933, Nebraska
- HELWIG, Carl M., 1948 (1955)  
*Clinical Associate Professor of Obstetrics and Gynecology*  
M.D., 1926, Ohio State
- KEIFER, Walter S., 1960  
*Clinical Instructor in Obstetrics and Gynecology*  
A.B., 1939, College of Emporia; M.D., 1943, Kansas
- KETTERING, Harry A., 1951 (1955)  
*Clinical Instructor in Obstetrics and Gynecology*  
B.A., 1942, M.D., 1945, Oregon
- KIM, Hi Soo (1960)  
*Clinical Instructor of Pathology*  
M.D., 1945, College of Yonsei University; M.Sc., 1958, Pennsylvania
- KIMBALL, Charles Dunlap, 1948 (1957)  
*Clinical Associate Professor of Obstetrics and Gynecology*  
M.D., 1934, Buffalo
- KNUDSON, Wendell C., 1948 (1957)  
*Clinical Instructor in Obstetrics and Gynecology*  
B.S., 1933, Washington; M.D., 1938, Northwestern
- LEE, Albert F., 1948 (1957)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
B.S., 1935, College of Puget Sound; M.D., 1937, Duke
- LOWDEN, Robert J., 1954 (1957)  
*Clinical Instructor in Obstetrics and Gynecology*  
B.S., 1942, Seattle University; M.D., 1945, Marquette
- MACCAMY, Edwin Thomas, 1949 (1956)  
*Clinical Instructor in Obstetrics and Gynecology*  
B.S., 1937, Gonzaga; M.S., M.D., 1940, Northwestern
- McINTYRE, Donald M., 1946 (1955)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
B.S., 1939, Washington; M.D., 1943, Chicago
- NISCO, Frank S., 1960  
*Clinical Associate Professor of Obstetrics and Gynecology*  
A.B., 1949, Rutgers; M.D., 1955, Washington
- NUCKOLS, Hugh Hunter, 1948 (1957)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
B.S., 1930, Washington; M.D., 1934, Pennsylvania
- PETERSON, Paul G., 1948 (1957)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
A.B., 1927, St. Olaf College; M.D., 1932, Rush Medical College
- ROLLINS, Paul R., 1948 (1957)  
*Clinical Associate Professor of Obstetrics and Gynecology*  
Ph.C., B.S., 1924, Washington; M.D., 1928, Washington University
- ROTTON, Glenn Nelson, 1948  
*Consultant in Obstetrics and Gynecology*  
B.S., 1915, M.D., 1926, Iowa
- RUTHERFORD, Robert N., 1948 (1957)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
A.B., 1932, Illinois; M.D., 1936, Harvard
- SCHROEDER, Herman J., 1948 (1952)  
*Clinical Instructor in Obstetrics and Gynecology*  
Ph.C., B.S., 1931, Washington; M.D., 1940, Oregon
- SMITH, R. Phillip, 1948 (1957)  
*Clinical Assistant Professor of Obstetrics and Gynecology*  
A.B., 1930, B.S., 1932, M.D., 1934, Kansas
- STIPP, Charles G., 1960  
*Clinical Instructor in Obstetrics and Gynecology*  
A.B., 1939, M.D., 1943, Kansas
- THORP, Donald J., 1948  
*Consultant in Obstetrics and Gynecology*  
A.B., 1921, B.S., 1932, M.D., 1927, Michigan

## PEDIATRICS

- ALDRICH, Robert A., 1956  
*Professor of Pediatrics; Executive Officer of the Department of Pediatrics*  
B.A., 1939, Amherst; M.B., 1943, M.D., 1944, Northwestern
- BAKER, Helen, 1956  
*Instructor in Pediatrics*  
B.S., 1947, Maryland; M.D., 1951, Johns Hopkins
- BERNSTEIN, Nan, 1958  
*Instructor in Home Economics and Nutrition (Pediatrics)*  
B.S., 1949, Iowa State; M.S.Hyg., 1954, Harvard School of Public Health
- DEANE, Philip G., 1957 (1959)  
*Instructor in Pediatrics*  
B.A., 1952, Middleburg; M.D., 1952, Yale
- DEISHER, Robert W., 1949 (1956)  
*Associate Professor of Pediatrics; Director of the Child Health Center and Director of Clinic for Child Study*  
A.B., 1941, Knox College (Illinois); M.D., 1944, Washington University
- GUNTHEROTH, Warren G., 1958 (1959)  
*Assistant Professor of Pediatrics*  
M.D., 1952, Harvard
- HARBINSON, John Alexander, 1959  
*Instructor in Pediatrics*  
M.D., 1952, Toronto (Canada)
- JENSEN, Gordon D., 1953 (1957)  
*Assistant Professor of Pediatrics*  
M.D., 1949, Yale
- KELLEY, Vincent C., 1958  
*Professor of Pediatrics*  
B.A., 1934, M.S., 1935, North Dakota; B.S. (Education), 1936, Ph.D., 1942, B.S. (Medicine), 1944, M.S., 1945, M.D., 1946, Minnesota
- MACKLER, Bruce, 1957  
*Associate Professor of Pediatrics*  
B.S., 1939, M.D., 1943, Temple
- McNELLIS, Ellen, 1958  
*Instructor in Pediatrics*  
M.B.Ch.B., 1938, D.P.H., 1940, Glasgow (Scotland)
- SEELY, J. Rodman, 1958  
*Assistant Professor of Pediatrics*  
B.S., 1950, M.D., 1952, Utah

SHEPARD, Thomas H., 1955 (1956)  
*Assistant Professor of Pediatrics*  
A.B., 1945, Amherst; M.D., 1948,  
Rochester

SWANSON, August G., 1958 (1959)  
*Assistant Professor of Medicine and  
Pediatrics (Neurology)*  
A.B., 1945, Westminster; M.D., 1949,  
Harvard

## RESEARCH APPOINTMENTS

ARCASOY, Müfit M., 1959 (1960)  
*Research Instructor in Pediatrics*  
B.S., 1948, Turkey; M.D., 1954,  
Philadelphia

CHAR, Donald F. B., 1959 (1960)  
*Research Instructor in Pediatrics*  
M.D., 1950, Temple

IGO, Robert P., 1958 (1960)  
*Research Instructor in Pediatrics*  
B.S., 1950, M.D., 1952, Utah

LABBE, Robert F., 1957  
*Research Associate Professor of Pediatrics*  
B.S., 1947, Portland; M.S., 1949, Ph.D.,  
1951, Oregon State

ORIGENES, Mauricio L., 1958 (1960)  
*Research Instructor in Pediatrics*  
A.A., 1949, M.D., 1954, Catholic  
University (Philippines)

SMITH, Elizabeth Knapp, 1958  
*Research Associate Professor of Pediatrics  
and Pathology*  
B.S., 1938, Florida State; M.S., 1939,  
Michigan; Ph.D., 1943, Iowa

## CLINICAL APPOINTMENTS

ADKINS, George E. M., 1949 (1953)  
*Clinical Instructor in Pediatrics*  
B.S., 1941, Washington; M.D. 1944,  
Oregon

ANDERSON, O. William, 1950 (1951)  
*Clinical Instructor in Pediatrics*  
B.S., 1931, Idaho; B.M., 1935, M.D.,  
1936, Northwestern

BIERMAN, C. Warren, 1958 (1959)  
*Clinical Assistant Professor of Pediatrics*  
M.D., 1947, Harvard

BILLINGTON, Sherod M., 1947 (1956)  
*Clinical Associate Professor of Pediatrics*  
A.B., 1932, M.D., 1935, Vanderbilt

CLEIN, Norman W., 1947 (1956)  
*Clinical Associate Professor of Pediatrics*  
B.S., 1924, M.D., 1925, Northwestern

DOCTER, Jack Merton, 1948 (1959)  
*Clinical Associate Professor of Pediatrics*  
B.S., 1937, Washington; M.D., 1941,  
Columbia

DOUGLASS, Frank H., 1950  
*Consultant in Pediatrics*  
Ph.G., 1919, Washington State; M.D.,  
1925, Oregon

EMERSON, Bettina Meyerhoff, 1948  
(1950)  
*Clinical Instructor in Pediatrics*  
M.D., 1943, Johns Hopkins

GRYTBÄK, Margit H., 1948 (1950)  
*Clinical Instructor in Pediatrics*  
B.S., 1930, B.M., 1932, M.D., 1933,  
Minnesota

GUY, May Borquist, 1948 (1950)  
*Clinical Instructor in Pediatrics*  
A.B., 1923, Reed College; M.D., 1932,  
Cornell; M.P.H., 1938, Harvard

GUY, Percy F., 1947  
*Clinical Instructor in Pediatrics*  
M.D., 1922, Michigan; M.P.H., 1938,  
Harvard

HARTMANN, John R., 1955 (1958)  
*Clinical Instructor in Pediatrics*  
M.D., 1947, Johns Hopkins

HOFFMAN, Robert W., 1952 (1954)  
*Clinical Instructor in Pediatrics*  
M.D., 1946, St. Louis

JAQUETTE, William Alderman, Jr., 1947  
(1956)  
*Clinical Associate Professor of Pediatrics*  
A.B., 1932, Harvard; M.D., 1936,  
Pennsylvania

JOHNSON, Walfred W., 1956  
*Clinical Instructor in Pediatrics*  
B.A., 1947, Montana; M.D., 1951,  
St. Louis

JOSLIN, Blackburn S., 1959  
*Clinical Instructor in Pediatrics*  
B.S., 1943, Haverford; M.D., 1947,  
Johns Hopkins

JOY, Frederick B., 1947 (1956)  
*Clinical Assistant Professor of Pediatrics*  
B.A., 1929, M.D., 1931, Oregon

JUSTICE, Robert S., 1955 (1958)  
*Clinical Instructor in Pediatrics*  
B.A., 1949, College of Puget Sound;  
M.S.W., 1955, Washington

KAPLAN, Charles, 1948 (1956)  
*Clinical Assistant Professor of Pediatrics  
and Lecturer in Nursing*  
B.A., 1934, M.D., 1937, Toronto (Canada)

KIRSCHVINK, Joseph Francis, 1959  
*Clinical Instructor in Pediatrics*  
B.S., 1950, Arizona State; M.D., 1955,  
Utah

LAGOZZINO, Daniel A., 1950 (1958)  
*Clinical Instructor in Pediatrics*  
B.S., 1940, Washington; M.D., 1943,  
Oregon

LAVECK, Gerald, 1957 (1960)  
*Clinical Assistant Professor of Pediatrics*  
B.S., 1948, M.D., 1951, Washington

LEWIS, Donald, 1956 (1958)  
*Clinical Instructor in Pediatrics*  
B.S., 1947, M.D., 1951, Northwestern

LUCE, Ralph R., 1950 (1956)  
*Clinical Assistant Professor of Pediatrics*  
B.S., 1941, M.S., 1942, Idaho; M.D.,  
1945, Washington University

MACKOFF, Leslie, 1956 (1959)  
*Clinical Instructor in Pediatrics*  
A.B., 1948, California; M.D., 1953,  
Washington

MOLL, Frederic C., 1959  
*Clinical Professor of Pediatrics*  
A.B., 1937, M.D., 1940, Rochester

MOLL, Gretchen, 1960  
*Clinical Assistant Professor of Pediatrics*  
B.A., 1936, Bennington; M.D., 1941, Yale

PRIEST, Jean H., 1960  
*Clinical Instructor in Pediatrics*  
Ph.B., 1947, B.S., 1949, M.D., 1953,  
Chicago

PYNE, Gordon E., 1959  
*Clinical Instructor in Pediatrics*  
B.S., 1949, M.D., 1953, Washington

SKINNER, Alfred L., 1955 (1960)  
*Clinical Instructor in Pediatrics*  
A.B., 1947, M.D., 1951, Harvard

SPICKARD, Vernon W., 1947 (1956)  
*Senior Consultant in Pediatrics*  
B.S., 1916, Drake; M.D., 1918,  
Pennsylvania

STAMM, Stanley J., 1956  
*Clinical Instructor in Pediatrics*  
B.S., 1948, Washington; M.D., 1952,  
St. Louis

STERNER, John A., 1950 (1951)  
*Clinical Instructor in Pediatrics*  
B.S., 1940, Washington; M.D., 1944,  
Pennsylvania

- SUTHERLAND, Donald A., 1956 (1958)  
*Clinical Instructor in Pediatrics*  
 A.B., 1943, Pomona College; M.D., 1947,  
 Rochester
- TIDWELL, Robert A., 1947 (1956)  
*Clinical Associate Professor of Pediatrics*  
 B.S.M., 1935, M.D., 1937, Oklahoma
- TUCKER, James L., 1950 (1956)  
*Clinical Assistant Professor of Pediatrics*  
 B.A., 1941, Amherst College; M.D., 1944,  
 Cornell

## PHYSICAL MEDICINE AND REHABILITATION

- BOWING, Shirley M., 1958  
*Instructor in Occupational Therapy;*  
*Head, Division of Occupational Therapy*  
 B.S., 1943, Minnesota; Certificate in  
 Occupational Therapy, 1945, Columbia;  
 M.A., 1955, Southern California
- BRUNNER, George D., 1957  
*Instructor in Physical Therapy; Head,*  
*Division of Physical Therapy*  
 B.S., 1950, Miami University; Diploma,  
 Physical Therapy, 1951, D. T. Watson  
 School of Physiatrics
- FORDYCE, Wilbert E., 1959  
*Assistant Professor of Clinical Psychology*  
 B.S., 1948, M.S., 1951, Ph.D., 1953,  
 Washington
- LEHMANN, Justus F., 1957  
*Professor of Physical Medicine and*  
*Rehabilitation; Executive Officer of*  
*Physical Medicine and Rehabilitation*  
 M.D., 1945, Johann Wolfgang Goethe  
 Universität
- McMILLAN, Jo A., 1958  
*Instructor in Physical Therapy*  
 B.S., 1953, North Texas State College;  
 Certificate, Physical Therapy, 1955,  
 Mayo Clinic
- REDFORD, John B., 1958  
*Instructor in Physical Medicine and*  
*Rehabilitation*  
 B.A., 1949, British Columbia; M.D.,  
 1953, Toronto (Canada); M.S., 1958,  
 Minnesota
- SHEVLIN, M. Geraldine, 1959  
*Instructor in Occupational Therapy*  
 B.S., in O.T., 1954, Ohio State; M.A.,  
 1959, Columbia
- STOLOV, Walter C., 1960  
*Instructor in Physical Medicine and*  
*Rehabilitation*  
 B.S., 1948, City College of New York;  
 M.A., 1951, M.D., 1956, Minnesota

## PSYCHIATRY

- BAKKER, Cornelis B., 1960  
*Instructor in Psychiatry*  
 M.D., 1952, Utrecht (Netherlands)
- ETZEL, Barbara C., 1956  
*Instructor in Psychiatry (Psychologist)*  
 B.S., 1948, Denison; M.S., 1950, Miami;  
 Ph.D., 1953, Iowa
- HAMPSON, John L., 1960  
*Associate Professor of Psychiatry*  
 A.B., 1943, Allegheny; M.D., 1946,  
 Johns Hopkins
- HAYES, Donald, 1958  
*Instructor in Psychiatry (Sociologist)*  
 B.A., 1952, Pomona; M.A., 1954, Ph.D.,  
 1959, Washington
- HOLMES, Thomas H., III, 1949 (1958)  
*Professor of Psychiatry*  
 A.B., 1939, North Carolina; M.D., 1943,  
 Cornell

- JOHNSON, Merlin H., 1955 (1960)  
*Assistant Professor of Psychiatry*  
 B.A., 1944, M.D., 1947, Iowa
- KELLEHER, Daniel, 1958 (1959)  
*Instructor in Psychiatry (Psychologist)*  
 B.S., 1953, M.S., 1957, Ph.D., 1959,  
 Washington
- PRESTON, Caroline E., 1949 (1960)  
*Assistant Professor of Psychiatry*  
*(Psychologist)*  
 B.A., 1940, M.A., 1941, Colorado
- RIPLEY, Herbert S., 1949  
*Professor of Psychiatry; Executive Officer*  
*of the Department of Psychiatry*  
 A.B., 1929, Michigan; M.D., 1933,  
 Harvard
- SOBEL, Raymond, 1960  
*Associate Professor of Psychiatry; Head*  
*of the Division of Child Psychiatry*  
 A.B., 1937, Harvard; M.D., 1941,  
 New York
- STROTHER, Charles R., 1949  
*Professor of Psychiatry (Psychologist)*  
 B.A., 1929, M.A., 1932, Washington;  
 Ph.D., 1935, Iowa
- TJOSSEM, Theodore D., 1951 (1960)  
*Assistant Professor of Psychiatry*  
*(Psychologist)*  
 B.A., 1940, Drake; M.A., 1941, Iowa;  
 Ph.D., 1959, Washington
- VOGEL, John L., 1959  
*Instructor in Psychiatry (Psychologist)*  
 B.A., 1949, Calvin; M.A., 1950,  
 Michigan; Ph.D., 1959, Chicago
- WRIGHT, Robert G., 1959  
*Instructor in Psychiatry*  
 B.A., 1950, Johns Hopkins; M.D., 1954,  
 Rochester

## RESEARCH APPOINTMENTS

- JACKSON, Joan K., 1951 (1958)  
*Research Assistant Professor of Psychiatry*  
*(Sociologist)*  
 B.A., 1945, M.A., 1947, McGill (Canada);  
 Ph.D., 1955, Washington
- LARSON, William R., 1958 (1959)  
*Research Instructor in Psychiatry*  
*(Sociologist)*  
 B.A., 1955, M.A., 1958, Washington
- MASUDA, Minoru, 1956 (1960)  
*Research Assistant Professor of Psychiatry*  
*(Physiologist)*  
 B.S., 1936, M.S., 1938, Ph.D., 1956,  
 Washington

## CLINICAL APPOINTMENTS

- ABERNETHY, George L., 1959  
*Clinical Instructor in Psychiatry*  
 B.S., 1948, M.D., 1952, Ohio State
- ALLISON, George H., 1950  
*Clinical Instructor in Psychiatry*  
 B.A., 1943, Rochester; M.D., 1945, Yale
- BAKER, William Y., 1947 (1958)  
*Clinical Associate Professor of Psychiatry*  
 B.S., 1931, M.D., 1933, Nebraska
- BASSAN, Morton E., 1954  
*Clinical Instructor in Psychiatry*  
 B.A., 1938, Hopkins; M.D., 1942,  
 Maryland
- BOBBITT, Francis S., 1949  
*Clinical Instructor in Psychiatry*  
 B.S., 1941, B.M., 1943, M.D., 1944,  
 Northwestern
- BOUCHER, Jeanne V., 1956 (1958)  
*Clinical Instructor in Psychiatry*  
 B.S., 1948, College of Puget Sound;  
 M.D., 1953, Woman's Medical College  
 (Pennsylvania)
- BOWERS, Frank C., 1951  
*Clinical Affiliate in Psychiatry*  
 M.D., 1933, Hahnemann Medical College



- BROWN, Lida C., 1956  
*Clinical Instructor in Psychiatry*  
A.B., 1944, George Washington; M.D., 1948, Woman's Medical College
- BROWN, Robert W., 1949  
*Clinical Affiliate in Psychiatry*  
B.A., 1923, Wisconsin; M.D., 1928, Harvard; M.S., 1940, Minnesota
- BUCHMEIER, Joseph A., 1950  
*Clinical Instructor in Psychiatry*  
A.B., 1939, M.D., 1942, Indiana
- BUXBAUM, Edith S., 1955  
*Clinical Assistant Professor of Psychiatry (Psychologist)*  
Ph.D., 1923, Vienna (Austria)
- CANDY, Ardis J., 1954 (1957)  
*Clinical Instructor in Psychiatry*  
B.S., 1946, Beloit College (Wisconsin); M.S., 1948, M.D., 1950, Wisconsin
- CHIVERS, Norman C., 1950 (1956)  
*Clinical Associate Professor of Psychiatry*  
B.A., 1938, Saskatchewan (Canada); M.D., 1941, Manitoba (Canada)
- CONTE, William R., 1959  
*Clinical Associate Professor of Psychiatry*  
A.D., 1942, Wichita; M.D., 1945, Vanderbilt
- COOK, William B., Jr., 1956 (1960)  
*Clinical Instructor in Psychiatry*  
M.D., 1955, Pennsylvania
- CORBETT, James T., 1954  
*Clinical Instructor in Psychiatry*  
B.S., 1945, Seattle University; M.D., 1947, St. Louis
- DAHL, Hartvig A., 1952 (1953)  
*Clinical Instructor in Psychiatry*  
B.A., 1944, Jamestown College (North Dakota); B.S., 1944, North Dakota; M.D., 1946, Illinois
- DANNHAUER, Allan R., 1959  
*Clinical Instructor in Psychiatry*  
B.S., 1949, Northwestern; B.S., 1952, M.D., 1954, Illinois
- DIAMOND, Leon S., 1951  
*Clinical Affiliate in Psychiatry*  
B.S.M., 1937, M.D., 1938, Loyola
- DICKINSON, R. Hugh, 1958  
*Clinical Associate Professor of Psychiatry*  
A.B., 1940, Cornell; M.D., 1943, Nebraska
- DORPAT, Theodore L., 1953 (1959)  
*Clinical Assistant Professor of Psychiatry*  
B.S., 1948, Whitworth; M.D., 1952, Washington
- DRAPER, Franklin M., 1958 (1959)  
*Clinical Instructor in Psychiatry*  
B.A., 1950, Reed; M.D., 1954, Harvard
- EGGERTSEN, Harold C., 1957 (1960)  
*Clinical Instructor in Psychiatry*  
B.S., 1950, M.D., 1955, Utah
- FINLAYSON, Malcolm, 1958  
*Clinical Instructor in Psychiatry*  
B.A., 1938, Yale; M.D., 1942, Rush Medical College
- FISK, Quentin G., 1957 (1959)  
*Clinical Instructor in Psychiatry*  
B.S., 1942, South Dakota State; B.S., 1948, South Dakota; M.D., 1950, Illinois
- FLEMING, Jack W., 1959  
*Clinical Instructor in Psychiatry (Psychologist)*  
A.B., 1949, Brown; M.A., 1957, Ph.D., 1959, Colorado
- FORD, E. S. C., 1959  
*Clinical Instructor in Psychiatry*  
B.S., 1936, Kentucky; M.D., 1939, Vanderbilt
- FREIDINGER, Arthur W., 1949  
*Clinical Instructor in Psychiatry*  
B.S., 1939, Oberlin; M.D., 1943, Western Reserve
- GABLE, Charles M., 1950  
*Clinical Instructor in Psychiatry*  
B.S., 1939, Washington; M.D., 1941, Tennessee
- GOFORTH, Eugene G., 1948 (1953)  
*Clinical Assistant Professor of Psychiatry*  
B.S., 1939, M.D., 1941, Illinois
- HAMMER, Frank J., 1956  
*Clinical Instructor in Psychiatry (Psychologist)*  
B.A., 1942, Lawrence College; Ph.D., 1950, Chicago
- HEILBRUNN, Gert, 1948 (1958)  
*Clinical Associate Professor of Psychiatry*  
B.A., 1929, City College of Nuremberg (Germany); M.D., 1935, Bern (Switzerland)
- HEINEMANN, Harold E., 1952 (1953)  
*Clinical Instructor in Psychiatry*  
B.A., 1937, Eastern Washington College of Education; M.D., 1948, Oregon
- HENDERSON, J. Lester, 1948 (1958)  
*Clinical Associate Professor of Psychiatry*  
B.S., 1924, Eureka College (Illinois); M.D., 1929, Washington University
- HENDRICKS, Roger C., 1949 (1958)  
*Clinical Assistant Professor of Psychiatry*  
M.D., 1941, Rush Medical College
- HOEDEMAEKER, Edward D., 1947  
*Clinical Instructor in Psychiatry*  
B.S., 1927, M.D., 1929, Michigan
- HORTON, William D., 1950 (1958)  
*Clinical Assistant Professor of Psychiatry*  
B.A., 1939, M.D., 1942, Kansas
- HURLEY, Albert M., 1952 (1956)  
*Clinical Instructor in Psychiatry*  
B.S., 1942, St. Joseph College; M.D., 1946, Marquette
- IVERSON, Carrold K., 1956  
*Clinical Instructor in Psychiatry*  
B.S., 1951, Iowa State; M.D., 1951, Yale
- JACKSON, Stanley W., 1955 (1956)  
*Clinical Instructor in Psychiatry*  
B.C., 1941, M.D., C.M., 1950, McGill (Canada)
- JARVIS, Richard B., 1955  
*Clinical Instructor in Psychiatry*  
B.S., 1942, College of Puget Sound; M.D., 1945, Louisville
- JONES, Elwood L., 1954 (1958)  
*Clinical Instructor in Psychiatry*  
A.B., 1949, Kansas City; B.S., 1951, Missouri; M.D., 1953, Kansas
- KAUFMAN, S. Harvard, 1947 (1958)  
*Clinical Associate Professor of Psychiatry*  
B.S., 1934, M.D., 1936, Wisconsin
- KIPPLE, Helen M., 1954 (1955)  
*Clinical Instructor in Psychiatry*  
B.S., 1939, M.S., 1941, Washington; M.D., 1950, Stanford
- KLEIN, Jack, 1950  
*Clinical Instructor in Psychiatry*  
B.A., 1940, Loras College (Iowa); M.D., 1943, Iowa
- KOGAN, Kate L., 1956  
*Clinical Assistant Professor of Psychiatry (Psychologist)*  
B.A., 1934, Wellesley; M.A., 1935, Ph.D., 1943, Columbia
- KOGAN, William S., 1952  
*Clinical Instructor in Psychiatry (Psychologist)*  
A.B., 1936, New York; M.A., 1939, Columbia; Ph.D., 1949, Pittsburgh
- KRIEGER, Margery H., 1959  
*Clinical Instructor in Psychiatry (Psychologist)*  
B.A., 1946, Ph.D., 1955, Texas

- KROUSE, Howard, 1951 (1960)  
*Clinical Assistant Professor of Psychiatry and of Medicine (Neurologist)*  
B.A., 1941, M.D., 1943, Iowa
- LASATER, James H., 1948  
*Clinical Instructor in Psychiatry*  
B.S., 1934, Washington; M.D., 1939, George Washington
- LEFFMAN, Henry, 1953 (1956)  
*Clinical Assistant Professor of Psychiatry and of Medicine (Neurologist)*  
M.D., 1935, Prague (Czechoslovakia)
- LEIDER, Allan R., 1951 (1955)  
*Clinical Instructor in Psychiatry*  
B.S., 1943, Minnesota; B.S., 1944, Hamline (Minnesota); M.D., 1946, Minnesota
- LEMERE, Frederick, 1947  
*Clinical Professor of Psychiatry*  
M.A., 1930, M.D., 1932, Nebraska
- MANGHAM, Charles A., 1950 (1951)  
*Clinical Instructor in Psychiatry*  
B.S., 1939, M.D., 1942, Virginia
- MEADOWS, John W., 1956  
*Clinical Instructor in Psychiatry*  
B.S., 1940, Gonzaga; M.D., 1944, Western Reserve
- MILLAR, Thomas P., 1959  
*Clinical Instructor in Psychiatry*  
B.A., 1947, British Columbia, M.D., C.M., 1951, McGill (Canada)
- NEWKIRK, Paul R., 1949  
*Clinical Affiliate in Psychiatry*  
M.D., 1911, Heidelberg (Germany)
- O'CONNOR, Sheelagh, 1956 (1958)  
*Clinical Instructor in Psychiatry*  
B.A., 1947, Vassar; M.D., 1954, Yale
- OGLE, William A., 1956  
*Clinical Instructor in Psychiatry*  
B.A., 1938, Saskatchewan; M.D., C.M., 1951, McGill (Canada)
- OLCH, Gerald B., 1956  
*Clinical Instructor in Psychiatry*  
M.D., 1944, Toronto
- ORR, Douglas W., 1947 (1958)  
*Clinical Associate Professor of Psychiatry*  
A.B., 1928, Swarthmore; M.S., 1933, M.D., 1935, Northwestern
- PETERS, Frederick M., 1949 (1956)  
*Clinical Affiliate in Psychiatry*  
B.S., 1936, Washington; B.M., 1941, M.D., 1943, M.S., 1949, Northwestern
- PETERS, William F., 1955 (1956)  
*Clinical Instructor in Psychiatry*  
M.D., 1949, Temple
- POSELL, Edward A., 1949 (1953)  
*Clinical Affiliate in Psychiatry*  
B.S., 1923, College of the City of New York; M.D., 1927, Boston
- PRATUM, Leif K., 1951 (1952)  
*Clinical Instructor in Psychiatry*  
B.S., 1944, Washington; M.D., 1946, Louisville
- RICE, Damaris S., 1958  
*Clinical Instructor in Psychiatry*  
M.D., 1952, Nebraska
- RICE, Jerrold S., 1957  
*Clinical Instructor in Psychiatry*  
B.A., 1948, Denver; M.D., 1952, Nebraska
- RILEY, John B., 1948  
*Clinical Instructor in Psychiatry*  
B.S., 1929, M.B., 1933, M.D., 1934, Minnesota
- ROWLETT, David B., 1957 (1960)  
*Clinical Instructor in Psychiatry*  
A.B., 1949, M.D., 1953, Kansas
- SAYER, Robert J., 1951 (1954)  
*Clinical Instructor in Psychiatry*  
A.B., 1944, Pennsylvania; M.D., 1948, Columbia
- SCHER, Maryonda E., 1955 (1959)  
*Clinical Instructor in Psychiatry*  
B.S., 1950, M.D., 1954, Washington
- SCHWARTZ, Lawrence H., 1955 (1956)  
*Clinical Instructor in Psychiatry*  
M.D., 1949, Duke
- SHAW, Ian A., 1954  
*Clinical Instructor in Psychiatry*  
M.D., 1948, Harvard
- SHOVLAIN, Francis E., 1949  
*Clinical Affiliate in Psychiatry*  
A.B., 1921, M.D., 1923, Creighton
- STOLZHEISE, Ralph M., 1948  
*Clinical Instructor in Psychiatry*  
A.B., 1926, Willamette; M.D., 1934, Oregon
- STRAND, Glenn T., 1953 (1960)  
*Clinical Assistant Professor of Psychiatry*  
B.S., 1948, M.D., 1952, Washington
- STUEN, Marcus R., 1953 (1955)  
*Clinical Affiliate in Psychiatry*  
B.A., 1943, Pacific Lutheran College; M.D., 1946, Marquette
- TAYLOR, Benjamin M., 1954 (1955)  
*Clinical Instructor in Psychiatry*  
M.D., 1949, St. Louis
- WELTI, Walter B., 1952 (1958)  
*Clinical Assistant Professor of Psychiatry*  
B.A., 1943, M.D., 1946, Utah
- WHITING, Adolph M., 1951  
*Clinical Instructor in Psychiatry*  
B.S., 1943, M.B., 1945, M.D., 1946, Minnesota

## RADIOLOGY

- FIGLEY, Melvin M., 1958  
*Professor of Radiology; Executive Officer of the Department of Radiology*  
M.D., 1944, Harvard
- LOOP, John W., 1959  
*Instructor in Radiology*  
B.S., 1948, M.D., 1952, Harvard
- PARKER, Robert G., 1956 (1959)  
*Assistant Professor of Radiology*  
B.S., 1945, M.D., 1948, Wisconsin
- PHILLIPS, Leon A., 1959  
*Instructor in Radiology*  
B.S., 1948, M.D., 1952, Yale
- WOOTTON, Peter, 1959  
*Clinical Assistant Professor of Radiology; Radiation Physicist*  
Hon. B.Sc., 1944, Birmingham (England)

## CLINICAL APPOINTMENTS

- ADDINGTON, Ercell A., 1948  
*Clinical Assistant Professor of Radiology*  
B.A., 1928, Carleton College; M.D., 1932, M.A., 1939, Minnesota
- BAIR, William J., 1957  
*Lecturer in Radiology*  
B.A., 1949, Ohio Wesleyan; Ph.D., 1954, Rochester
- BENESH, Alfred J., 1951 (1954)  
*Clinical Assistant Professor of Radiology*  
B.A., 1926, M.A., 1931, South Dakota; M.D., 1933, Chicago
- BRACHER, George, 1953  
*Clinical Assistant Professor of Radiology*  
B.A., 1930, Wittenburg College (Ohio); M.D., 1934, Oregon
- CARLILE, Thomas B., Jr., 1948  
*Clinical Assistant Professor of Radiology*  
A.B., 1936, M.D., 1939, Michigan

- GILBERTSON, Eva L., 1950  
*Clinical Instructor in Radiology*  
B.A., 1938, North Dakota; M.D., 1941,  
Temple; M.S., 1947, Minnesota
- HADDEN, George N., 1956 (1958)  
*Clinical Assistant Professor of Radiology*  
B.S., 1947, M.D., 1951, Washington
- HARRIS, Milo T., 1950  
*Clinical Assistant Professor of Radiology*  
M.D., 1928, Texas; M.S., 1932, Minnesota
- HARTZELL, Homer V., 1948  
*Clinical Assistant Professor of Radiology*  
A.B., 1930, Stanford; M.D., 1936, Oregon
- LEIGHTON, Robert S., 1955 (1958)  
*Clinical Assistant Professor of Radiology*  
B.A., 1933, M.D., 1938, Minnesota
- MYERS, Ira T., 1956  
*Lecturer in Radiology*  
B.S., 1948, M.S., 1952, Ph.D., 1958,  
Washington State
- NELSON, James F., 1953 (1958)  
*Clinical Associate Professor of Radiology*  
M.D., 1946, Northwestern
- PARKER, Herbert M., 1948  
*Clinical Assistant Professor of Radiology*  
B.S., 1930, M.S., 1931, Manchester  
(England)
- ROEDEL, Robert F., 1958  
*Clinical Instructor in Radiology*  
B.S., 1942, Washington; M.D., 1946,  
Marquette
- ROESCH, William C., 1953 (1959)  
*Clinical Assistant Professor of Radiology*  
A.B., 1945, Miami; Ph.D., 1949,  
California Institute of Technology
- ROSENBERG, Robert H., 1955  
*Clinical Instructor in Radiology*  
B.S., 1949, M.B., 1951, M.D., 1952,  
Minnesota
- TEMPLETON, Frederic E., 1947 (1953)  
*Clinical Professor of Radiology*  
B.S., 1927, Washington; M.D., 1931,  
Oregon
- WALKER, John H., 1948 (1959)  
*Clinical Assistant Professor of Radiology*  
B.S., 1936, Washington; M.D., 1940,  
Michigan
- WARD, Byron H., 1951 (1959)  
*Clinical Assistant Professor of Radiology*  
B.S., 1935, Washington; M.D., 1939,  
Oregon
- WILDERMUTH, Orless, 1956  
*Clinical Associate Professor of Radiology*  
A.B., 1939, B.S., 1941, Missouri;  
M.D., 1943, Cincinnati
- SURGERY**
- ANDREWS, Charles B., 1959  
*Instructor in Orthopedics*  
B.S., 1949, Northwestern; M.D.,  
1953, New York State
- ANSELL, Julian, 1959  
*Assistant Professor of Surgery; Head of  
the Division of Urology*  
M.D., 1951, Tufts; Ph.D., 1959,  
Minnesota
- BELL, John W., 1959 (1960)  
*Associate Professor of Surgery*  
B.S., 1942, Washington; M.D., 1945,  
Harvard
- CANTRELL, James R., 1960  
*Professor of Surgery*  
A.B., 1944, M.D., 1946, Johns Hopkins
- CHAPMAN, Niles D., 1958 (1960)  
*Instructor in Surgery*  
B.S., 1952, Montana State; M.D., 1956,  
Washington
- CHATRIAN, Gian, 1959  
*Assistant Professor of Neurosurgery  
and Neurology; Head of the EEG  
Laboratory*  
M.D., 1951, Naples (Italy)
- CLAWSON, D. Kay, 1958  
*Assistant Professor of Surgery; Head  
of the Division of Orthopedics*  
M.D., 1952, Harvard
- DEVITO, Robert V., 1956 (1958)  
*Instructor in Surgery*  
B.A., 1949, British Columbia;  
M.D., 1953, Washington
- DILLARD, David H., 1953 (1959)  
*Assistant Professor of Surgery*  
A.B., 1946, Whitman College;  
M.D., 1950, Johns Hopkins
- FAUSNAUGH, Clyde L., 1957 (1960)  
*Instructor in Surgery*  
A.B., 1947, Swarthmore; M.D., 1951,  
Pennsylvania
- FOLTZ, Eldon L., 1950 (1957)  
*Associate Professor of Neurosurgery*  
B.S., 1941, Michigan State; M.D.,  
1943, Michigan
- HARKINS, Henry Nelson, 1947  
*Professor of Surgery; Executive Officer  
of the Department of Surgery*  
B.S., 1925, M.S., 1926, Ph.D., 1928,  
Chicago; M.D., 1931, Rush Medical  
College
- HERRON, Paul W., 1956 (1958)  
*Instructor in Surgery*  
B.S., 1950, Washington State; M.D.,  
1954, Washington University
- JESSEPH, John E., 1955 (1958)  
*Instructor in Surgery*  
A.B., 1949, Whitman College; M.D.,  
1953, M.S., 1956, Washington
- KELLY, William A., 1959  
*Instructor in Neurosurgery*  
M.D., 1954, Cincinnati
- MERENDINO, K. Alvin, 1948 (1955)  
*Professor of Surgery*  
B.S., 1936, Ohio; M.D., 1940, Yale;  
Ph.D., 1946, Minnesota
- NYHUS, Lloyd M., 1952 (1959)  
*Associate Professor of Surgery*  
B.A., 1945, Pacific Lutheran College;  
M.D., 1947, Alabama
- STERN, Jack, 1957 (1958)  
*Instructor in Neurosurgery*  
M.D., 1953, Texas
- STEVENSON, John K., 1954 (1959)  
*Assistant Professor of Surgery*  
M.D., 1949, Rochester
- TOLSTEDT, Grandon E., 1957 (1960)  
*Instructor in Surgery*  
B.S., 1948, South Dakota State; M.D.,  
1953, Northwestern
- WARD, Arthur A., Jr., 1948 (1955)  
*Professor of Surgery; Head of the  
Division of Neurosurgery*  
B.S., 1938, M.D., 1942, Yale
- WHITE, Lowell E., Jr., 1954 (1960)  
*Assistant Professor of Neurosurgery*  
B.S., 1951, M.D., 1953, Washington
- WINTERSCHIED, Loren C., 1957 (1958)  
*Instructor in Surgery*  
B.A., 1948, Willamette; Ph.D., 1953,  
M.D., 1954, Pennsylvania
- RESEARCH APPOINTMENTS**
- ALBERNAZ, Jose G., 1959  
*Research Instructor in Neurosurgery*  
B.S., 1938, State College Belo Horizonte  
(Brazil); M.D., 1946, Minas Gerais  
(Brazil)

- DAHL, Allen, 1959  
*Research Instructor in Surgery*  
B.S., 1951, M.D., 1957, Washington
- FLETCHER, T. Lloyd, 1951 (1955)  
*Research Associate Professor of Surgery*  
A.B., 1937, M.D., 1938, Clark  
(Massachusetts); Ph.D., 1949,  
Wisconsin
- PAN, Hsi-Lung, 1954 (1955)  
*Research Instructor in Surgery*  
B.S., 1946, Fukien Christian (China);  
M.S., 1950, College of Puget Sound;  
M.S., 1953, Washington
- CLINICAL APPOINTMENTS**
- ADAMS, Alfred O., 1950  
*Consultant in Orthopedic Surgery*  
M.D., 1924, Washington University
- ANDERSON, Kirk J., 1952 (1959)  
*Clinical Instructor in Orthopedic Surgery*  
B.A., 1941, College of Idaho; M.D.,  
1944, Oregon
- ANDERSON, Roger, 1948  
*Senior Consultant in Orthopedic Surgery*  
B.S., 1915, Hamline (Minnesota);  
M.D., 1918, Northwestern
- ASH, Joseph L., 1949  
*Consultant in Otolaryngology*  
B.S., 1923, M.D., 1925, Creighton
- BAKER, Joel W., 1948 (1952)  
*Consultant in Surgery*  
M.D., 1928, Virginia
- BERENS, Sylvester N., 1953 (1956)  
*Consultant in Neurosurgery*  
B.S., 1924, M.D., 1928, Creighton
- BILL, Alexander H., Jr., 1948 (1960)  
*Clinical Instructor in Surgery*  
A.B., 1935, M.D., 1939, Harvard
- BLACKMAN, James, 1948  
*Consultant in Surgery*  
A.B., 1928, Kalamazoo College  
(Michigan); M.D., 1932, Johns Hopkins
- BOGARDUS, George M., 1951 (1960)  
*Clinical Assistant Professor of Surgery*  
M.D., 1938, Duke
- BOWLES, Albert J., 1948  
*Consultant in Surgery*  
A.B., 1919, M.D., 1923, Oregon
- BROWN, Walter S., 1952  
*Clinical Instructor in Surgery*  
A.B., 1927, Alabama; M.D., 1932,  
Illinois
- BURGESS, Ernest M., 1948  
*Clinical Instructor in Orthopedic Surgery*  
A.B., 1932, Utah; M.D., 1937, Columbia
- BURKE, Donald R., Jr., 1954 (1960)  
*Clinical Instructor in Surgery*  
B.S., 1945, M.D., 1948, Creighton;  
M.S., 1955, St. Louis
- CAIN, Alvin L., 1958  
*Consultant in Otolaryngology*  
B.S., 1941, Bethany; B.S., 1943, West  
Virginia; M.D., 1944, Virginia
- CAMPBELL, Robert A., 1949  
*Clinical Instructor in Otolaryngology*  
B.S., 1924, Washington; M.D., 1932,  
Oregon
- CARNEY, John L. P., 1953  
*Clinical Instructor in Otolaryngology*  
B.S., 1935, North Dakota; M.D., 1937,  
Rush Medical College
- CHAMBERS, Edward F. S., 1948  
*Consultant in Orthopedic Surgery*  
M.D., 1907, Pennsylvania
- CHISM, Carl E., 1952 (1958)  
*Clinical Instructor in Surgery*  
and *Lecturer in Nursing*  
B.S., 1936, M.D., 1941, Nebraska
- COE, Herbert E., 1947  
*Senior Consultant in Surgery*  
and *Lecturer in Nursing*  
A.B., 1904, M.D., 1906, Michigan
- COE, Robert C., 1956 (1958)  
*Clinical Instructor in Surgery*  
B.S., 1940, Washington; M.D., 1950,  
Harvard
- CORBETT, Donald G., 1960  
*Senior Consultant in Urology*  
M.D., 1927, Pennsylvania
- CRENSHAW, William B., 1955 (1958)  
*Clinical Instructor in Urology*  
B.S., 1944, M.D., 1948, Virginia
- CRYSTAL, Dean K., 1947 (1960)  
*Clinical Assistant Professor of Surgery*  
and *Lecturer in Nursing*  
B.S., 1936, Washington; B.A., 1938,  
Oxford; M.D., 1941, Johns Hopkins
- DIEFFENDORF, Richard O., 1958  
*Consultant in Surgery*  
B.A., 1934, Amherst College; M.D.,  
1938, Columbia
- DUNCAN, John A., 1948  
*Consultant in Surgery*  
B.S., 1931, Washington; M.D., C.M.,  
1933, McGill (Canada)
- DUNCAN, William R., 1948  
*Clinical Instructor in Orthopedic Surgery*  
M.D., C.M., 1938, McGill (Canada)
- EADE, Gilbert G., 1960  
*Clinical Instructor in Surgery*  
B.S., 1948, M.D., 1951, Washington
- EDMARK, K. William, Jr., 1955  
*Clinical Instructor in Surgery*  
M.D., 1948, Colorado
- EDMUNDS, Louis H., 1948  
*Consultant in Orthopedic Surgery*  
B.A., 1922, Hampden Sydney College  
(Virginia); M.D., 1928, Virginia
- EGGERS, Harold E., 1948 (1956)  
*Clinical Instructor in Urology*  
B.S., 1933, M.D., 1937, Nebraska
- EMMEL, Harry E., 1949 (1959)  
*Clinical Instructor in Orthopedics*  
B.A., 1936, Willamette; M.D., 1940,  
Oregon
- FINLEY, John W., 1953 (1960)  
*Clinical Assistant Professor of Surgery*  
B.S., 1940, Idaho; M.D., 1943, Harvard
- FLORER, Robert E., 1948 (1958)  
*Clinical Instructor in Surgery*  
B.S., 1938, Western Kentucky State  
Teachers College; M.D., 1941,  
Louisville
- FORBES, Robert D., 1947 (1948)  
*Senior Consultant in Surgery*  
M.D., C.M., 1903, McGill (Canada)
- GOFF, Willard F., 1956  
*Clinical Instructor in Otolaryngology*  
B.S., 1931, Washington; M.D., 1935,  
Oregon
- GRIFFITH, Charles A., 1952 (1955)  
*Clinical Instructor in Surgery*  
B.A., 1942, M.D., 1945, Harvard
- HALL, Donald T., 1948 (1960)  
*Clinical Assistant Professor of Surgery*  
B.S., 1931, Washington; M.D., 1935,  
Harvard
- HARPER, Harry P., 1952  
*Consultant in Surgery*  
B.S., 1936, M.D., 1937, Minnesota
- HAVEN, Hale A., 1948 (1956)  
*Senior Consultant in Neurosurgery*  
B.S., 1927, M.D., 1928, M.S., 1930,  
Ph.D., 1933, Northwestern
- HENRY, Frank C., 1949 (1960)  
*Clinical Instructor in Surgery*  
A.B., 1934, James Millikin (Illinois);  
M.D., 1940, Illinois

- HERRMANN, Siegfried F., 1948  
*Senior Consultant in Surgery*  
B.S., 1915, Hamline (Minnesota); M.B.,  
M.A., 1919, M.D., 1920, Minnesota
- HILL, Lucius D., 1959  
*Clinical Instructor in Surgery*  
M.D., 1944, Virginia
- HUTCHINSON, J. Carl, 1946 (1948)  
*Clinical Instructor in Surgery*  
B.S., 1927, Idaho; M.D., 1933,  
Northwestern; M.S., 1945, Minnesota
- HUTCHINSON, William B., 1948  
*Consultant in Surgery*  
B.S., 1931, Washington; M.D., 1936,  
McGill (Canada)
- JARVIS, Fred J., 1948  
*Consultant in Surgery*  
B.S., 1928, M.D., 1932, Iowa
- JENSEN, Carl D. F., 1949  
*Consultant in Ophthalmology*  
M.D., 1931, Maryland
- JENSEN, Ole J., 1948 (1956)  
*Clinical Assistant Professor of Urology*  
B.S., 1934, Washington; M.D., C.M.,  
1939, McGill (Canada); D.Med.Sc.,  
1944, Columbia
- KANAR, Edmund A., 1951 (1955)  
*Consultant in Surgery*  
B.S., 1943, M.D., 1945, Wayne
- KENNELLY, John M., 1956 (1958)  
*Clinical Assistant Professor of Urology*  
B.S., 1945, Willamette; M.D., 1948,  
George Washington
- KING, Brien T., 1947  
*Senior Consultant in Surgery*  
M.D., 1911, Vanderbilt
- KIRILUK, Lawrence B., 1949 (1960)  
*Clinical Assistant Professor of Surgery*  
*and Lecturer in Nursing*  
B.M., 1945, M.D., 1946, Minnesota
- KNOPP, Lawrence M., 1954 (1956)  
*Clinical Instructor in Neurosurgery*  
B.S., 1949, Southwestern; M.S., 1949,  
M.D., 1951, Tennessee
- LANE, John D., 1958  
*Consultant in Surgery*  
B.S., 1923, M.D., 1927, Georgia
- LASHER, Earl P., Jr., 1946 (1948)  
*Clinical Instructor in Surgery*  
B.A., 1931, M.D., 1934, Cornell
- LAUGHLIN, Robert C., 1949 (1952)  
*Clinical Assistant Professor of Surgery;*  
*Acting Head of the Division of*  
*Ophthalmology*  
B.A., 1931, Harvard; M.D., 1935,  
Johns Hopkins
- LEAVITT, Darrell G., 1948  
*Consultant in Orthopedic Surgery*  
B.S., 1924, M.D., 1927, Oregon
- LEAVITT, Harry L., 1948  
*Consultant in Orthopedic Surgery*  
B.A., 1927, Oregon; M.D., 1930, Michigan
- LECOCQ, John F., 1948  
*Senior Consultant in Orthopedic Surgery*  
M.D., 1925, A.B., 1926, Oregon
- LEE, Harry P., 1950  
*Consultant in Urology*  
B.A., 1923, George Washington;  
M.D., 1927, Iowa
- LOBB, Allan W., 1955 (1960)  
*Clinical Assistant Professor of Surgery*  
*and Lecturer in Nursing*  
B.S., 1941, Washington; M.D., 1946,  
George Washington
- LOE, Ralph H., 1948 (1955)  
*Consultant in Surgery*  
B.S., 1925, Washington; M.D.,  
1926, Pennsylvania
- LYMAN, John C., 1948  
*Senior Consultant in Surgery*  
B.S., 1909, Whitman College; M.D.,  
1913, Johns Hopkins; D.Sc., 1946,  
Whitman College
- MACMAHON, Charles E., 1948  
*Clinical Instructor in Surgery*  
*and Lecturer in Nursing*  
B.S., 1932, Washington; M.D.,  
1936, Harvard
- MASON, James T., 1950 (1953)  
*Clinical Instructor in Urology*  
M.D., 1940, Michigan
- MCDONALD, James L., 1959  
*Clinical Instructor in Surgery*  
M.D., 1945, St. Louis
- McELMEEL, Eugene F., 1947 (1949)  
*Clinical Instructor in Otolaryngology*  
B.A., 1930, St. Thomas (Minnesota);  
B.S., 1933, M.D., 1936, Minnesota
- McLEMORE, Ira O., 1948 (1952)  
*Senior Consultant in Orthopedic Surgery*  
M.D., 1923, Georgia
- METHENY, David, 1948  
*Consultant in Surgery*  
A.B., 1920, Pennsylvania; M.D., 1923,  
Jefferson
- MILLER, James W., 1948  
*Clinical Instructor in Orthopedic Surgery*  
A.B., 1936, M.D., 1939, Michigan
- MILLS, Waldo O., 1952 (1960)  
*Clinical Instructor in Surgery*  
B.A., 1937, Willamette; M.D., 1940,  
Oregon
- MOWERY, Charles R., 1956  
*Clinical Instructor in Surgery*  
B.S., 1940, M.D., 1943, Chicago
- MULLEN, Bernard P., 1948  
*Consultant in Surgery*  
B.S., 1918, Wisconsin; M.D., 1921,  
Rush Medical College
- MURPHY, Thomas O., 1958  
*Consultant in Surgery*  
B.S., 1943, Willamette; M.D., 1949,  
Johns Hopkins; Ph.D., 1957, Minnesota
- NELSON, Jack N., 1948 (1956)  
*Clinical Assistant Professor of Urology*  
M.D., 1932, College of Medical  
Evangelists
- NELSON, Wallace, 1958 (1960)  
*Clinical Instructor in Neurosurgery*  
M.D., 1952, Washington
- NORGORE, Martin, 1946 (1952)  
*Consultant in Surgery*  
B.S., 1921, Washington; M.D., 1926,  
Oregon
- OHMAN, Albert C., 1948 (1956)  
*Clinical Assistant Professor of Urology*  
M.D., 1932, Colorado
- OLSON, Clarence, 1952 (1960)  
*Clinical Instructor in Surgery*  
B.S., 1928, Chicago; M.D., 1933,  
Rush Medical College
- OLSON, Hilding H., 1950 (1958)  
*Clinical Associate Professor of Surgery*  
B.S., 1939, Washington; M.D., 1943,  
Oregon
- OSMUN, Paul M., 1949  
*Clinical Instructor in Otolaryngology*  
A.B., 1932, Brown; M.D., C.M., 1938,  
McGill (Canada)
- PALKEN, Morton, 1954 (1958)  
*Clinical Instructor in Urology*  
B.S., 1943, M.D., 1946, Tufts College
- PARKER, Dean, 1948  
*Clinical Instructor in Urology*  
B.S., 1933, M.D., 1939, Iowa

- PAYNE, J. Thomas, 1951 (1955)  
*Consultant in Surgery*  
B.S., 1938, Westminster College;  
M.D., 1942, Vanderbilt
- PHILLIPS, James W., 1949 (1953)  
*Clinical Instructor in Surgery and  
Lecturer in Nursing; Acting Head  
of the Division of Otolaryngology*  
B.S., 1934, M.D., 1938, Stanford
- PILLING, Matthew A., 1952 (1958)  
*Clinical Instructor in Surgery*  
B.S., 1936, Nebraska State Teacher's  
College; M.D., 1941, Nebraska
- PINKHAM, Roland D., 1948 (1960)  
*Clinical Assistant Professor of Surgery*  
B.S., 1934, Washington; M.D., 1939,  
Stanford
- POWELL, Archie C., 1949  
*Clinical Instructor in Otolaryngology*  
B.S., M.D., 1936, Nebraska
- RAMSAY, J. Finlay, 1948  
*Clinical Instructor in Surgery*  
B.S., 1926, Washington; M.D., 1930,  
Oregon
- ROCKWELL, Albert G., Jr., 1953  
*Clinical Instructor in Otolaryngology*  
A.B., 1940, M.D., 1944, Stanford
- ROSSO, Weymar A., 1956 (1958)  
*Clinical Instructor in Urology*  
B.S., 1939, College of Puget Sound;  
M.D., 1943, Louisville
- SACHS, Allan E., 1952  
*Clinical Instructor in Surgery*  
B.S., 1934, Chicago; M.D., 1937, Rush  
Medical College
- SANDERSON, Eric R., 1947 (1960)  
*Clinical Instructor in Surgery*  
B.S., 1923, Minnesota; M.D., 1937,  
Harvard
- SAUVAGE, Lester R., 1959  
*Clinical Instructor in Surgery*  
M.D., 1948, St. Louis
- SCHEINMAN, Louis J., 1953 (1956)  
*Clinical Instructor in Urology*  
B.A., 1942, North Carolina; M.D., 1945,  
Long Island College
- SHERIDAN, Alfred I., 1948 (1960)  
*Clinical Instructor in Surgery*  
B.S., 1938, Washington; M.D., 1943,  
Northwestern
- SPEIR, Edward B., 1948  
*Consultant in Surgery and Lecturer in  
Nursing*  
B.A., 1929, M.D., 1933, Kansas
- STAFFORD, Donald E., 1948  
*Clinical Instructor in Neurosurgery*  
B.A., 1932, Park College (Missouri);  
M.D., 1935, Harvard; M.S., 1941,  
Minnesota
- STELLWAGEN, William J., 1949  
*Consultant in Ophthalmology*  
A.B., 1927, M.D., 1934, M.S., 1940,  
Michigan
- STONE, Caleb S., Jr., 1948  
*Consultant in Surgery*  
B.S., 1922, Washington; M.D., 1926,  
Washington University; M.S., 1934,  
Virginia
- THOMAS, George I., 1955 (1958)  
*Clinical Instructor in Surgery*  
B.A., 1946, California; M.D., 1949,  
Johns Hopkins
- TUELL, Joseph I., 1948  
*Consultant in Orthopedic Surgery*  
B.S., 1929, M.D., 1932, Oregon
- TYTUS, John S., 1960  
*Clinical Instructor in Neurosurgery*  
M.D., 1947, Ohio
- TYVAND, Raymond E., 1948  
*Clinical Instructor in Urology*  
B.A., 1923, B.S., 1926, North Dakota;  
M.D., 1929, Rush Medical College
- WANAMAKER, Frank H., 1949  
*Consultant in Otolaryngology  
and Lecturer in Nursing*  
D.D.S., 1922, M.D., 1929, Northwestern
- WEBER, Julius A., 1949 (1953)  
*Consultant in Otolaryngology*  
B.S., 1923, M.D., 1925, Nebraska
- WHITE, Thomas T., 1953 (1958)  
*Clinical Assistant Professor of Surgery*  
B.S., 1942, Harvard; M.D., 1945,  
New York
- WORGAN, David K., 1950 (1954)  
*Clinical Instructor in Urology*  
B.S., 1934, M.B., 1937, M.D., 1938,  
Northwestern; M.S., 1942, Minnesota
- WYRENS, Rollin G., 1949  
*Clinical Instructor in Urology*  
B.S., 1934, M.B., 1937, M.D., 1938,  
Northwestern; M.S., 1942, Minnesota
- YUNCK, William P., 1948  
*Clinical Instructor in Urology*  
B.S., 1930, B.M., 1934, M.D., 1935,  
Minnesota
- ZECH, Ralph K., 1953 (1957)  
*Clinical Instructor in Surgery*  
B.S., 1947, Seattle University;  
M.D., 1949, Creighton
- ZECH, Raymond L., 1947 (1948)  
*Senior Consultant in Surgery*  
B.S., 1919, M.D., 1920, Northwestern

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**EVALUATION COMMITTEES:** R. J. Blandau, *Chairman*; M. Adams, *Secretary*; Committees for each year of the curriculum composed of all staff members taking part in the teaching of that year and other full-time staff members who are interested.

**EXECUTIVE COMMITTEE:** G. N. Aagaard, *Chairman*; M. Adams, *Secretary*; R. A. Aldrich, E. P. Benditt, H. S. Bennett, R. J. Blandau, J. J. Bonica, R. R. de Alvarez, J. M. Dille, C. A. Evans, M. M. Figley, H. N. Harkins, J. R. Hogness, J. F. Lehmann, H. Neurath, W. E. Reynolds, H. S. Ripley, T. C. Ruch, R. H. Williams. *EX OFFICIO:* D. R. de Mers, L. S. Rambeck, S. M. Standish.

**FACULTY AWARDS COMMITTEE:** R. R. de Alvarez, *Chairman*; H. S. Bennett, R. A. Bruce, H. D. Patton.

**HOSPITAL EXECUTIVE COMMITTEE:** G. N. Aagaard, *Chairman*; M. Adams, *Secretary*; R. A. Aldrich, E. P. Benditt, J. J. Bonica, R. R. de Alvarez, M. M. Figley, H. N. Harkins, M. J. Hickey, J. R. Hogness, J. F. Lehmann, J. E. Orr, H. S. Ripley, M. S. Tschudin, R. H. Williams. *EX OFFICIO:* L. S. Rambeck.

**INTERNSHIP ADVISORY:** P. P. VanArsdel, Jr., *Chairman*; R. S. Evans, D. C. Figge, H. Olson, D. Robertson, T. H. Shepard, J. K. Stevenson. *EX OFFICIO:* R. J. Blandau, J. R. Hogness.

**LABORATORY MATERIALS:** A. A. Ward, *Chairman*; H. C. Douglas, A. M. Scher.

**MEDICAL STAFF ADMINISTRATIVE COMMITTEE:** G. N. Aagaard, *Chairman*; M. Adams, *Secretary*; R. A. Aldrich, E. P. Benditt, J. J. Bonica, R. R. de Alvarez, M. M. Figley, H. N. Harkins, J. R. Hogness, J. F. Lehmann, H. S. Ripley, R. H. Williams, J. I. Ingle, L. S. Rambeck.

**MEDICAL THESIS COMMITTEE:** R. R. de Alvarez, *Chairman*; E. G. Krebs, R. F. Labbe, J. W. Woodbury.

**MICROSCOPE COMMITTEE:** B. S. Henry, *Chairman*; R. E. Priest.

**OBJECTIVES OF MEDICAL EDUCATION:** A. G. Motulsky, *Chairman*; J. Milne, *Secretary*; D. L. Bassett, R. J. Blandau, J. L. Decker, D. C. Figge, E. H. Fischer, W. G. Guntheroth, R. F. Hain, W. Rieke, C. R. Strother, A. L. Towe. *EX OFFICIO:* G. N. Aagaard.

**OCCUPATIONAL THERAPY ADVISORY AND EVALUATION COMMITTEE:** J. F. Lehmann, *Chairman*; S. M. Bowing, G. D. Brunner, D. K. Clawson, R. W. Deisher, F. Plum, J. B. Redford, H. S. Ripley, M. G. Shevlin, A. A. Ward, Jr.

**PHYSICAL THERAPY ADVISORY AND EVALUATION COMMITTEE:** J. F. Lehmann, *Chairman*; G. D. Brunner, D. K. Clawson, R. K. Cutler, J. A. McMillan, F. Plum, J. B. Redford, A. A. Ward, Jr., E. H. Waters.

**POSTGRADUATE MEDICAL EDUCATION:** G. N. Aagaard, *Chairman*; M. Peters, *Secretary*; J. Ansell, R. R. de Alvarez, E. L. Foltz, T. H. Holmes, H. Olson, C. E. Rubin, A. G. Swanson.

**RESEARCH TRAINING GRANT COMMITTEE:** C. W. Bodemer, *Chairman*; M. Adams, *Secretary*; J. L. Decker, T. C. Ruch, P. E. Wilcox. *EX OFFICIO:* R. J. Blandau.

**SCHEDULE COMMITTEE—FIRST, SECOND, THIRD, AND FOURTH YEARS:** R. J. Blandau, *Chairman*; M. Adams, *Secretary*; R. R. de Alvarez. All full-time staff members taking part in the medical school teaching for that year are members.

**SCHOLARSHIP AND GIFT:** R. J. Blandau, *Chairman*; M. Adams, *Secretary*; O. A. Smith, T. H. Shepard, P. P. VanArsdel, Jr., R. S. Weiser.





THE DIVISION OF HEALTH SCIENCES

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# THE DIVISION OF HEALTH SCIENCES

**T**HE DIVISION OF HEALTH SCIENCES of the University of Washington was established in the fall of 1945 to include the Schools of Dentistry, Medicine, and Nursing, the College of Pharmacy, the student Health Service, and the University Hospital. In February, 1945, the legislature of the state of Washington authorized the Board of Regents of the University to establish the Schools of Dentistry and Medicine, which were brought into the Division along with the already existing School of Nursing and College of Pharmacy. The University has offered training in nursing for over twenty-five years, and since 1931 the School of Nursing has had an integrated academic and hospital course leading to bachelor's and advanced degrees. The College of Pharmacy was founded in 1894, established a four-year course leading to a bachelor's degree in 1904 and a five-year course in 1957, and now offers both bachelor's and advanced degrees. (The nursing program is described in the *School of Nursing Bulletin*, the pharmacy program in the *College of Pharmacy Bulletin*, and the dentistry program in the *School of Dentistry Bulletin*.)

Each part of the Division of Health Sciences functions as an autonomous unit. The Division coordinates development, research, and teaching activities to strengthen and reinforce the work of each unit. For example, the basic health sciences departments meet the needs of the whole Division and of other sections of the University that are concerned with work in anatomy, biochemistry, microbiology, pathology, pharmacology, physiology and biophysics, and public health and preventive medicine.

## HEALTH SCIENCES PLANT

The Health Sciences Building overlooks the Portage Bay Yacht Basin between Lake Washington and Lake Union. It is near enough to the upper campus to offer great potentialities for cooperative research with other sections of the University, such as the Departments of Anthropology, Biology, Botany, Chemistry, Genetics, Physics, Psychology, and Zoology; the College of Engineering; the College of Fisheries; the School of Social Work; and the Student Health Service (Hall Health Center).

From 1945 to 1949, the Schools of Dentistry, Medicine, and Nursing were in temporary quarters while the Health Sciences Building was planned and built. In

March, 1947, ground was broken and construction begun on the building which now houses administrative units of the three schools, library and auditorium facilities of the entire Division, research and clinical units of the School of Dentistry, the basic health sciences departments, and laboratories and offices of the Departments of Pediatrics and Psychiatry. The first units were occupied in January, 1949, and the rest of the building was occupied in the fall of that year.

The Health Sciences Building was designed to provide adequate space for present teaching and research activities and maximum flexibility for future needs. Because interior walls are not supporting structures, redesign of areas within the building can be readily accomplished when changing demands make it necessary. The present facilities represent an investment of more than \$20,000,000 in construction and equipment.

The second unit of the new University Hospital was completed in the spring of 1959 and the first patients were admitted May 4, 1959. This 320-bed unit includes the inpatient and outpatient facilities of the hospital, the hospital laboratories, X-ray facilities, the emergency department, a large new physical medicine and rehabilitation unit, the premature nursery, etc. This second unit is contiguous with the first unit of the hospital, which was completed in 1954 and which houses the teaching and research areas of the five clinical departments of the School of Medicine.

In addition, the Samuels Research Wing was completed in April of 1960. This wing houses additional laboratories of both the clinical and the basic health sciences departments. Completion of these closely integrated units provides the University with one of the finest plants in the United States.

The Health Sciences Library, which serves the Schools of Medicine, Dentistry, and Nursing, and is used in much research work done in other sections of the University, has about 85,000 carefully selected volumes (with stack space for 40,000 more) and subscribes to more than 950 periodicals. All books and periodicals are on open shelves and are easily accessible. Library facilities include ten glass-paneled and soundproofed reading, study, and conference rooms, as well as adequate space for microfilm and microcard readers and special study groups. The University Library also is used by health sciences students; the interlibrary loan service is particularly valuable since it makes all the medical resources of the country available for research.

## HOSPITAL AFFILIATIONS

The clinical teaching programs of the Schools of Medicine, Dentistry, and Nursing are conducted not only in the University Hospital but also in hospitals affiliated with the Division of Health Sciences. Many aspects of the clinical teaching program in Medicine are centered at the King County Hospital, which has a bed capacity of 480 to 535 in the Harborview Division and 240 in the Chronic Disease and Convalescent Division. Recently, full-time heads of the clinical departments of medicine and surgery, with full-time faculty status, have been appointed at the King County Hospital. Offices, laboratories, and classrooms at this hospital accommodate many of the activities of the clinical departments. The United States Veterans Administration Hospital, in Seattle, which has a bed capacity of approximately 320, is closely integrated with other teaching facilities of the Division of Health Sciences. The Veterans Administration operates this hospital as a "Dean's Committee Hospital," with the cooperation of Seattle physicians and the health sciences faculty. The Children's Orthopedic Hospital, the United States Public Health Service Hospital, and Firland Sanatorium also are affiliated with the Division. Children's Orthopedic Hospital has a bed capacity of 200, with excellent facilities in all branches of pediatrics. The U.S.P.H.S. Hospital has a capacity of 343 to 500; it is a well organized and efficiently staffed institution to which some medical students are assigned for their clerkships. Firland Sanatorium, with a capacity of 1,086, offers unusually fine opportunities for study and treatment of tuberculosis. The University of Washington Child Health Center,

located in the University Hospital, provides opportunity for medical students to study the phenomena of normal growth and development of infants and children. The Center is sponsored jointly by the Departments of Pediatrics, Public Health and Preventive Medicine, and Psychiatry.

The state mental hospitals are affiliated in the elective externship training program for fourth-year medical students. Western State Hospital, at Fort Steilacoom, has a bed capacity of 3,007; Eastern State Hospital, at Medical Lake, 2,361; and Northern State Hospital, at Sedro Woolley, 2,273.

Additional hospital affiliations for use in both undergraduate and graduate training programs may be developed throughout the state in the future. The School of Medicine stresses the importance of a solid foundation in general medicine in planning its program of affiliations with qualified hospitals. The ultimate goal of the Division of Health Sciences is a continuous educational program for undergraduate and graduate training in all of its professional schools.

## KOREAN VETERANS

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. If the veteran has any questions regarding application for a certificate, he should consult the Veterans Division, Safety Division Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

### KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented, along with his Program of Studies, to the Veterans Division, Safety Division Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

There are restrictions for veterans returning to training following an interruption in excess of twelve months. Korean veterans should consult with the Veterans Division, Safety Division Building, or the nearest Veterans Administration office to see if they are eligible for further benefits.

### TRAINING ALLOWANCE

The rate of training allowance is on a full-time basis for medical students pursuing the regular prescribed medical curriculum. If further information is desired consult the Veterans Division, Safety Division Building.

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

## DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

## CHILDREN OF DECEASED VETERANS

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, Safety Division Building, on the date of registration.

## WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 42).

## PART-TIME EMPLOYMENT

The demands upon the time of students in the medical and dental courses make it inadvisable for them to undertake any kind of part-time work during the school year.

## HOUSING

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time subfaculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

## MEDICAL EXAMINATION

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the Student Health Service a form containing

his health history and a report of a physical examination by a physician. The form will be sent to new students by the Office of Admissions, and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the Student Health Service (Hall Health Center) without charge.

With the exception of Canadian students, who will follow the above instructions, foreign students must take the required physical examination at the Student Health Service when they arrive on the campus.

### **ASSOCIATED STUDENTS**

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.



THE SCHOOL OF MEDICINE

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## THE SCHOOL OF MEDICINE

**T**HE SCHOOL OF MEDICINE offers a four-year program of courses leading to the degree of Doctor of Medicine (M.D.), programs leading to the Master of Science and Doctor of Philosophy degrees for students in the Graduate School, programs leading to Bachelor of Science degrees in Physical Therapy and in Occupational Therapy and Rehabilitation, and courses for practicing physicians. The four-year curriculum for an M.D. degree includes studies in three main areas: Basic Health Sciences, Conjoint Courses, and Clinical Sciences. In the Basic Health Sciences, the Departments of Anatomy, Biochemistry, Genetics, Microbiology, Pathology, Pharmacology, Physiology and Biophysics, and Public Health and Preventive Medicine offer courses for medical, dental, nursing, and pharmacy students and for students in other University curricula. Conjoint Courses, sponsored jointly by various departments, are designed to integrate teaching in different medical fields. In the Clinical Sciences, the Departments of Anesthesiology, Medicine, Obstetrics and Gynecology, Pediatrics, Physical Medicine and Rehabilitation, Psychiatry, Radiology, and Surgery provide clinical study in the fields of medical specialization and in general medical practice.

The main purpose of the School of Medicine is to provide a solid foundation for the student's future development. The student must learn fundamental principles which are significant to the entire body of medical knowledge. He must, if he has not already done so, acquire habits of reasoning and critical judgment of evidence and experience in order that he may use the fundamental principles wisely in solving problems of health and disease. The educational program is also designed to inculcate on the student sound habits of self-education and the mastery of certain basic clinical and social skills. Every effort is made to develop sound attitudes regarding the people whom the student will serve and to instill a thorough understanding of professional and ethical principles. The four-year education program is planned to achieve these objectives.

The School of Medicine is approved by the Council on Medical Education and Hospitals of the American Medical Association and by the Association of American Medical Colleges. It is a participating member of the Western Interstate Commission for Higher Education.



## ADMISSION

The School of Medicine seeks to begin the preparation of the individual for service in many fields of endeavor from the practice of medicine to the complex problems of public health in a modern world; from the study of human emotion to research in the chemical processes of life itself. Diversified professional opportunities unequaled by any other profession require persons whose ultimate goals may be the practice of medicine, teaching, or research in all of the basic health sciences or clinical areas of medicine, public health, radiation biology, or hospital administration, to mention only a few. Individuals with a wide variety of backgrounds can find both challenge and satisfaction in the field of medicine.

The faculty of the School of Medicine believes that the appropriate level of scholarly achievement and preparation for medicine can best be developed in a liberal arts program with the emphasis on a major area of interest selected by the student in any field sufficiently demanding in scholastic discipline. A "pre-med course" with no further aim than admission to medical school is not recommended. The faculty believes that competence for the study of medicine can best be demonstrated by developing a depth of understanding in a major field. Therefore, a degree program of four years' duration is preferred. In exceptional circumstances, consideration will be given to applicants who may qualify at the end of three years of college work.

Before admission each applicant must have completed the minimum requirements listed below and must have demonstrated his proficiency in these subjects by obtaining a grade-point average of 2.50 or better. (Calculation of the grade-point average is made by multiplying the grade point received in a course (A=4, B=3, C=2, D=1) by the number of credits earned in the course, totaling these values, and dividing by the total number of credits earned.)

	QUARTER CREDITS	SEMESTER CREDITS
Biology .....	12	8
Chemistry .....	18	12
Physics .....	12	8

In addition, proficiency in English and basic mathematics is expected of every applicant. Applicants from the University of Washington must have satisfied lower-division military training and physical and health education requirements.

In recognition of the diverse opportunities afforded the graduate of medicine, the specified requirements are purposely kept to a minimum. In this manner each student has the opportunity to pursue, as his major field of study, any area of special interest to him, be it in the physical sciences, biological sciences, or humanities, and still acquire the intellectual skills necessary to the regular medical curriculum. In general, college courses which constitute part of the medical curriculum are not encouraged. Throughout the medical program, elective time as well as time for research and theses affords the student an opportunity to apply the knowledge and concepts acquired in his major field to the appropriate areas of medicine.

## APPLICATION PROCEDURE

Applications and all credentials should be sent to the Committee on Admissions. Because the Committee begins examining applications a year ahead of the time of entrance, *early application is advisable*. The final date on which applications for entrance in Autumn Quarter may be submitted is *January 1*. An application fee of \$5.00 is required of all applicants who are not residents of the state of Washington. On or before that date, each applicant must submit the following:

1. Formal application for admission on the form furnished by the School of Medicine.
2. Official transcript of previous college record (sent directly from the registrars of the institutions where preprofessional training was taken to the Committee

on Admissions) showing the complete college record, with grades and credits. Each applicant is requested to include a list of the courses he is taking and plans to take to complete his preprofessional study before entering the School of Medicine. Canadian applicants must include a copy of their University Entrance Certificate.

3. Names, addresses, and departments, of three science and two nonscience instructors to whom recommendation forms may be sent. (University of Washington premedical students should consult the Premedical Adviser about recommendations.)
4. The score received in the Medical College Admission Test. Arrangements for this test may be made with the premedical adviser at the institution where premedical training is being taken. Medical aptitude tests are customarily given in May and November of each year. When the student takes the test, he should request that his scores be sent directly to the Committee on Admissions. Further information on this test may be obtained by writing to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.
5. Three copies of a short autobiography.
6. Whenever possible, the applicant who has not previously satisfied his obligations to Selective Service is requested to forward to the Admissions Committee his score on the Selective Service Qualifications Test.

Primary consideration is given to applications from residents of Washington and from students certified by the Western Interstate Commission for Higher Education. A certain number of out-of-state applicants are accepted each year, with preference to qualified applicants from neighboring states and territories where no medical school exists. Applicants from states outside the Pacific Northwest are accepted only when they present exceptional academic records.

It is the policy of this school not to accept for admission students who have failed in other medical schools or who have been dismissed from them.

All applicants are given consideration on the same basis regardless of race, color, sex, religion, or parental occupation.

Students taking their premedical undergraduate work at the University of Washington customarily enroll in the College of Arts and Sciences and consult Dean Walter Riley, Premedical Adviser, 121 Miller Hall, for help in planning their programs.

Information concerning admission to the curriculum in physical therapy and in occupational therapy may be found under the Department of Physical Medicine and Rehabilitation, page 75.

## TRANSFER STUDENTS

Transfer students are accepted into the second- and third-year classes only when vacancies occur, and only if they are in good standing at the school in which they are already enrolled. When vacancies do occur, applicants from two-year medical schools are given preference. Transfer students are not accepted in the fourth year. Applicants for entrance to the second- or third-year class must submit the following:

1. Formal application for admission on the form furnished by the School of Medicine.
2. Official transcripts of premedical and medical training (sent directly from the registrars of the institutions where the training was taken to the Committee on Admissions).
3. The score received in the Medical College Admission Test.
4. A letter from the dean of the medical school indicating the student's status and relative standing in his class.
5. Three copies of a short autobiography.

Students applying for transfer from nonaccredited medical schools, in addition to the usual application, are required to pass qualifying examinations in the basic health sciences, i.e., anatomy, biochemistry, microbiology, pathology, pharmacol-

ogy, and physiology. These qualifying examinations may be offered by the departments involved at a regularly scheduled time once a year. The candidate may offer successful completion of Part I examinations of the National Board of Medical Examiners in lieu of the departmental examinations. Permission to take these examinations is obtained through the School of Medicine. Accredited schools are listed in the educational number of the *Journal of the American Medical Association*.

## PROCESSING OF APPLICATIONS

**EVALUATION OF CREDENTIALS.** The Committee on Admissions examines each applicant's credentials and bases its decisions on the objective evaluation of these factors: preprofessional training, evidences of scholarship, place of residence, Medical College Admission Test rating, and personal evaluation of the student by premedical instructors in their letters of recommendation.

**PERSONAL INTERVIEW.** If an examination of the credentials shows them to be satisfactory, the applicant may be requested to appear for a personal interview by the Committee on Admissions. At the time of interview the applicant is requested to submit two unmounted photographs (2 by 3 inches). A personal interview will not be requested if the credentials are not satisfactory. Applicants who are in school a considerable distance from Seattle may request that their interviews be held at some more convenient location; out-of-town interviews are arranged by the Committee.

**NOTIFICATION OF ACCEPTANCE OR REJECTION.** All candidates are given written notification of the acceptance or rejection of their applications as soon as possible after the Committee on Admissions has reached a decision. Acknowledgment of notification of acceptance should be made in writing by the successful applicant within a reasonable length of time.

**ACCEPTANCE OF APPOINTMENT.** Within two weeks after a candidate has been notified that he is accepted in the School of Medicine, the Comptroller of the University will request a deposit of \$50.00. This deposit is applied to the first quarter's tuition. It is refundable only in case of withdrawal for bona fide illness, failure to complete basic premedical requirements, induction into military service, or failure to pass the physical examination required of all students at the time of the first registration. At no time, however, will the successful applicant be required to confirm his acceptance and make his deposit prior to January 15 of the year in which he plans to be matriculated.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. *A table of charges for medical, physical therapy, and occupational therapy students is on page 43.* The University reserves the right to change any of its fees without notice.

### *Resident students*

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

### *Nonresident students*

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

### *Veterans of World War I or II*

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one half the nonresident tuition. This exemption is not granted to Summer Quarter students.

**TUITION AND FEES PER QUARTER FOR STUDENTS OF MEDICINE, PHYSICAL THERAPY,  
AND OCCUPATIONAL THERAPY**

TYPE OF REGISTRATION	TUITION FEE	INCIDENTAL FEE	ASUW FEE AUTUMN, WINTER AND SPRING QUARTERS	TOTAL FEES AUTUMN, WINTER AND SPRING QUARTERS
<i>Medicine</i>				
Resident	\$100.00	\$37.50	\$8.50	\$146.00
Nonresident	165.00	82.50	8.50	256.00
<i>Physical Therapy<sup>1</sup></i>				
Resident	65.00	37.50	8.50	111.00
Nonresident	125.00	82.50	8.50	216.00
<i>Occupational Therapy<sup>1</sup></i>				
Resident—Full-time	65.00	37.50	8.50	111.00
Nonresident—Full-time	125.00	82.50	8.50	216.00
Resident—Part-time <sup>2</sup>	65.00	15.00	*	80.00
Nonresident—Part-Time <sup>2</sup>	125.00	50.00	*	175.00

\* Optional

<sup>1</sup> Summer Quarter (resident and nonresident) Fees, \$82.50; ASUW, \$2.50 = \$85.00

<sup>2</sup> Clinical Training

**SPECIAL FEES**

A fee of \$5.00 is charged for a late medical examination; and \$1.00 for a late X ray. The fee for removal of an Incomplete is \$2.00.

**REGISTRATION SERVICE FEE.** A fee of \$15.00 is assessed those students who are eligible to participate in *Advance Registration* and fail to do so or who, after the established application deadline, are granted Appointments or Permits to register by *In-Person Registration* by action of the Registration Appeal Board.

**LATE REGISTRATION FEE.** A fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters by action of the Registration Appeal Board.

**CHANGE OF REGISTRATION FEE.** A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University.

**GRADE SHEET FEE.** One grade sheet is furnished each quarter without charge; 50 cents is charged for each additional copy.

**TRANSCRIPT FEE.** One transcript is furnished without charge; \$1.00, payable in advance, for each additional copy.

**ELECTROLYTE KIT RENTAL FEE.** This fee is \$5.00 per quarter of use.

**ATHLETIC ADMISSION TICKET.** This fee (optional for ASUW members) is: Autumn, Winter and Spring Quarters, \$6.50; Winter and Spring Quarters, \$3.50; Spring Quarter, \$3.50.

**GRADUATION FEE.** The graduation fee is \$10.00.

**REFUND OF FEES**

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

## ESTIMATE OF YEARLY EXPENSES

### *Tuition, Incidental, and ASUW Fees*

Full-time resident students \$438.00

Full-time nonresident students 768.00

*Athletic Admission Ticket (optional)* 6.50

*Health and Accident Insurance (optional)* 16.50

*Microscope Purchase* 250.00-350.00

All first-year medical students must buy microscopes so they may be used in the first week of Autumn Quarter. A scientific supply house in Seattle furnishes the kind of microscope students should use. Students who plan to buy second-hand, foreign-made, or other nonrecommended instruments should make sure they meet the standards of the Medical School Committee on Microscopes. The minimum requirements for a suitable microscope are a monocular type with 3 achromatic objectives of approximately the following magnifications: X10, X45 and X95; an X10 ocular; and an uncalibrated mechanical stage and carrying case.

*Books and Supplies* 100.00-150.00

### *Transportation*

Beginning in the Winter Quarter of the second year of medicine, students must make arrangements for transportation to and from various hospitals in Seattle where they receive part of their training.

### *Board and Room*

Double room and meals in Men's Residence Halls 675.00

Room and meals in Women's Residence Halls 615.00-720.00

Room and meals in fraternity or sorority house  
(Including dues and social fees) 670.00-760.00

Does not include initial costs of joining; this information may be obtained from the Interfraternity Council or Panhellenic Council.

*Personal Expenses* 300.00

## FINANCIAL AID TO STUDENTS

The ever increasing demands of medical education in terms of the effort and lengthy training required to master the accumulated knowledge necessary to the practice of medicine has resulted in costs which seem prohibitive to many prospective students.

Solutions to the problem of the burdensome cost of medical education is a matter of growing public concern and the subject of extensive current study by various public and private agencies. It is generally agreed that an increase in financial aid to medical students may be necessary to recruit and train capable physicians in sufficient numbers to meet the medical needs of an expanding population.

The University of Washington School of Medicine has received substantial private and public endowments which provide financial aid to deserving medical students in the nature of awards and prizes, fellowships, scholarships, grants-in-aid, and loans. See pages 45 and 52-54.

The recipients of these various forms of financial aid are selected by the Scholarship Committee of the School of Medicine with the assistance and approval of appropriate administrative officials.

**FELLOWSHIPS.** A fellowship is an academic award of honor, based upon scholastic achievement, designed to aid and encourage the student in the furtherance of his studies or research. In cases in which the fellow collaborates with a faculty member the fellow is expected to take the lead as principal investigator. The fellow is allowed freedom of publication of his results as a condition of the grant. He is

expected to devote his full time and energy to his project and may not be otherwise gainfully employed during the period of his fellowship. A fellowship may be cancelled at any time by the Scholarship Committee. Ordinarily, the fellowships cover the three months of the summer. Under certain circumstances investigative work may be continued throughout the year at a reduced stipend. See page 53.

**SCHOLARSHIPS.** A scholarship is an academic award based upon both scholarship and need and is designed to aid and encourage the student in the furtherance of his studies or research. It carries the same rules of tenure as a fellowship except that the recipient can engage in remunerative employment upon written consent of the Scholarship Committee. A scholarship may be cancelled at any time by the Scholarship Committee. See page 52.

**GRANTS-IN-AID.** Grants-in-aid are made to students in good standing on the basis of need only. The recipient may engage in remunerative employment only with the written consent of the Scholarship Committee. The student must be willing to submit a realistic analysis of his complete financial situation in detail.

**ASSISTANTSHIPS.** A number of positions with individual faculty members are usually available to medical students during the summer months. Most of these positions involve laboratory work on research projects.

**LOANS.** Loans are made on the same basis as grants-in-aid. Amounts up to \$6,000 or more in case of special need may be loaned to any one student over the four years of his training. The loans mature six years after graduation. They are interest free until completion of the internship and thereafter bear 2 per cent interest to maturity. Financial aid is made available through the funds listed below.

**BURDON-IRWIN-JOHNSON LOAN FUND.** The women physicians of Seattle established a loan fund in honor of Dr. Minnie Burdon, Dr. Lillian Irwin, and Dr. Hannah Johnson to aid women medical students.

**CHI OMEGA LOAN FUND.** The Seattle Chi Omega Alumnae established a loan fund in 1956 to aid deserving medical students.

**DEAN OF MEDICINE STUDENT LOAN FUND.** This fund is composed of small bequests made to the School of Medicine to aid medical students.

**W. K. KELLOGG FOUNDATION LOAN FUND.** Through the generosity of the W. K. Kellogg Foundation a loan fund was established in 1958 for medical students.

**ALICE C. STOTLAR LOAN FUND.** The fund was established in March, 1951, to aid deserving medical students in obtaining their education.

**DR. EVERETT O. JONES SCHOLARSHIP AND LOAN FUND.** Under the terms of a trust created by the late Dr. Everett O. Jones, pioneer Seattle surgeon, the annual net income from the estate is turned over to the University to provide scholarships and loans to worthy students in the School of Medicine.

**EDWARD L. TURNER SCHOLARSHIP AND LOAN FUND.** This fund was established by faculty, students, and friends in 1953 in honor of Dr. Edward L. Turner, first Dean of the University of Washington School of Medicine, to aid medical students.

**WASHINGTON ACADEMY OF GENERAL PRACTICE.** The Washington Academy of General Practice established a loan fund for medical students in 1956.

**CHARLES E. WATTS MEDICAL EDUCATION FUNDS.** The friends of Charles E. Watts, M.D., established a memorial loan fund in his name to be used for loans to residents in training in internal medicine.

#### APPLICATION PROCEDURES

Unless specified otherwise, application for fellowships, scholarships, and grants-in-aid should be directed to the Office of the Dean of Medicine before March 15 of each year. Application forms and related information may be obtained from the Office of the Dean of Medicine upon request. See page 52 for available scholarships and fellowships.

In case of emergency or special need an application for grant-in-aid may be made at any time.

Application for a loan may be made at any time to the Office of the Dean.  
Application for assistantships should be made to faculty members.

#### **PAYMENTS**

All payment of monies concerned with endowment awards, prizes, stipends, grants-in-aid, and loans are made by the University Comptroller.

#### **STUDENT ACHIEVEMENT AND PROMOTION**

Student achievement in each course is reported by the Dean's Office to the Registrar as *P* (Pass), *A* (Excellent), *B* (Good), *C* (Average), *D* (Poor), or *E* (Failure).

*D* signifies that the work is of passing grade but poor. Warnings are sent to students who receive *D* in any quarter.

*E* signifies that the work is of failing grade. Students who receive an *E* in one major subject may be permitted to take additional work and a re-examination, if permission is granted by the instructor in the course, the Dean, and the Executive Committee. If the additional work and re-examination are satisfactory, the student's grade may be raised from *E* to *D* and promotion may be granted provided that the remainder of the work is satisfactory. If students receive *E* in more than one major subject in one year, they may not make up these deficiencies.

Each department keeps careful records of student work. At the end of each academic year the Executive Committee of the School of Medicine evaluates the accomplishment of the student during that year and determines his fitness for promotion. When general academic achievement is unsatisfactory in any year, the student is subject to dismissal from the School. Even though a student who has been dismissed from the School of Medicine may succeed in passing a medical school course which he has previously failed by taking it as part of his course in another school or college, this is not regarded as evidence that a student's abilities justify readmitting him to Medical School. Students who have been dismissed because of low scholarship can be readmitted only by action of the Executive Committee; those who are readmitted are on probation and must maintain a quality of work consistently above the minimum requirements. The faculty of the School of Medicine does not favor repetition of courses in cases of low scholarship and will not permit a student to repeat a year of work except when illness or some other extenuating circumstance justifies an exception.

#### **CLASS SCHEDULES**

Current schedules for all classes are distributed to medical students at the beginning of each academic year. The 1960-61 schedules may be found on pages 48-51.

#### **FIRST AND SECOND YEARS**

During the first and second years of the medical course, the school year is divided into three quarters of eleven weeks each. These quarters conform to the University calendar. In the first year, the major courses of instruction are anatomy, biochemistry, and physiology and biophysics, with introductory courses in psychiatry. In the second year, the major courses are pathology, microbiology, pharmacology, conjoint clinical medicine, and conjoint laboratory procedures, with a course in psychiatry and an introductory course in public health and preventive medicine.

The second year serves as a bridge between the basic health sciences and the clinical sciences on which the student will concentrate during the third and fourth years. During the latter part of the second year, the student devotes an increasing amount of time to learning the art of history-taking and physical examination. In these studies, the student works closely with people preparing him for the role of physician.

#### **THIRD AND FOURTH YEARS**

During the third and fourth years of the medical school program, a major amount of the student's time is devoted to his clinical clerkships. In the clinical clerkship,

the student has an opportunity to take histories, and to examine patients and follow the progress of their illness. The student is carefully supervised. Instruction is largely on an individual or small group basis. There is decreasing utilization of lectures and large group conferences. During the clinical clerkship, the student has an opportunity to study the health problems of individual patients, to learn to advance his knowledge of these problems through personal study in textbooks and the current medical literature, and to discuss the problems presented by his patients with members of the teaching staff.

In the third year of the course, the school year is divided into four terms of nine weeks each: nine weeks each of medicine and surgery; six weeks of obstetrics and gynecology; four and a half weeks each of pediatrics and psychiatry; and three weeks of neurology-neurosurgery.

During the fourth year of the course, the school year is divided into five terms of seven weeks each: eight weeks of medicine; six weeks of surgery; seven weeks shared by psychiatry and public health and preventive medicine; three and a half weeks each of pediatrics and obstetrics and gynecology; and seven weeks of elective work.

Specialty instruction in such fields as ophthalmology, otolaryngology, radiology, forensic and legal medicine, medical ethics, medical economics, urology, orthopedics, hematology, cardiology, gastro-enterology, dermatology, etc. is given in the regularly assigned class hours.

The Saturday morning schedule of the third and fourth years includes clinical conferences which are assigned to the departments of the School of Medicine. During the year, each department develops some problem of current general interest that enlists the active participation not only of its own departmental staff but also of members of the basic health sciences departments and of the clinical sciences departments. These sessions are open to all interested medical students, staff, and physicians.

#### **ELECTIVE COURSES**

Approximately 25 per cent of the available class hours in each year is left unscheduled in the required curriculum, thus providing students with time in which they may elect work in areas of special interest. In the first and second years, Tuesday and Thursday afternoons are unscheduled throughout the year. In the fourth year, a block of seven weeks is available for required electives. Information concerning elective course offerings is available at the Dean's Office.

#### **GENERAL PRACTICE EXTERNSHIP**

The general practice externship is available as an elective to fourth-year students. Three and one-half or seven weeks may be spent with a general physician engaged actively in practice in the Pacific Northwest area. During this time the student lives in the home of the physician preceptor, accompanies him in his medical work in his office, at the hospital, and on sick calls in the homes of patients. This affords the student first-hand knowledge of the life and work of the family doctor and gives him a type of teaching which he may not get on his clinical clerkships. The student also has an opportunity to see the role which the physician plays as a citizen in his own community.

#### **MEDICAL THESIS PROGRAM**

The medical thesis program of the School of Medicine is voluntary, and participation in it is initiated by the student. Often a student will become especially interested in some particular field in medicine. This interest will lead him to a desire to learn more about the field or to do special work in it. The thesis program is a means of fulfilling his desire. A prize is awarded for the best thesis submitted each year, and certain departments have available prizes for the best thesis written under that department's supervision. The preparation of a satisfactory thesis generally carries with it honors in the department. Further information concerning the thesis program may be obtained from the chairman of the Medical Thesis Committee or from the Dean's Office.



# **FIRST-YEAR SCHEDULE 1960-61**

## **Autumn Quarter**

Hour	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8	Anat. 405-	Anat. 405- Lab.	Anat. 405-	Anat. 405- Lab.	Anat. 404	Unassigned
9	Bioch. 401		Psych. 400			
10	Demonstration		Unassigned			
11	Bioch. 401	Bioch. 401	Bioch. 401	Bioch. 401	Bioch. 401 Conf.	
12	Lunch	Lunch	Lunch	Lunch	Lunch	
1	Anat. 401-	Unassigned	Anat. 401-	Unassigned	Anat. 401-	
2	Anat. 401-		Anat. 401-		Anat. 401-	
3	Lab.		Lab.		Lab.	
4						

## **Winter Quarter**

8	Bioch. 402	Psych. 400	Bioch. 402	Bioch. 402 Conf.	Anat. -402- Anat. -402- Lab.	Anat. -402- Anat. -402- Lab.
9	Anat. -406	Physiol. 401-	Anat. -402-	Physiol. 401-		
10	Anat. -406	Physiol. 401- Conf.	Anat. -402-	Physiol. 401- Conf.		
11	Lab.	Unassigned	Lab.	Anat. -406	Lunch	Lunch
12	Lunch	Lunch	Lunch	Lunch		
1	Bioch. 403 Conf.	Unassigned	Bioch. 403 Conf.	Unassigned	Physiol. 401-	
2	Bioch. 403		Bioch. 403		Physiol. 401-	
3	Lab.		Lab.		Lab.	
4						

## **Spring Quarter**

8	Anat. -403	Conj. 409	Unassigned	Conj. 409	Conj. 409	Unassigned
9	Anat. -403		Physiol. -402			
10	Lab.		Physiol. -402 Conf.			
11		Conj. 409 Lab.	Psychiat. 400	Conj. 409 Lab.	Conj. 409 Lab.	
12	Lunch		Lunch		Physiol. -402 Conf.	
1	Physiol. -402	Unassigned	Anat. -403	Unassigned	Physiol. -402	
2	Physiol. -402		Anat. -403		Physiol. -402	
3	Lab.		Lab.		Lab.	
4						

# SECOND-YEAR SCHEDULE 1960-61

## Autumn Quarter

Hour	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8	Path. 441-	Pharmacol. 442-	Path. 441-	Pharmacol. 442-	Pharmacol. 442-	Micro. 441-
9		Micro. 441-	Path. 441- Lab.	Micro. 441-	Unassigned	Micro. 441- Lab.
10	Path. 441- Lab.	Micro. 441- Lab.		Micro. 441- Lab.		Psychiat. 430
11					Pharmacol. 442-	
12	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1	Path. 441-	Unassigned	Pharmacol. 442-	Unassigned	Path. 441-	
2	Path. 441- Lab.				Path. 441- Lab.	
3						
4						

## Winter Quarter

8	Conj. 446-	Pharmacol. -443	Conj. 426-	Pharmacol. -443	Conj. 426-	Conj. 446-
9	Conj. 446-	Micro. -442	Conj. 426-	Micro. -442	Conj. 426-	Micro. -442
10	Clinical Instruction	Micro. -442 Lab.	Clinical Instruction	Micro. -442 Lab.	Clinical Instruction	Micro. -442 Lab. 1st 5 weeks; Path. -442 Lab. 2nd 5 weeks
11						
12	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1	Path. -442-	Unassigned	Path. -442-	Unassigned	Pharmacol. -443	
2	Path. -442- Lab.		Path. -442- Lab.		Pharmacol. -443 Lab.	
3						
4						

## Spring Quarter

8	Conj. -427	Conj. -427	Conj. -427	Conj. -427	Conj. -447	Path. -443
9	Conj. -427	Conj. -427	Conj. -427	Conj. -427	Conj. -447 Lab.	Path. -443
10	Clinical Instruction	Clinical Instruction	Clinical Instruction	Clinical Instruction		Lab.
11						
12	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1	Micro. 443, 444	Unassigned	Micro. 443, 444	Unassigned	PH & PM 425	
2			Path. -443		Micro. 443, 444	
3	Micro. 443, 444		Path. -443		Micro. 443, 444	
4	Lab.		Lab.		Lab.	

### THIRD-YEAR CLERKSHIP SCHEDULE 1960-61

	Term I			Term II			Term III			Term IV		
Sections	Sept. 20-Nov. 19			Nov. 21-Jan. 28			Jan. 30-Apr. 1			Apr. 3-June 3		
Section A ¼ of class	Medicine Clerkship (Diagnostic Radiology Wed. 3-5)			Surgery Clerkship (Therapeutic Radiology Fri. 3-5)			Obstetrics- Gynecology Clerkship	Pediatrics Clerkship		Psychiatry Clerkship	Neur- ology- Neuro- surgery Clerk- ship	Obstetrics Extern- ship
Section B ¼ of class	Surgery Clerkship (Therapeutic Radiology Fri. 3-5)			Obstetrics- Gynecology Clerkship	Pediatrics Clerkship		Psychiatry Clerkship	Neur- ology- Neuro- surgery Clerk- ship	Obstetrics Extern- ship	Medicine Clerkship (Diagnostic Radiology Wed. 3-5)		
Section C ¼ of class	Obstetrics- Gynecology Clerkship	Pediatrics Clerkship		Psychiatry Clerkship	Neur- ology- Neuro- surgery Clerk- ship	Obstetrics Extern- ship	Medicine Clerkship (Diagnostic Radiology Wed. 3-5)			Surgery Clerkship (Therapeutic Radiology Fri. 3-5)		
Section D ¼ of class	Psychiatry Clerkship	Neur- ology- Neuro- surgery Clerk- ship	Obstetrics Extern- ship	Medicine Clerkship (Diagnostic Radiology Wed. 3-5)			Surgery Clerkship (Therapeutic Radiology Fri. 3-5)			Obstetrics- Gynecology Clerkship	Pediatrics Clerkship	

### THIRD-YEAR LECTURE SCHEDULE 1960-61

Hour	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8	Clerkship	Clerkship	Clerkship	Clerkship	Clerkship	Surg. 465 (22 lectures)
9						Med. 465 (11 lectures)
10						Med. 465 (33 lectures)
11						Conjoint Clinical Con- ferences (31 Conf.)
12						
1						
2		Ob. -Gyn. (36 lectures)				
3		Surg. 465 (24 lectures)				
4		Ped. 465 (18 lectures) Psychiat. 465 (18 lectures)				

# FOURTH-YEAR CLERKSHIP SCHEDULE 1960-61

	Term I		Term II		Term III		Term IV		Term V	
Sections	Sept. 20 - Nov. 5		Nov. 7 - Jan. 7		Jan. 9 - Feb. 25		Mar. 27 - Apr. 15		Apr. 17 - June 3	
Section A 1/5 of class	Medicine Clerkship		Surgery Clerkship		Obstetrics- Gynecology Clerkship	Pediatrics Clerkship	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives	
Section B 1/5 of class	Surgery Clerkship		Obstetrics- Gynecology Clerkship	Pediatrics Clerkship	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives		Medicine Clerkship	
Section C 1/5 of class	Obstetrics- Gynecology Clerkship	Pediatrics Clerkship	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives		Medicine Clerkship		Surgery Clerkship	
Section D 1/5 of class	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives		Medicine Clerkship		Surgery Clerkship		Obstetrics- Gynecology Clerkship	Pediatrics Clerkship
Section E 1/5 of class	Electives		Medicine Clerkship		Surgery Clerkship		Obstetrics- Gynecology Clerkship	Pediatrics Clerkship	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship	

Medical Practice 483—Hospital Extension Service. Each student is responsible for an assigned number of home care cases throughout the year under the guidance of an instructor.

## FOURTH-YEAR LECTURE SCHEDULE 1960-61

Hour	SATURDAY	
8	Medical Ethics and Economics	Sept. 24-Nov. 19 (9 lectures)
	Surgery 480	Dec. 3-June 3 (24 lectures)
9	Medicine 480	Sept. 24-Mar. 25 (24 lectures)
	Medical Ethics and Economics	Apr. 1-June 3 (9 lectures)
10-12	Conjoint Clinical Conference	Sept. 27-May 16 (33 conferences)

## HONORS

### MEDICAL STUDENTS HONORS DAY

Medical Students Honors Day is held late in the spring of each year under the auspices of the Scholarship Committee. It provides an opportunity for selected students to present formally the results of their investigations to the students and faculty of the School of Medicine. Various scholarships, awards, and research fellowships are granted on this occasion.

### ALPHA OMEGA ALPHA

A charter as Alpha of Washington was granted to the School of Medicine in 1950 by Alpha Omega Alpha, the honorary medical fraternity. Members are elected by the membership of Alpha Omega Alpha on the basis of high scholarship and good moral character.

### AWARDS AND PRIZES

**NORMAN W. CLEIN THESIS AWARD.** An award of \$100 is given for the best thesis written by a graduating senior as determined by the Thesis Committee.

**DR. EVERETT O. JONES SCHOLARSHIP PRIZES.** Prizes of \$100 are awarded students who have demonstrated outstanding scholarship each year.

**O'DONNELL AWARD.** An annual award of \$100 was established by Margaret H. O'Donnell in 1952 to be awarded by the Department of Psychiatry to the senior medical student who has done outstanding academic and creative work in psychiatry.

**FREDERICK C. MOLL PRIZE IN PEDIATRICS.** An annual award of \$100 was established by Margaret H. O'Donnell in 1957 to be awarded to the senior medical student who has done outstanding work in the field of pediatrics.

**NU SIGMA NU BASIC MEDICAL RESEARCH AWARD.** An award of \$100 is given annually by the Beta Chapter of Nu Sigma Nu Medical Fraternity to an underclassman, preferably a second year student, who, in the opinion of the Scholarship Committee, demonstrates superior ability in basic medical research.

**PHI DELTA EPSILON AWARD.** An annual award of \$100 to the outstanding graduating senior, selected by the Scholarship Committee, was established by the Phi Delta Epsilon Graduate Club in 1954.

**ROCHE AWARD.** An annual award of a gold Omega watch is given by the Hoffman-LaRoche Company to the sophomore who has shown outstanding scholarship, character, personality, and seriousness of purpose during his first two years in the study of medicine.

**SPASTIC AID COUNCIL AWARD.** An annual award of \$25 was established by the Spastic Aid Council to be given to the student writing the best paper on basic neurological research to cerebral palsy.

### SCHOLARSHIPS

Stipends of the various scholarships listed below range from full tuition and fees (\$438) to larger amounts sufficient to cover the entire financial needs of the student through four years of medical school. (See page 45 for method of application.)

A number of four-year scholarships have been established for the purposes of meeting the full needs of especially gifted and promising students who would otherwise be unable to finance their medical education. Continuance of the scholarship is contingent upon satisfactory scholastic standing.

**JOHN BYRNE MEMORIAL SCHOLARSHIP.** An annual scholarship for a medical student of tuition costs was established in 1949 by Mr. and Mrs. C. J. Byrne in memory of John Byrne.

**ANNA C. DUNLAP SCHOLARSHIP FUND.** In order to provide financial assistance to medical students interested in the fields of cancer, diseases of the heart, chil-

dren's diseases, and nervous diseases, the late Anna C. Dunlap established a trust fund, the income of which is to be used for scholarships for medical students. Recipients of the scholarships must have completed at least the first year in medical school and have demonstrated personal and scholastic worthiness. They must be industrious, and give promise of useful citizenship. Special consideration will be given to students who are self-supporting.

**GROUP HEALTH COOPERATIVE SCHOLARSHIP.** An annual scholarship to cover tuition and fees for a worthy medical student whose residence is in the state of Washington is offered through the generosity of the Group Health Cooperative of Puget Sound.

**KING COUNTY MEDICAL SCHOLARSHIP.** An annual scholarship for a worthy medical student with financial need was established by the King County Medical Society.

**DR. EVERETT O. JONES SCHOLARSHIP AND LOAN FUND.** Under the terms of a trust created by the late Dr. Everett O. Jones, pioneer Seattle surgeon, the annual net income from the estate is given to the University of Washington to provide scholarships and loans to worthy students in the School of Medicine.

**HELEN M. RUSSELL FUND.** This fund for medical students was established in 1954 through a bequest of the estate of Helen M. Russell.

**SPOKANE EXCLUSIVE PRESCRIPTION PHARMACIES MEDICAL SCHOLARSHIP.** An annual scholarship was established by four Spokane pharmacies (Cowen's Pharmacy, Hart and Dilatush, Inc., Miller and Felt Pharmacy, and Whitlock's Pharmacy) to be given to a deserving medical student, preferably from the Spokane area.

**EDWARD L. TURNER SCHOLARSHIP AND LOAN FUND.** This fund for medical students was established by faculty, students, and friends in 1953 in honor of the late Dr. Edward L. Turner, first Dean of the University of Washington School of Medicine.

**JOHN AND MARY WILSON FUND.** Under terms of a trust created by the late Mary Wilson, the net income from the fund is used for scholarships for medical students, preferably in the third and fourth years of training. Awards are made on the basis of character and scholarship.

**NATIONAL FOUNDATION SCHOLARSHIPS.** Scholarships for students in the health fields are available through the National Foundation, 800 Second Avenue, New York 17, New York. Application should be made directly.

#### **FELLOWSHIPS FOR THE SUMMER MONTHS**

Each year a considerable number of research fellowships carrying stipends of \$500 to \$1,050 are available to provide qualified medical students with the opportunity to engage in investigative work during the summer recess. The smaller stipends are frequently supplemented by funds from other sources. In special cases the fellowship may carry on through the year on a reduced stipend.

The available fellowships and their sources are listed below.

##### **From Individuals**

**WILLIAM B. BRADSHAW TRUST FUND.** This fund was established in 1955 to provide an annual fellowship award for research in epilepsy or other disorders of the central nervous system. One fellowship is awarded each year.

**JULIA H. LANE FOUNDATION.** In 1955, a living trust for medical students of the University of Washington was established to provide funds for summer research fellowships, student loans, counseling service for premedical students, and research in the various medical fields such as rehabilitation, diseases of ageing, etc. Two or three fellowships are awarded each year.

##### **From National Institutes of Health**

Thirteen Anatomy Training Fellowships: field restricted to structural studies.  
Three Cancer Research Training Fellowships: field restricted to immunology.  
Three Cardiovascular Training Fellowships: field restricted to cardiovascular in-

vestigations. One Clinical Neurological Training Fellowship: field restricted to neurological studies. Eight Medical Student Part-time Research Fellowships: field unrestricted. Six Psychiatry Trainees Mental Health Division: field restricted to psychiatry. Ten Psychiatry Research Training Stipends: field unrestricted.

**From Foundations**

One Allergy Foundation of America Fellowship: field restricted to allergy; applicants must have completed second year of medicine. One National Foundation for Research Fellowship: field restricted to genetics and embryology. Ten National Science Foundation Fellowships: field restricted to basic sciences.

**From Pharmaceutical Houses**

Two Lederle Medical Student Research Fellowships: field restricted to basic sciences. Two Smith, Kline, and French Fellowships: field restricted to psychiatry.

**From Industry**

One Tobacco Industry Research Fellowship: field unrestricted.

**FELLOWSHIPS FOR A FULL YEAR**

A few suitably qualified students may wish to interrupt their formal medical education to gain experience in research. Such students are often gifted in research and later choose a research career.

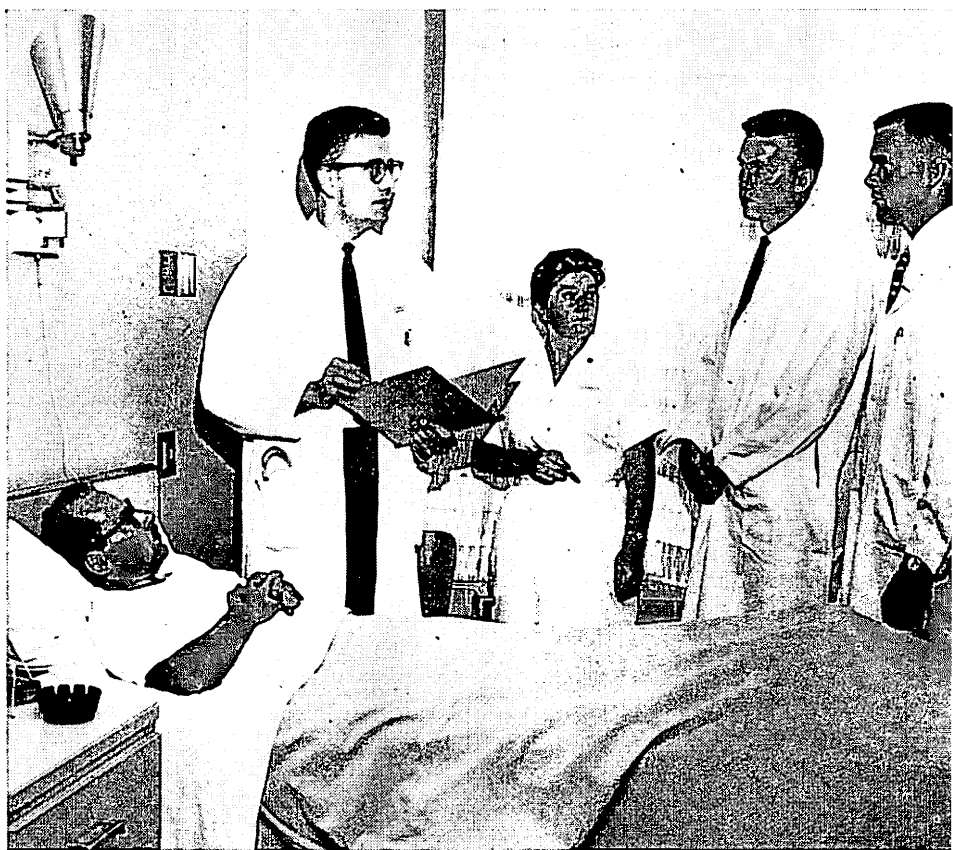
In order to encourage such students, a post-sophomore fellowship program has been established. Although the drop-out period permitted is one to three years, most post-sophomore fellows elect a period of one year. Four or more of these fellowships are usually available from various sources including the National Institutes of Health. They carry a tax-free stipend of \$3,200 plus an allowance of \$350 for each dependent and tuition.

**RESEARCH AND TRAINING GRANTS**

Each year grants from various public and private sources are received by individual faculty members and by the School of Medicine to support medical research and training in teaching and research. Extensive training programs, supported largely by the National Institutes of Health, provide training in teaching and research to individuals at the undergraduate, graduate, and postdoctoral levels including both premedical and medical students.

In 1959, grants to the School of Medicine for research projects totaled \$3,062,000 and grants for training, \$542,000.

The University of Washington School of Medicine ranked fifth in the nation in research and training grants received in 1959.



## THE DEPARTMENTAL PROGRAMS



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# THE DEPARTMENTAL PROGRAMS

**T**HE SCHOOL OF MEDICINE through its departments and inter-departmental programs offers curricula leading to the degrees of Doctor of Medicine and Bachelor of Science in Physical Therapy and in Occupational Therapy and graduate study leading to the degrees of Master of Science and Doctor of Philosophy in accordance with the requirements of the Graduate School.

## DEGREES

**DOCTOR OF MEDICINE.** Upon completion of the four-year curriculum of the School of Medicine, the M.D. degree is awarded to candidates who have (1) given evidence of good moral character; (2) completed the last two years of medical training as regularly matriculated students in the School of Medicine; (3) satisfactorily completed the required work throughout the course; (4) fulfilled all special requirements; and (5) discharged all indebtedness to the University.

**DOCTOR OF MEDICINE WITH HONOR.** Those students who meet the above requirements and whose work places them in the highest ten per cent of the graduating class receive a Doctor of Medicine with honor.

**BACHELOR OF SCIENCE.** A curriculum leading to a bachelor's degree with a major in public health and preventive medicine is offered for students in the College of Arts and Sciences. Professional courses in the curriculum are given by the Department of Public Health and Preventive Medicine in the School of Medicine. Public health students may choose an option in environmental health, biometry, or health education. The professional courses are described in this Bulletin, along with other courses offered by the Department of Public Health and Preventive Medicine, and the curriculum is described in the *College of Arts and Sciences Bulletin*.

A curriculum leading to a bachelor's degree with a major in microbiology is offered through the College of Arts and Sciences. Microbiology courses are described in this Bulletin, and the curriculum is described in the *College of Arts and Sciences Bulletin*.

**BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY.** The medical technology program is designed to train young men and women to become technologists in hospital, clinic, and medical-research laboratories. The first part of the course consists of three years in the College of Arts and Sciences, with training in chemistry, zoology,

physics, physiology, anatomy, histology, and microbiology. Upon successful completion of the three-year program, students may apply for admission to the final part of the course, which is offered by the Department of Pathology in the School of Medicine. This eighteen-month period consists of both class instruction and practical supervised work in hospital and medical-research laboratories.

Courses taken in the final period of the medical technology program are described in this Bulletin, along with other courses offered by the Department of Pathology. The entire curriculum is described in the *College of Arts and Sciences Bulletin*.

**BACHELOR OF SCIENCE IN PHYSICAL THERAPY.** A curriculum in physical therapy is offered by the Department of Physical Medicine and Rehabilitation in the School of Medicine. It provides professional training in the basic sciences and the clinical use of accepted physical therapy modalities and procedures. Information concerning admission to physical therapy and its curriculum may be found under the Department of Physical Medicine and Rehabilitation (see page 75).

**BACHELOR OF SCIENCE IN OCCUPATIONAL THERAPY.** A curriculum in occupational therapy is offered by the Department of Physical Medicine and Rehabilitation in the School of Medicine. It provides professional training in the basic sciences and the clinical use of occupational therapy. Information concerning admission to occupational therapy and its curriculum may be found under the Department of Physical Medicine and Rehabilitation (see page 75).

**BACHELOR OF SCIENCE IN BASIC MEDICAL SCIENCE.** The basic science degree may be taken at the end of the first year in the School of Medicine by students who have completed at least the third year of premedical training and the first year of the medical course at the University of Washington and have a grade-point average of at least 2.50 in college and the School of Medicine combined. Students who wish to qualify for this degree must complete University requirements for graduation as well as the requirements of the college and department in which the three years of premedical work were taken.

Requirements for this degree are described in the *College of Arts and Sciences Bulletin*. Applications should be sent to Dean Walter Riley, Premedical Adviser, 121 Miller Hall.

**MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY.** Work leading to master degrees and Doctor of Philosophy degrees is offered, in accordance with the requirements of the Graduate School, in the Departments of Anatomy, Biochemistry, Microbiology, Pharmacology, Physiology and Biophysics. A master's degree program is offered by the Department of Surgery.

Students who intend to work toward one of these degrees should confer with the executive officer of the department in which they intend to major. Specific requirements for admission to candidacy for advanced degrees are given in the *Graduate School Bulletin*.

## LICENSURE

Admission to the practice of medicine in any state is conditional upon the requirements of a state board of medical examiners. Admission to practice in the state of Washington is dependent upon the candidate's having an M.D. degree, completing a one-year rotating internship, and passing the basic science and licensing examinations. For candidates who are already licensed to practice in another state, the licensing examination may be waived by reciprocity with that state or with the National Board of Medical Examiners. In some instances completion of the basic science requirements may be arranged by reciprocity also.

Further information about licensure requirements may be obtained from the State Department of Licenses, Professional Division, Olympia, Washington.

## POSTGRADUATE MEDICAL EDUCATION

### INTERNSHIPS AND RESIDENCIES

Internships of one-year duration in clinical medicine are available at the University Hospital, the King County Hospital, and the Children's Orthopedic Hospital. All clinical departments participate in the training program for interns in one or more of these institutions. Residency training programs are available in the clinical fields of anesthesiology, cardiology, general surgery, medicine, neurology, neurosurgery, obstetrics, gynecology, orthopedic surgery, pathology, pediatrics, physical medicine and rehabilitation, psychiatry, radiology, and urology. The residency programs vary in duration from two to five years and are integrated, providing for rotation through several of the University affiliated hospitals during this period of training.

### POSTDOCTORAL FELLOWSHIPS AND TRAINEESHIPS

Postdoctoral fellowships and traineeships are available in all basic health sciences and clinical departments. They are designed to provide further research and teaching experience for the advanced student who has already obtained his Ph.D. or M.D. degree.

### CONTINUING EDUCATION

The School of Medicine functions as a center for continuing medical education for physicians in the region. A series of short courses (in general extending from one day to one week) designed primarily for the general physician is offered at various times throughout the year. The clinical faculty, with the assistance of basic science investigators, plans and gives courses which provide the practicing physician with an opportunity to review fundamental concepts and to go into recent advances in diagnosis and treatment in some depth in specialized fields, such as cardiology, electrolyte and fluid balance, gastroenterology, hematology, infectious diseases, neurology, metabolism, allergy, practical psychiatry, emotional problems in children, gynecologic and obstetric endocrinology, and so forth.

The School cooperates with the Washington State Department of Health and other governmental agencies, physicians' organizations, and voluntary organizations in developing refresher courses in cancer, diseases of the heart, diabetes, alcoholism, safety, and so forth.

Physicians are always welcome to participate in the regular rounds and conferences scheduled in the University Hospital and clinics and the hospitals affiliated with the University in the teaching program. Physicians are also urged to attend the conjoint clinical conferences held each Saturday morning for students and staff.

Refresher courses are extended to other health professions such as medical technologists, physical therapists, and occupational therapists.

Detailed information about such instruction is given in announcements describing the specific courses, the times they are scheduled, the number of students accepted, and the tuition fees.

### CONTINUOUS COURSES

The courses listed below are offered throughout the school year.

**GROSS ANATOMICAL DISSECTION.** Physicians who desire additional individual experience in the dissection of the entire cadaver or parts thereof may make arrangements through the Division of Postgraduate Medical Education and the Department of Anatomy. Laboratory space and anatomical material will be provided (no staff participation).

The fees are in proportion to the amount of gross material supplied.

**ONCOLOGY.** Selected tumors from the Washington State Tumor Registry covering the common important neoplasms and selected uncommon neoplasms are presented for study. The selected slides are initially studied using the microscope and are reviewed tutorially. Fresh gross specimens are also demonstrated. This course may be taken one, two, or three sessions per week; it is limited to eight students. Inquiries should be directed to the Department of Pathology.

**REVIEW FOR SPECIALTY BOARDS.** Physicians who want to review material in preparation for specialty boards may study gross and microscopic material, with descriptions, in the departmental laboratories. Desk space and microscopes are furnished. This is not a course but a program of individual study, which may be arranged in accordance with individual needs. Inquiries should be directed to the Department of Pathology.

## COURSE-NUMBERING SYSTEM

First-year courses for medical students are numbered from 400 to 424, second-year courses from 425 to 449, third-year courses from 450 to 474, and fourth-year courses from 475 to 499. Courses numbered below 400 are given for students in other University curricula, and those numbered 500 and above are open only to students in the Graduate School.

The number in parentheses following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## BASIC HEALTH SCIENCES

### ANATOMY

**Executive Officer: H. STANLEY BENNETT, G511 Health Sciences Building**

In the Department of Anatomy, instruction is given in gross human anatomy, microscopic anatomy, submicroscopic anatomy, embryology, and neurology so as to present an orderly picture of the structural organization of the body. Opportunities are afforded for advanced work and investigation in these subjects.

Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

### COURSES

- 301 General Anatomy (4)** **Staff**  
Elementary work in human anatomy with lectures, correlated laboratories, and demonstrations. For health education, anthropology, physical education, speech students, and medical technicians; others by permission. Not open to premedical, pre dental, or nursing students.
- Conjoint 317-318 Elementary Anatomy and Physiology (6-6)** (See *Conjoint Courses*, page 70.)
- 328, 329 Gross Anatomy (6-4)** **Bodemer, Everett**  
Lectures and dissection. The first quarter is devoted to a study of the entire human body except the head and neck areas, with emphasis on the thoracic and abdominal regions, and the second quarter to an intensive study of the head and neck areas. For dental students; others by permission.
- 330 Microscopic Anatomy (4)** **Roosen-Runge**  
Lecture and laboratory work in microscopic anatomy. For dental students; others by permission.
- 331 Neuroanatomy (2)** **Rieke, Everett**  
Lecture and laboratory work in neuroanatomy. For dental students; others by permission.
- Conjoint 350-351 Human Function and Structure (6-6)** (See *Conjoint Courses*, page 70.)
- 401-402-403 Gross Anatomy (6-6-4)** **Bassett, Staff**  
Intensive lectures and dissection accompanied by roentgenographic demonstrations. Study of the entire human body except the brain and spinal cord. Required for first-year medical students. Prerequisite for nonmedical students, permission.
- 404 Human Embryology (3)** **Blandau**  
Lectures and laboratory demonstrations covering the development of the human embryo and fetus, with emphasis on abnormal development; special attention to problems of maturation, fertilization, and physiology of the gametes. Required for first-year medical students. Prerequisite for nonmedical students, permission.

- 405-406 Microscopic and Submicroscopic Anatomy (5-3)** **Bennett, Staff**  
Essentials of microscopic, submicroscopic, and chemical anatomy. Required for first-year medical students. Prerequisite for nonmedical students, permission.
- Conjoint 409 Basis of Neurology (3,5, or 2)** (See Conjoint Courses, page 70.)
- 498 Undergraduate Thesis (\*)** **Staff**  
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
For medical students. Prerequisite, permission.
- 505 Advanced General Histology (3)** **Roosen-Runge, Wood**  
Comparative study of tissues in selected phyla of vertebrates and invertebrates. Prerequisite, 330, 405 or permission.
- 510 Cytochemistry (4)** **Bennett**  
The finer distribution of chemical substances in cells and tissues; methods of cytochemistry and their theoretical basis and validity. Prerequisite, permission.
- 515 Biological X-ray Structure Analysis (3)** **Jensen**  
Theory of X-ray diffraction, with emphasis on applications to biological systems. Prerequisite, permission.
- 518 Developmental Neurology (2)** **Bodemer**  
Detailed consideration of the problems of development, growth, and regeneration of the nervous system and its functions. Prerequisite, Zoology 456 or equivalent.
- 521 Seminar in Molecular and Submicroscopic Anatomy (2)** **Bennett, Luft, Wood**  
The molecular and micellar basis of bodily structure. Prerequisite, permission.
- 525 Brain Dissection (2)** **Everett**  
A detailed consideration of the macroscopic anatomy of the human brain. Prerequisite, permission.
- 530 Biological Tracer Techniques (2)** **Everett**  
Techniques of using radioactive isotopes as tracers in biological research. Prerequisite, permission.
- 531, 532, 533 Electron Microscopy (2-5, 2-5, 2-5)** **Bennett, Luft**  
Theoretical and practical aspects of electron microscopy of biological material, including electron diffraction. Prerequisites, 405-406 or permission.
- 540 Embryology of the Heart (2)** **Blandau**  
A detailed study of the embryology of the heart and great vessels during the first eight weeks of life. Prerequisite, 404.
- 550 Biological Polarization Microscopy (4)** **Bennett**  
Theory, technique, and application of polarization microscopy in biological studies. Prerequisite, permission.
- 555 Mammalian Reproduction (3)** **Blandau, Roosen-Runge, Greenwald**  
Fundamental processes of reproductive anatomy and physiology of laboratory animals. Prerequisite, permission.
- 557 Seminar (1-3, maximum 9)** **Staff**  
Prerequisite, permission.
- Conjoint 585 Surgical Anatomy (2-4, maximum 12)** (See Conjoint Courses, page 70.)

## COURSES FOR GRADUATES ONLY

- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## BIOCHEMISTRY

**Executive Officer: HANS NEURATH, C408 Health Sciences Building**

Biochemistry is the study of the chemical structure and properties of substances important to animal and plant life and of the chemical processes of living systems. Training in biochemistry begins at the advanced undergraduate or graduate level, and studies toward the degree of Doctor of Philosophy are recommended for students planning a career in this field. Biochemists occupy positions in academic teaching and research institutions, in hospitals, and in industry and government laboratories.

The Department offers courses in basic biochemistry for students in various areas of study in the University, including the natural sciences, medicine, dentistry, and others. Students who intend to work toward a degree of Master of Science, or Doctor of Philosophy must meet the requirements of the Graduate School as out-

lined in the *Graduate School Bulletin*. They must present a bachelor's degree with a major in chemistry or its equivalent, and should have some background in biology. Applicants should communicate with the Executive Officer of the Department before registration.

## COURSES

- 361 Biochemistry (3)** **Staff**  
An introductory one-quarter course in general biochemistry covering basic principles, including the structure and metabolism of biologically important compounds. For students in dentistry, home economics, medical technology, pharmacy, and others. Prerequisite, Chemistry 120 or 232.
- 362 Biochemistry Laboratory (3)** **Staff**  
Laboratory exercises and conferences. Certain experimental aspects of biochemistry of special interest to dental students are considered. For dental students. Prerequisite, 361, which may be taken concurrently.
- 363 Biochemistry Laboratory (2)** **Staff**  
Laboratory exercises in general biochemistry for students in home economics, medical technology, and others. Prerequisite, 361, which may be taken concurrently.
- 401, 402 Biochemistry (5,3)** **Staff**  
Lectures and conferences in the first quarter cover the fundamentals of biochemistry. The second quarter emphasizes metabolism in man. Required for first-year medical students; open to a limited number of students with allied interests. Prerequisites, Chemistry 242 for 401; 401 for 402; and permission.
- 403 Biochemistry Laboratory (3)** **Staff**  
Required for first-year medical students; open to a limited number of students with allied interests. Prerequisites, 401 and 402, or permission.
- 481, 482, 483 Biochemistry (3,3,3)** **Staff**  
Lectures and conferences cover the fundamentals of biochemistry with emphasis upon chemical structure, enzymatic reactions, intermediary metabolism and biochemistry of physiological functions. Recommended for advanced undergraduate or graduate students of chemistry, biochemistry, and various biological sciences.
- 484 Biochemistry Laboratory (3)** **Staff**  
Laboratory projects and conferences. For students of biochemistry, chemistry, and various biological sciences. Prerequisites, 481 and 482; the latter course to be taken concurrently.
- 498 Undergraduate Thesis (\*)** **Staff**  
For senior medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
Investigative work on enzymes, proteins, lipides, intermediary metabolism, physical biochemistry, and related fields. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 520 Seminar (1-3, maximum 9)** **Staff**  
Prerequisite, permission.
- 521 Physical Biochemistry Seminar (1)** **Kraut**  
Prerequisite, permission.
- 562 Physical Biochemistry (2)** **Kraut**  
This course acquaints the student with certain specialized applications of physical chemistry and their use in biochemical research. Quantitative aspects of methods especially applicable to the study of high molecular weight compounds and systems of biological interests are considered. (Not offered 1961-62.) Prerequisites, 482 and Chemistry 357 or permission.
- 563, 564 Proteins (2,2)** **Neurath, Wilcox**  
The chemistry and biological activity of proteins are considered from the viewpoints of the properties of protein solutions, molecular structure, and biological function. Proteins found in a wide variety of tissues, both plant and animal, are discussed. (Not offered 1961-62.) Prerequisites, 562 or permission for 563; 563 for 564.
- 565, 566, 567 Enzymes and Enzyme Action (2,2,2)** **Fischer, Huennekens**  
Preparation and properties of enzymes and enzyme systems, including methods of measurement, kinetic analysis, and theory of enzyme catalysis; classification and properties of individual enzymes, coenzymes, and enzyme systems. (Offered 1962-63.) Prerequisites, 482 and Chemistry 357, or permission for 565; 565 for 566; 566 for 567.
- 568 Biochemistry of Lipides (2)** **Hanahan**  
The structure and metabolism of sterols, steroids, fatty acids, and the complex lipides will be treated on an advanced level. (Offered Autumn Quarter, 1962.) Prerequisite, 402 or 482 or permission.
- 569 Biochemistry of Nucleic Acids (2)** **Gordon**  
Chemistry and structure of nucleic acids, enzymes active on nucleic acids, and the biosynthesis and metabolism of the components of nucleic acids are considered. Current concepts of the replication of nucleic acids including the infectivity of viruses will be discussed. (Offered 1962-63.) Prerequisite, permission.

- 570 Topics in Mammalian Biochemistry (2)** **Krebs**  
An advanced treatment of topics related to metabolism in the intact animal; organ function, body pools, hormonal control, energy balance, nitrogen balance, and nutrition. Biochemical changes in certain diseases are discussed. (Offered 1962-63.) Prerequisite, 402 or 482, or permission.
- 583 Advanced Biochemistry Laboratory (4)** **Staff**  
Biochemical preparations and investigations of physical and chemical properties by special techniques, including spectrophotometry, polarimetry, manometric method, electrophoresis, isotope tracer applications, etc. Prerequisites, 483 and permission.
- 600 Research (\*)** **Staff**  
Prerequisite, permission.
- 700 Thesis (\*)** **Staff**

## MICROBIOLOGY

**Executive Officer: CHARLES A. EVANS, G305 Health Sciences Building**

Microbiology is the science of microscopic organisms, their biological characteristics, chemical activities, industrial uses, and disease-producing mechanisms. The related fields concerned with parasites, viruses, and immunity are included in the work of this Department.

In addition to courses for medical students, the Department of Microbiology offers programs in microbiology leading to a bachelor's degree in the College of Arts and Sciences. Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. The fields of specialization for advanced degrees are general and medical bacteriology, immunology, parasitology, medical mycology, virology, and physiology of bacteria. Course requirements vary according to the field chosen.

## COURSES

- 204 Medical Parasitology for Sanitarians (4)** **Groman**  
Consideration of medically important parasites with emphasis on public health aspects. Offered eight weeks of quarter. For undergraduate students majoring in public health. Prerequisites, 301 or equivalent and permission.
- 235 Microbiology for Students of Dentistry (7)** **Holland**  
Lecture and laboratory introducing the student to the principles of microbiology. Infectious microorganisms and the flora of the mouth are emphasized. Required for second-year dental students. Students who have had previous training in microbiology may be permitted to substitute a research problem for the laboratory work. Prerequisite, for nondental students, permission.
- 300 Fundamentals of Bacteriology (\*, maximum 6)** **Douglas, Ordal**  
Basic bacteriology; comparative morphology, taxonomy, physiology of bacteria. For students majoring in microbiology and others interested chiefly in the biological and chemical aspects of microbes. Required for students majoring in microbiology. Recommended for graduate students majoring in chemistry or biology. Prerequisites, 10 credits in organic chemistry, 10 credits in botany or zoology, and permission.
- 301 General Microbiology (5)** **Douglas, Ordal, Rickenberg**  
Microorganisms and their activities. For students of pharmacy, dental hygiene, nursing, home economics, education, and others interested in a one-quarter survey course, with minimal training in chemistry. Prerequisite, two quarters of general chemistry.
- 320 Media Preparation (\*, maximum 5)** **Duchow**  
Practical work in the preparation of culture media and solutions. Nutritional requirements of microorganisms are considered. For students expecting to enter vocations involving laboratory work with bacteria. Prerequisite, permission.
- 322 Applied Bacteriology (5)** **Staff**  
Practical experience in a public health laboratory; fifteen hours per week. For students majoring in medical microbiology. Prerequisite, 441-442 or equivalent, and permission.
- 430 Industrial Microbiology (3 or 5)** **Douglas**  
Microbiological and biochemical aspects of industrially important fermentative and oxidative processes. For students majoring in microbiology or food technology. Prerequisites, 300 or 301, and Chemistry 221 and 232.
- 441-442 Medical Bacteriology, Virology, and Immunology (\*, maximum 5-, -, maximum 5-)** **Evans, Groman, Henry, Sherris, Weiser**  
441- includes a survey of microorganisms and a general consideration of the morphology and physiology of bacteria; an introduction to immunology, formation and properties of antibodies, nature of antigen-antibody reactions, blood groups, allergies, and an analysis of factors of innate and acquired immunity. During the last part of 441- and throughout 442, specific pathogenic bacteria and viruses are studied in detail. Students who have had previous work in bacteriology may by special permission be allowed to take 441- or

-442 for less than the full 5 credits. Required for second-year medical students. Open to upper-division undergraduates and graduate students. Prerequisites, 10 credits in organic chemistry, 10 credits in botany or zoology, and permission.

- 443 Medical Mycology (\*, maximum 2)** **Henry**  
Consideration of morphology, physiology, immunology, and epidemiology of the medically important fungi. Offered three weeks of quarter. Required for second-year medical students. Open to upper-division undergraduates and graduate students. Prerequisites, 441-442 or equivalent, and permission.
- 444 Medical Parasitology (\*, maximum 4)** **Groman**  
Consideration of medically important parasites with emphasis on their biology in relation to the production and prevention of disease. Offered eight weeks of quarter. Required for second-year medical students. Open to upper-division undergraduates and graduate students. Prerequisites, 441-442 or equivalent, and permission.
- 498 Undergraduate Thesis (\*)** **Staff**  
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
Specific problems in industrial, medical, and general microbiology. Prerequisites, senior standing and permission.

## COURSES FOR GRADUATES ONLY

- 510 Physiology of Bacteria (3)** **Douglas, Eaton, Groman, Ordal, Rickenberg, Whiteley**  
Fundamental physiological and metabolic processes of bacteria. (Offered alternate years; offered 1960-61.) Prerequisite, permission of instructor.
- 515 Methods and Applications of Tissue Culture (4)** **Rickenberg**  
A survey of techniques of animal and plant tissue culture and their applications in biological and medical research. Students' individual research projects will be considered, if feasible. Prerequisites, one course in microbiology, one course in biochemistry, and permission.
- 520 Seminar (1)** **Staff**
- 530 Comparative Morphology and Physiology of the Higher Bacteria (4)** **Ordal**  
Enrichment, isolation, and comparative morphology and physiology of selected representatives of the following groups of bacteria: Nitrobacteriaceae, Rhodobacteriaceae, Caulobacteriaceae, Actinomycetales, Myxobacteriales, Chlamydoxanthales, Caryophanales, and Borrelomycetales. (Offered alternate years; offered 1961-62.) Prerequisite, permission.
- 540 Filterable Viruses (\*, maximum 4)** **Evans, Groman**  
Prerequisites, at least one quarter of general microbiology and permission.
- 550 Advanced Immunology (\*, maximum 4)** **Weiser**  
(Offered alternate years; offered 1960-61.) Prerequisites, 441- and permission.
- 600 Research (\*)** **Staff**
- 700 Thesis (\*)** **Staff**

## PATHOLOGY

**Executive Officer: EARL P. BENDITT, D505 Health Sciences Building**

In addition to courses for medical and dental students and for other students of the health sciences, the Department of Pathology offers courses for a curriculum leading to the degree of Bachelor of Science in Medical Technology. This curriculum is given through the College of Arts and Sciences.

## COURSES

- 231 General Pathology (5)** **Staff**  
This course is open to dental students and to selected graduate students in the basic sciences. The objective is to cover in a more brief form the basic work covered in detail in 441-, 442-, and 443. The method of presentation is therefore the same as in those courses. A reasonable knowledge of gross and microscopic anatomy, physiology, and biochemistry is essential to understand the principles underlying the fundamental alterations in tissues and organs in disease processes and the results of these changes. While the general tissue and systemic manifestations are considered by processes, the applications of these diseases to the mouth, teeth, and neck are particularly stressed. For dental students; graduate students by permission.
- 310 General Pathology (2)** **Staff**  
Study of causes, processes, and effects of important diseases. Lectures, demonstrations, and discussions. A reasonable knowledge of anatomy, histology, and physiology is required. For students of dental hygiene, physical therapy, and medical technology; others by permission.
- 321 Medical Technology (5)** **Staff**  
Histologic technic, hematology. Prerequisite, permission.
- 322- Medical Technology (6-)** **Staff**  
Clinical Chemistry I. Completion of three years prescribed curriculum.



- 323-Medical Technology (-6)** **Staff**  
Clinical Chemistry II. Prerequisite, 322.
- 424-Medical Technology (-6)** **Staff**  
Clinical Chemistry III, assigned projects. Prerequisite, 323.
- 425 Medical Technology (-6)** **Staff**  
Internship I. Prerequisite, 424.
- 426 Medical Technology (16)** **Staff**  
Internship II. Prerequisite, 425.
- 430 Autopsy Participation and Review (\*)** **Staff**  
Course consists of medical student participation and review of autopsy cases. Autopsies will be done at one of the four hospitals: University Hospital, King County, Veterans Administration, and Children's Orthopedic. Elective open to second-year medical students.
- 431 Microscopic Autopsy Review (\*)** **Staff**  
The slides from interesting autopsies will be reviewed by the students individually and then with the instructor. Clinical correlation will be stressed. Elective open to second-year medical students. Limited to ten students.
- 432 Cardiovascular Pathology Conference (\*)** **Wagner**  
This course consists of two parts, a combined medical, surgical, and radiological conference on selected cardiovascular topics by members of the faculty or guest speakers, followed by laboratory review of gross and microscopic cardiovascular pathology. Elective open to first- and second-year medical students. Limited to two students.
- 433 Clinical Laboratory (\*)** **Ellerbrook**  
Supervised general or specialized experience in hospital clinical chemistry, hematology or microbiology laboratory. Elective open to second-year medical students.
- 441- General Pathology (6-)** **Staff**  
The purpose of this course is to introduce the student to the basic concepts and the principal pathologic processes. This is achieved by the combination of lectures, laboratory, and demonstrations of human pathologic material and experimentally produced disease. In addition, participation in autopsies by small groups of students is part of the program. This and a demonstration of pathologic specimens in the gross is programmed primarily in the one afternoon session. For medical students; graduate students by permission. A suitable knowledge of anatomy, including histology, physiology, and biochemistry is required. Autopsy session is not required for graduate students.
- 442-443 Special Pathology (-5-5)** **Staff**  
Presents a coherent, systematic survey of the pathological processes affecting each organ system. A detailed review of specific diseases is correlated with basic science information. An attempt is made to present the biology of disease as it affects man. Prerequisite, 441- or equivalent.
- Conjoint 446-447 Laboratory Procedures (4-2) (See Conjoint Courses, page 70.)**
- 470 Surgical Pathology (\*)** **Staff**  
Students participate in this course during the period in which they are taking the regular course work in surgery. The objective is to demonstrate fresh gross surgical material and to review microscopic sections from the more interesting material. For third-year medical students; graduate students by permission.
- 476 Clinical Pathological Conference (\*)** **Staff**  
Interesting, unusual, or provocative diagnostic cases are taken from the files of the various teaching hospitals each week for clinical review, discussion, differential diagnosis, and correlation with the pathological findings. For third- and fourth-year medical students; graduate students by permission.
- 480 General Pathology (\*)** **Staff**  
Advanced course in autopsy technique. Gross and histologic study of postmortem material. Surgical pathology and clinical pathology. Attendance at and participation in clinicopathological conferences and other hospital activities: King County, Children's Orthopedic, Veterans Administration, and University Hospitals. Elective open to senior medical students.
- 481 Clinical Pathology (\*)** **Ellerbrook**  
The student will have an opportunity to familiarize himself with one or more phases of clinical laboratory work. The experience will include supervised laboratory work, clinical correlation, and appropriate conferences and other laboratory activities. Elective open to senior medical students.
- 482 Cardiovascular Pathology (\*)** **Wagner**  
Investigative program in Department of Pathology and in association with members of Cardiac Dog Surgery Laboratory. Studies of human surgical and postmortem material. Monthly conferences include Cardiovascular Study Unit and Pediatric Cardiology Seminar. Joint conferences with Departments of Medicine and Surgery. Elective open to medical students.
- 498 Undergraduate Thesis (\*)** **Staff**  
Prerequisite, permission. Elective for medical students.

## COURSES FOR GRADUATES ONLY

- 500 Principles of Pathology (4 or 6)** **Staff**  
The material covered is concerned primarily with the fundamental alterations in tissues and organs in disease processes and the results of these changes. This course is open to selected graduate students in the biological sciences.

- 503 Enzymatic Histochemistry (2-3)** **Benditt**  
Development of basic concepts with technical and experimental applications. Elective open to medical students and graduate students by permission. Limited to six students.
- 520 Seminar (2, maximum 10)** **Staff**  
Review of current problems of both research and practical nature by various members of the Department of Pathology with discussion of presentations by senior members of the Department. Prerequisite, permission of Executive Officer.
- 521 Seminar in Contemporary Professional Literature (1)** **Staff**  
A review of current literature as applied to the field of pathology. Discussion of presentations by senior members of the Department. Prerequisite, permission of Executive Officer.
- 551 Experimental Pathology (2-5, maximum 20)** **Staff**  
Assignments depend upon the background and interest of the individual. Problems may be concerned with animal experimentation or with specimens obtained from human beings. Special techniques and specialized equipment are utilized when indicated. Methods of keeping data and statistics are considered. Open only to graduate students and fellows who are assigned to work with senior members of the staff. Prerequisite, permission of Executive Officer.
- 552 Clinical Pathology (2-5, maximum 20)** **Staff**  
A study of the principles and techniques of the usual clinical chemical procedures or of the tests used to study diseases of the hematopoietic system. The control of precision and accuracy is stressed, as is the interpretation of the results obtained. The work in either biochemistry or hematology may be taken in the appropriate sequence. For graduate students and fellows who are assigned to the laboratory in clinical biochemistry.
- 553 Pediatric Pathology (\*, maximum 10)** **Staff**  
Assignments according to need and background. By arrangement, for fellows and graduate students.
- 600 Research (\*)** **Staff**  
Selected problems arranged in accordance with the student's needs. Prerequisite, permission of Executive Officer.

## PHARMACOLOGY

**Executive Officer: JAMES M. DILLE, F421 Health Sciences Building**

Pharmacology deals with the mechanisms whereby modification of physiological function is produced by drugs and the application of these drugs to the relief and treatment of disease.

The Department of Pharmacology provides courses for medical, dental, and pharmacy students and for those doing graduate work in these fields. Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. They must present a bachelor's degree with a major in any of the sciences, such as zoology, chemistry, physics, pharmacy, psychology, or physiology. Applicants should communicate with the Executive Officer before registration.

### COURSES

- 234 General Pharmacology (4)** **Staff**  
The action of drugs on physiological functions, with special emphasis on agents which are important in the practice of dentistry. Laboratory experiments and demonstrations of the action of drugs. For dental students.
- 301, 302 General Pharmacology (3,5)** **Staff**  
The action of drugs on physiological function, with special reference to the use of drugs in the treatment of disease. Toxicological manifestations of excessive doses of drugs; management and treatment of these poisonous effects. Laboratory experiments and demonstrations. For pharmacy students.
- 442-443 General Pharmacology (5-4)** **Staff**  
The action of drugs, with emphasis on their basic mechanisms and their application to the relief and treatment of disease. Toxicological manifestations of excessive doses of drugs; management and treatment of these poisonous effects. Laboratory experiments and demonstrations. Required for second-year medical students. Prerequisite for graduate students, a major or a minor in pharmacology.
- 498 Undergraduate Thesis (\*)** **Staff**  
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
Participation in departmental research projects. For medical students. Prerequisite, permission.

### COURSES FOR GRADUATES ONLY

- 507 Journal Seminar (\*, maximum 6)** **Staff**  
Presentation of comprehensive reports on recent medical and scientific literature in fields of current importance. Prerequisites, -443 and permission.

- N508 Research Seminar (0)** **Staff**  
Research progress reports and reports on results of completed research. Prerequisites, -443 and permission.
- 509 Pharmacology Laboratory Methods (\*)** **Staff**  
Advanced and special techniques of pharmacological investigation. Material is changed from quarter to quarter to fit students' needs, and the course may be repeated for credit provided the subject matter is not duplicated. Prerequisites, -443 and permission.
- 525, 526, 527 Advanced General Pharmacology (2,2,2)** **Staff**  
An advanced treatment of basic concepts of pharmacology, both theoretical and methodological. Subject matter will be varied from quarter to quarter and course may be repeated for credit. Prerequisite, permission.
- 600 Research (\*)** **Staff**  
Participation in research projects already set in progress by members of the Department staff. Directed experience in research investigation. Prerequisites, -443 and permission.
- 700 Thesis (\*)** **Staff**

## PHYSIOLOGY AND BIOPHYSICS

**Executive Officer: THEODORE C. RUCH, G405 Health Sciences Building**

Physiology deals with the processes, activities, and phenomena incidental to and characteristic of life and living organisms. Courses in this field are given for medical, dental, pharmacy, and nursing students, and for graduate students.

In biophysics the emphasis is on the physical aspects of organs and systems, studied by the instruments and methods of thinking used by physicists. A bachelor's degree in physical science or equivalent is required for students specializing in biophysics.

Students who intend to work toward a degree of Master of Science or Doctor of Philosophy must meet the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Students with a bachelor's degree in zoology, psychology, chemistry, engineering, physics, or with an M.D. degree are acceptable as candidates for M.S. and Ph.D. degrees.

### COURSES

- 126 Human Physiology (6)** **Staff**  
Lectures, laboratories, demonstrations, and small group conferences in human physiology stressing applications to dentistry. For dental students.
- Conjoint 317-318 Elementary Anatomy and Physiology (6-6)**  
(See Conjoint Courses, page 70.)
- Conjoint 350-351 Human Function and Structure (6-6)** (See Conjoint Courses, page 70.)
- 360 General Human Physiology (5)** **Staff**  
Lecture, laboratory, and laboratory conference instruction in the basic principles and basic laboratory techniques of physiology. For students of pharmacy. Prerequisites, Zoology 112, Chemistry 242 and 333, Physics 102 and 108, Microbiology 301.
- 401-402 Advanced Human Physiology (7-7)** **Ruch, Staff**  
Advanced work in physiology approached from the biophysical, mammalian, and clinical points of view. Small-group teaching and special laboratory problems. Required for first-year medical students; graduate students by permission.
- Conjoint 409 Basis of Neurology (3,5, or 8)** (See Conjoint Courses, page 70.)
- 411 Introductory Biophysics (4)** **Woodbury, Young**  
A general discussion of physical concepts in physiology including membrane phenomena, control systems, and energy exchange. Prerequisite, B.S. in physical science or permission.
- 416 Biophysics (5)** **Young**  
Study of bio-electric phenomena in mathematical and physical terms; volume conductors, simple circuit theory, membrane and electrode potentials, and elementary servomechanism theory. For students with biological background. Prerequisite, permission.
- 424 Introductory Membrane Potentials (3)** **Woodbury**  
Ionic basis of electrical activity in excitable tissues. Membrane structure, capacity, resistance. Ion distributions, permeation, active sodium potassium transport. Cable and excitable properties of membrane. Prerequisite, permission.
- 484 Endocrinological Reaction to Stress (\*)** **Patton**  
Seminar survey of the literature concerned with the response of endocrine glands to physiological stress and strains, such as exercise and extreme temperatures, in normal and diseased individuals. Prerequisite for graduate students, permission.
- 491 Medical Physics (2)** **Young, Woodbury, Staff**  
Review of physical principles applicable to medicine. Elective for medical students. Graduate students by permission.

- 492 Selected Topics in Physiology and Biophysics (2)** **Staff**  
Seminars or research in collaboration with a faculty member on topics selected by individual arrangement. Elective for medical students. Graduate students by permission.
- 493 Techniques in Cardiopulmonary Diagnosis (2)** **Rushmer, Staff**  
Application of physiological principles in analysis of cardiopulmonary function. Prerequisite, 401-402 or permission.
- 494 Neurological Study Unit (2)** **Physiology, Neuroanatomy, Neurology, Neuropathology, Neurosurgery, and Psychiatry Staff**  
Faculty and student discussion of neurological topics illustrated with clinical cases or demonstrations. Elective for medical students. Graduate students by permission.
- 498 Undergraduate Thesis (\*)** **Staff**  
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
For medical students. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 515-516-517 Physiological Proseminar (5-5-5)** **Staff**  
A guided survey of the experimental literature of major topics in physiology. Course conducted as seminar with oral analysis of assigned papers and topics. Prerequisites, 401-402, Conjoint 409, and permission.
- 520 Physiology Seminar (2-5)** **Staff**  
Selected topics in physiology.
- 521 Biophysics Seminar (2-5)** **Young**  
Selected topics in biophysics.
- 522 Biophysics of External Respiration (2-5)** **Young**  
Viscous and elastic properties of chest-lung system; flow of gases in tubes. Generalized alveolar air equations. Principle of infrared absorption and emission type of rapid gas analyzers. Prerequisite, permission.
- 523 Heat Transfer and Temperature Regulation (2-5)** **Young**  
Prerequisite, B.S. in physical science or permission.
- 524 Advanced Membrane Potentials (3)** **Woodbury**  
Quantitative analysis of electrical activity in nerve. Active sodium-potassium transport. Ionic flux equations. Conductance changes. Calculation of the action potential. Prerequisite, permission.
- 525, 526, 527 Advanced Mammalian and Clinical Physiology (2-5, 2-5, 2-5)** **Staff**  
Guided study of the experimental literature of physiology and biophysics. Essays are written and discussed with the staff. Emphasis is placed on critical analysis, accuracy of expression, bibliographical technique, and other factors of good scholarship. Prerequisite, permission.
- 528 Physiological Control System (2-5)** **Young**  
Theories of nonlinear mechanics and their applications to physiological control systems. Prerequisite, B.S. in physical science or permission.
- 529 Motoneuron Physiology (4)** **Towe, Woodbury**  
Electrical properties of surface membrane; excitatory and inhibitory reactions and their ionic mechanisms; properties of the spike potential; interaction of synaptic responses. Prerequisites, 515-516-517, 424, and permission.
- 530 Synapse and Reflex Seminar (4)** **Staff**  
A guided survey of the literature pertaining to reflex and synaptic physiology. Course is conducted as seminar with students giving oral reports on assigned topics. Prerequisite, 401-402, 515-516-517, and permission.
- 532-533 Principles of Physiological Instrumentation (4-4)** **Young**  
Pulse generator; A.C. and D.C. high-gain amplifier circuits; oscilloscopes and oscillographs; recording of pressure, volume, and flow in liquids and gases; calorimetry and pyrometry; continuous gas analysis. Prerequisite, permission.
- 534 Applied Physiological Instrumentation (2-5)** **Staff**  
Study and use of research instruments applicable to the nervous system (stimulators, amplifiers, and oscilloscopes), the cardiovascular system (cinefluorograph, electro- and stetho-cardiograph, oximeter, strain gauge manometers, etc.), and respiratory and metabolic activity (flow meters, minute volume integrator, infrared and paramagnetic gas analyzers, cardiograph, thermocouples, gradient calorimeter). Prerequisites, 532 and permission.
- 535 Operative Techniques in Neurophysiology (2-5)** **Patton, Smith**  
Deafferentation, decerebration, and Sherrington reflex preparation, osteoplastic bone flap, Horsley-Clarke apparatus, and reconstruction of lesions; primate colony and operating room management. Prerequisite, permission.
- 536 Behavioral Techniques in Neurophysiology (2-3)** **Smith, Towe, Staff**  
Study and use of behavioral methods applicable to nervous system studies, quantification of activity and physiological variables, interpretation of neural lesions and chronic electrode implants. Prerequisite, permission.
- 550 Cortical Potentials (4)** **Towe**  
Properties of continuous and evoked cortical potentials and their interactions. Relationship of cortical unit activity to cortical potentials. Prerequisites, 515, 519, and permission.

- 600 Research (\*)**  
Prerequisite, permission.
- 700 Thesis (\*)**

Staff

Staff

## PUBLIC HEALTH AND PREVENTIVE MEDICINE

In addition to courses for medical students, the Department of Public Health and Preventive Medicine offers courses for a four-year curriculum leading to a Bachelor of Science degree in the College of Arts and Sciences (see the *College of Arts and Sciences Bulletin*).

### COURSES

- 420 Epidemiology of Communicable Diseases (2)** **Ravenholt**  
The principles of epidemiology applied to the control of communicable diseases of man. Prerequisite, Microbiology 301 or permission.
- 421 Survey of Adult Health Problems (3)** **Staff**  
A study of the epidemiology and prevention of major adult health problems including occupational diseases, chronic and degenerative diseases, nutritional disorders, and accidents.
- 422 Survey of Environmental Health (3)** **Hatlen**  
A study of the nature and control of the predominant environmental factors involved in the transmission of communicable diseases. Particular attention is given to the following factors: food, milk, water supply, waste disposal, arthropod vectors, rodents, housing, schools, and recreational facilities.
- 423 Public Health Organizations and Services (3)** **Vavra, Wilkey**  
Study of local, national, and international public health services. For public health majors and students of nursing and dental hygiene; others by permission. An additional section will be provided for undergraduate nursing students only.
- 425 Epidemiology of Communicable Diseases (1)** **Ravenholt**  
Lectures on principal communicable diseases of man, with emphasis on methods for their control. Required for second-year medical students.
- 440 Water and Waste Sanitation (3)** **Hatlen**  
Advanced study of the sanitary control of water supplies and sewage and refuse disposal, with emphasis on the knowledge and skills utilized by the sanitarian. Prerequisite, 422 or permission.
- 441 Milk and Food Sanitation (3)** **Hatlen**  
Advanced study of the sanitary control of the production, processing, and distribution of milk and food. Prerequisite, 422 or permission.
- 442 Vector Control and General Sanitation (3)** **Hatlen**  
Advanced study of the control of rodents and arthropod vectors of disease; the control of environmental utilities, including plumbing, swimming pools, bathing beaches, recreation areas, housing, schools, and other topics of general sanitation. Prerequisite, 422 or permission.
- 450 Measurement and Control of Air Pollution (2)** **Breyse**  
Description of methods for air pollution research and control, including field survey techniques, stack sampling, continuous monitoring, and use of control equipment. Administrative problems are also discussed. For public health majors; others by permission.
- 453 Industrial Hygiene Techniques (3)** **Breyse**  
Field and industrial laboratory testing procedures for chemical and physical hazards as employed by industrial health workers. Prerequisite, permission.
- 460J Field Training in Health Education (5)** **Vavra**  
Four and one-half weeks of full-time supervised work experience in the health education division of a local official health agency. Offered jointly with the College of Education. (Offered Summer Quarter only.) Prerequisite, permission.
- 461 School and Community Health Programs (5)** **Mills, Reeves**  
Organizational structure, function, and services of official and nonofficial community and school health agencies, with particular attention to the interrelated roles of teachers, physicians, nurses, and sanitarians. Prerequisite, junior standing.
- 463 Community Organization for Health Education (3)** **Vavra**  
Trends and problems in community health education, including community organization. Prerequisite, 423 or 461, or permission.
- 464 Community Health Education Techniques (3)** **Vavra**  
Practice in the techniques of working with groups; preparation and use of visual education materials. Prerequisite, 423 or 461, or permission.
- 470 Introduction to Biometry (3)** **Bennett**  
Statistical methods used in the compilation, interpretation, and presentation of vital data. Prerequisite, permission.
- 472 Applied Statistics in Health Sciences (2-4)** **Bennett**  
Application of statistical techniques to biological and medical research; design and interpretation of experiments. Prerequisite, permission.
- 475 Clerkships and Seminar (\*)** **Staff**  
A half-term of case-oriented study of the management of complex health problems, emphasizing the utilization of community health agencies in the care of patients.

- 476 Advanced Biometry (5)** **Bennett**  
Medical and public health record systems, life table techniques and their application to chronic diseases; population studies and estimates; statistical methods in epidemiology; sample surveys. Prerequisites, 470 and 472.
- 477 Statistical Methods in Biological Assay (3)** **Bennett**  
Methods appropriate to estimation of the dose-effect relationship; biological standardization; microbiological assay; design of experiments. (Offered when demand is sufficient.) Prerequisite, permission.
- 478 Practice of Epidemiology (3)** **Ravenholt**  
Participation in the work of the Division of Acute Communicable Disease Control of the Seattle-King County Department of Public Health, including field investigations of important or unusual disease outbreaks. Senior medical student elective.
- 479 Industrial Medicine (3)** **Hanks**  
Participation in the occupational health program of the Boeing Airplane Company, including industrial and radiation hygiene, safety and medicine programs. Senior medical student elective.
- 480 Public Health Problems (\*, maximum 6)** **Staff**  
Special assignments in the field of public health. Prerequisite, permission.
- 482 Field Practice in Public Health (2-6)** **Staff**  
An assignment to a local health department for supervised application of public health practices. Prerequisite, permission.
- 483 Field Practice in Public Health (6)** **Staff**  
An assignment to a local health department for practice in program planning. Prerequisite, permission.
- 484 Field Practice in Public Health (3)** **Staff**  
An assignment to a local health department for training in the utilization of community resources. Prerequisite, permission.
- 485J School Health Problems (2)** **Leahy, Vavra**  
Analysis of and planning for school health programs based on developmental needs of the school-age child. Offered jointly with the School of Nursing. Prerequisite, permission.
- 492J Problems in International Health (2)** **Leahy**  
Conference and discussion based on a survey of international health organizations and the services offered by regions and countries. Offered jointly with the School of Nursing. Open to any senior or graduate university student. Prerequisite, permission.
- Conjoint 496 Concept of the Child (3) (See Conjoint Courses below.)**
- 498 Undergraduate Thesis (\*)** **Staff**  
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
Prerequisite, permission.

## COURSE FOR GRADUATES ONLY

- 502J Applied Group Development Principles (3)** **Murray, Vavra**  
A study of the factors that contribute to productive group effort with application of group development principles for professional health personnel. Offered jointly with the School of Nursing. Prerequisites, Speech 332 or equivalent, and background in the health field.

## CONJOINT COURSES AND MEDICAL PRACTICE

### CONJOINT COURSES

Conjoint courses are offered cooperatively by departments in the School of Medicine. They are designed to integrate basic medical training with clinical work and, in some cases, to integrate basic medical training in two or more fields. In the descriptions of these courses, the name of the department with primary responsibility for each course precedes the names of the other sponsoring departments.

### COURSES

- 317-318 Elementary Anatomy and Physiology (6-6)** **Skahen, Staff**  
Human physiology with anatomical demonstrations. An elementary course integrating anatomy, histology, physiology, and biochemistry of the human body. Offered by the Departments of Anatomy and Physiology and Biophysics. For nursing and dental hygiene students.

**350-351 Human Function and Structure (6-6)****Skahen, Staff**

An intermediate course integrating anatomy, histology, physiology, and biochemistry of the human body. Offered by the Departments of Anatomy and Physiology and Biophysics. For master's degree candidates in psychology and other students not majoring in anatomy or physiology. Prerequisite, permission.

**409 Basis of Neurology (3,5, or 8)****Everett, Patton, Rich**

An advanced course in the anatomy of the central nervous system and its correlation with neurophysiology. Offered by the Departments of Anatomy and Physiology and Biophysics. Required for first-year medical students. Prerequisite for graduate students, permission.

**426-427 Clinical Medicine (\*-\*)****Staff**

Introduction to clinical medical sciences. The student is taught to take complete histories and perform general physical examinations. Knowledge acquired in the basic medical sciences is used to explain the mechanism of development of cardinal symptoms and the signs of major diseases. Offered by the Departments of Medicine, Obstetrics and Gynecology, Pediatrics, Psychiatry, and Surgery. Required for second-year medical students.

**446-447 Laboratory Procedures (4-2)****Staff**

Lectures on the principles of some of the common clinical laboratory tests and on their use in diagnosis and in following the course of therapy. The laboratory work demonstrates technical details, sources of error, and relative accuracy of certain of these tests, and it provides an opportunity for the students to perform some of the tests they will use in subsequent ward duty. Offered by the Departments of Pathology and Medicine. Required for second-year medical students. Prerequisite for graduate students, permission.

**490 Conjoint Clinical Conference (\*)****Staff**

Two-hour clinical conference held weekly in which a department develops a clinical problem that enlists the active participation of its own staff and that of the basic health sciences departments and the clinical sciences departments. The entire staff of the School of Medicine attends these conferences. Presentation of the problem by staff members is followed by an open forum. Open to third- and fourth-year medical students.

**496 Concept of the Child (3)****Deisher, Tjossem, Staff**

An advanced course for students who desire a more complete understanding of the child through integration of the viewpoints of pediatrics, public health, psychology, psychiatry, nutrition, social work, and nursery education. Offered by the Departments of Pediatrics and Public Health and Preventive Medicine. For nonmedical students. Prerequisite, permission.

**585 Surgical Anatomy (2-4, maximum 12)****Staff**

An intensive course of lectures and dissection devoted to one region of the body each quarter, i.e., thorax, abdomen, upper extremity, head, and neck. Offered by the Departments of Surgery and Anatomy. Prerequisite, permission.

## MEDICAL PRACTICE

### COURSES

**401 History of Medicine (\*)****Haviland, Staff**

An introduction to the historical background of medicine including ethics and economics following orientation in the field; student and faculty participation in informal seminar-type presentation and discussion is emphasized. Open to all medical students.

**475 Externship in General Practice (\*)****Aagaard, Staff**

Three and one-half or seven weeks of work with a selected general practitioner to give a firsthand view of the interests and problems presented in medical practice. Open to fourth-year students.

**481 Medical Ethics, Economics, and Legal Medicine (\*)****Aagaard, Staff**

Lectures and discussions by authorities in these fields on topics of current and practical interest for the future physician. Required for fourth-year medical students.

**483 Hospital Extension Service (\*)****Staff**

Students are assigned home-care cases for which they are responsible under the guidance of the instructor. Open to third- and fourth-year students.

### CLINICAL MEDICAL SCIENCES

## ANESTHESIOLOGY

**Executive Officer: JOHN J. BONICA, BB449 University Hospital**

The Department of Anesthesiology has been established as a department as this Bulletin goes to press. The Department has broad responsibilities for the teaching of medical students throughout their four years of undergraduate training. This training is in the main accomplished through participation with both the basic health sciences and clinical sciences. In addition, a very active training program for interns and residents is carried out.

## MEDICINE

**Executive Officer: ROBERT H. WILLIAMS, BB557 University Hospital**

In the second year, the student is introduced to many problems of clinical medicine and the main avenues for their resolution; in the third year, he becomes more adept in the complete work-up and therapy of problems in general internal medicine; in the fourth year, emphasis is placed on the difficult and special problems.

### COURSES

- 401 Samples of Clinical Medicine (\*)** **Staff**  
Elective course in which select patients will be shown to illustrate problems in clinical medicine and to demonstrate the importance of basic medical sciences in diagnosis and treatment. First-year medical students.
- Conjoint 426-427 Clinical Medicine (\*-\*) (See Conjoint Courses, page 70.)**
- 430 Basic Science Aspects and Introduction to Clinical Endocrinology (\*)** **Staff**  
Elective course in which patients will be presented and discussed from the pathophysiological and clinical points of view. Second-year medical students.
- 431 Human Genetics (\*)** **Staff**  
Elective course giving review of genetics with special emphasis on genetic factors in the etiology of disease. Principles and facts of human heredity of value to the physician will be stressed. Second-year medical students.
- 432 The Blood Group Systems (\*)** **Staff**  
Elective course giving lecture and laboratory work including individual projects which apply to the general problems related to blood transfusion. Second-year medical students.
- Conjoint 446-447 Laboratory Procedures (4-2) (See Conjoint Courses, page 70.)**
- 465 Clinical Clerkships (\*)** **Staff**  
Approximately three hospital patients a week are assigned to each student for a complete work-up. Ward rounds are held daily; lectures, clinics, and conferences weekly. Seven days are spent at Firland Sanatorium and ten days with neurology inpatients. Required for third-year medical students.
- 480 Clinical Clerkships (\*)** **Staff**  
One fifth of the fourth-year class spends seven weeks as clinical clerks on the medical wards or in the outpatient clinics at King County Hospital or University Hospital. All students attend specialty conferences. Students assigned to the outpatient services attend a General Medical Clinic and several of the following Clinics: Allergy, Arthritis, Cardiology, Chest, Dermatology, Gastroenterology, Hematology, Infectious Diseases, Metabolism, and Neurology. One lecture is given to the entire class each week.
- 481 Advanced Clinical Endocrinology (\*)** **Staff**  
Elective work including library review on a selected topic in the field; optional participation in medical clinical research problems; work up and presentation of patients on endocrine rounds each week at Veterans Administration Hospital (optional). Fourth-year medical students.
- 482 Clinical Cardiology and Electrocardiography (\*)** **Staff**  
Elective work in cardiology clinics at University Hospital and King County Hospital. Interpretation of electrocardiograms, laboratory and exercise tests, cardiovascular hemodynamics. Rounds and conferences. Fourth-year medical students.
- 483 Clinical Electrocardiography and Cardiology (\*)** **Staff**  
Elective work in clinical electrocardiography and cardiology, with participation in cardiology rounds and cardiovascular studies in the laboratory. Veterans Hospital. Fourth-year medical students.
- 484 Clinical Hematology (\*)** **Staff**  
Elective training in morphology. A spectrum of patients will be seen in Hematology Clinic and one or two patients will be selected for intensive study. Fourth-year medical students.
- 485 Clinical Genetics (\*)** **Staff**  
Elective work with intensive study of genetic principles required in clinical work. May work in depth on selected problem or get broader experience in aiding to work up a variety of clinical cases. Fourth-year medical students.
- 486 Advanced Clinical Neurology (\*)** **Staff**  
Elective work including clinical study of selected patients and advanced work on the nervous system. Training in use of clinical and laboratory physiological techniques. Fourth-year medical students.
- 487 Outpatient Clinic, King County Hospital (\*)** **Staff**  
Work up of patients under supervision; discussion of these patients with attending physicians. Fourth-year medical students.
- 488 Medical Externships, King County Hospital (\*)** **Staff**  
Work on medical ward under supervision of house staff and visiting physicians. Fourth-year medical student elective.



- 489 Externship in Infectious Diseases, King County Hospital (\*)** **Staff**  
Students will act as clinical clerks on Ward 4 South, King County Hospital and will engage in special projects in the bacteriological laboratory.
- 490 Outpatient Clinic, University Hospital (\*)** **Staff**  
Work in one or more of the Group Clinics, University Hospital. Fourth-year medical student elective.
- 491 Clinical Clerkship, University Hospital (\*)** **Staff**  
Work as clinical clerk on one of the medical wards. Fourth-year medical student elective.
- 492 Metabolic Clinic, University Hospital (\*)** **Staff**  
Elective work in the Metabolic Clinic under close supervision. Fourth-year medical students.
- 498 Undergraduate Thesis (\*)** **Staff**  
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Staff**  
Case studies, with laboratory research. For medical students. Prerequisite, permission.

## OBSTETRICS AND GYNECOLOGY

**Executive Officer: RUSSELL R. DE ALVAREZ, BB617 University Hospital**

The Department of Obstetrics and Gynecology represents the field of normal and complicated obstetrics, growth and development of the unborn fetus, medical and surgical diseases of women, endocrinology as it is peculiar to the female, and the preventive phases of obstetrics and gynecology.

### COURSES

**Conjoint 426-427 Clinical Medicine (\*-\*) (See Conjoint Courses, page 70.)**

- 465 Clinical Clerkships (\*)** **de Alvarez, Staff**  
With the exception of one weekly lecture, the work is almost entirely clinical and limited to the inpatient service of King County Hospital. The student spends two-thirds of his time on obstetrics and one-third on gynecology. On obstetric service, students work in obstetric wards, labor rooms, and delivery rooms. They are given instruction in the immediate care of the normal newborn infant and the obstetric implications reflected by the newborn infant. On gynecology service, the student spends his time with patients in the wards, making ward walks, and assisting in the operating room as well as performing examinations under ideal conditions. Part of the work emphasizes the application of obstetric and gynecologic endocrinology. In addition, each student spends ten days in one of the private hospitals, observing and assisting in the methods used in the private practice of obstetrics and gynecology. While in these hospitals, he is under the immediate supervision of responsible members of the departmental faculty. Required for third-year medical students.
- 476 Obstetric Externship (\*)** **de Alvarez**  
Student to be assigned to one of two hospitals: Madigan Army Hospital or Swedish Hospital. All terms, twelve days, full time.
- 477 Office Obstetrics and Gynecology (\*)** **de Alvarez, Staff**  
Office procedures used in the practice of obstetrics and gynecology. Emphasis on the examination, diagnosis, and treatment of the major gynecologic problems and the opportunity to examine several obstetrical and gynecological patients in the clinic. All terms, twelve days, full time.
- 479 Obstetric and Gynecologic Investigation (\*)** **de Alvarez**  
The investigation will cover the toxemias of pregnancy; fluid and electrolyte balance in obstetrics and gynecology; uterine muscle physiology; hormone assays in obstetrics and endocrinology; coagulation defects in pregnancy; obstetric and gynecologic malignancies. All terms, three and one-half weeks, full time.
- 480 Clinical Clerkships (\*)** **de Alvarez, Staff**  
The student spends his time equally in obstetrics and gynecology while the majority of the time will be spent in the clinics of the University Hospital, the time in obstetrics will involve being at King County Hospital on certain nights of the clerkship, being present at all deliveries, and closely following the management of all obstetric patients. In gynecology service, the student makes ward rounds, studies the problems of inpatient gynecology and the phases of gynecologic endocrinology. In addition, he spends a certain proportion of his time in outpatient clinics devoting himself to the office problems of the specialty. Required for fourth-year medical students.
- 481 Senior Seminar (\*)** **de Alvarez**  
Current literature in obstetrics and gynecology, oncology, and research as it pertains to obstetrics and gynecology. Selected presentations of research done in our department will also be presented from time to time. All terms, one hour weekly by arrangement.
- 482 Externship Problems (\*)** **de Alvarez**  
Presentation of cases seen in the externship in the local hospitals with discussion of the problems, selected reviews of the literature, and recent research related thereto. All terms, one hour weekly by arrangement.

- 483 Thesis (\*)** **Staff**  
All terms. Full time.
- 484 Obstetric and Gynecologic Endocrinology (\*)** **de Alvarez, Staff**  
Comprehensive reports in the field of obstetrics and gynecology in conjunction with the presentation of patients illustrating obstetric and gynecologic endocrinologic problems.
- 498 Undergraduate Thesis (\*)** **de Alvarez, Staff**  
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*)** **de Alvarez, Staff**  
Discussion of methods used in obstetrics and gynecology research. Several specific projects relating to the most fascinating and intriguing problems of the specialty will be dealt with.

## PEDIATRICS

**Executive Officer: ROBERT A. ALDRICH, BB807 University Hospital**

The student is instructed about the role of growth and development in the emotional and physical responses of infants and children during health and illness.

In the second year the student is oriented toward the principal problems that appear at various ages from infancy through adolescence. The third year is primarily devoted to developing the student's ability to recognize and treat the broad range of medical problems that are responsible for the hospitalization of infants and children. Fourth-year students are given responsibility under supervision for the outpatient care and management of the common disorders of childhood and the problems of the well child.

Instruction is provided by means of conjoint courses, lectures, and clinical clerkships in the third and fourth years.

## COURSES

- 404 Human Growth and Development (\*)** **Deisher, Staff**  
An opportunity is provided to observe and closely follow an infant and his family throughout one or two years. The influence of constitutional and environmental factors on growth and development will be demonstrated in individual interviews and group discussions with members of the pediatric staff. Open to first- and second-year medical students.
- Conjoint 426-427 Clinical Medicine (\*-\*) (See Conjoint Courses, page 70.)**
- 465 Clinical Clerkships (\*)** **Aldrich, Staff**  
Lectures, eighteen hours; inpatient clinical clerkship. Students are assigned to the pediatric wards at the Children's Orthopedic Hospital to work in small groups under supervision of the departmental staff. Required for third-year medical students.
- 480 Clinical Clerkships (\*)** **Aldrich, Staff**  
Students are assigned patients in the outpatient departments of the King County Hospital, Children's Orthopedic Hospital, and the University Child Health Center where they are responsible for the care and treatment of the patients under departmental staff supervision. Included are opportunities to attend special clinics in subspecialties of medicine and the Preschool Spastic Clinic. Required for fourth-year medical students.
- 481 Research in Child Growth and Development (\*)** **Aldrich, Deisher, Staff**  
Pursuit of short-term projects in growth and development by student under guidance of Child Health Center staff, including special behavior problems in childhood. Open to senior medical students. Prerequisite, permission.
- 482 Research in Pediatric Endocrinology and Teratology (\*)** **Shepard**  
Special research problems in pediatric endocrinology and teratology will be undertaken in the laboratory and/or clinic. The problem will depend on the student's interests. Open to all medical students. Prerequisite, permission.
- 483 Clinical Experience in Problems of Well Child Care (\*)** **Aldrich, Deisher, Staff**  
Further experience at the Child Health Center in the common problems met in clinical practice among well children from infancy through adolescence. Open to senior medical students. Prerequisite, permission.
- 484 Clinical Pediatrics (\*)** **Aldrich, Staff**  
Assignment of hospital wards or newborn nursery at University Hospital, King County Hospital, and Children's Orthopedic Hospital. Open to senior medical students. Prerequisite, permission.
- 485 Clinical Problems in Mental Retardation (\*)** **Aldrich, Deisher, Staff**  
Experience in multi-disciplined evaluation of the retarded child and study of the community management of this problem. Open to senior medical students. Prerequisite, permission.
- 498 Undergraduate Thesis (\*)** **Aldrich, Staff**  
For medical students. Prerequisite, permission.

**499 Undergraduate Research (\*)****Aldrich, Staff**

An opportunity to work in the laboratory on problems related to pediatrics. Open to first- and second-year medical students. Prerequisite, permission.

**COURSE FOR GRADUATES ONLY****505 Physical Growth of the Well Child (2)****Staff**

Nine weekly seminars (eighteen hours). Presentation by departmental staff of relationships between growth and development and diseases of childhood as they pertain to dental health. For graduate students in dentistry. Prerequisite, permission.

**PHYSICAL MEDICINE AND REHABILITATION****Executive Officer: JUSTUS F. LEHMANN, CC814 University Hospital**

The Department of Physical Medicine and Rehabilitation provides instruction for medical students, interns, and residents in the comprehensive approach to rehabilitation problems. This includes special diagnostic and evaluative procedures; methods and rationale for use of physical therapy, occupational therapy, and other paramedical specialties; and advanced investigation of special problems encountered in the field. In addition, the Department conducts a residency training program for the specialty of Physical Medicine and Rehabilitation.

The Department offers a curriculum in Occupational Therapy (see pages 77 and 80) and a curriculum in Physical Therapy (see pages 78 and 80).

**COURSES****N107 Introduction to Occupational Therapy (0)****Shevlin**

Orientation to occupational therapy as a paramedical specialty. Elementary concepts of treatment-through-activity and their application in various disability areas. Relationship of occupational therapy to allied specialties such as nursing, physical therapy, social work.

**290 Pre-Occupational Therapy Clerkship (2)****Staff**

Supervised observation and work with patients in local occupational therapy clinics concurrent with lectures on professional ethics and on elementary techniques of occupational therapy. Prerequisite, permission.

**302 Terminology (1)****Brunner, Staff**

Common terms, abbreviations, prefixes, and suffixes used in medicine and various term usage in the field of physical medicine and rehabilitation. Required for occupational therapy students and physical therapy students, others by permission.

**N306 Introduction (0)****Brunner, Staff**

Orientation; history, scope of physical medicine and rehabilitation; relationships of physical therapy, occupational therapy, nursing, rehabilitation counseling, social service and other allied services in carrying out the team concept of a complete rehabilitation program. Required for physical therapy students, others by permission.

**320-321 Medical Science (4-4)****Staff of Departments of Medicine, Obstetrics and****Gynecology, Physical Medicine and Rehabilitation, Radiology, Surgery**

Lectures in medical science fields related to: general surgery, obstetrics and gynecology, internal medicine, neurology, physical medicine and rehabilitation, orthopedics, rheumatology, and roentgenology. Required for occupational therapy students and physical therapy students, others by permission.

**332 Pathologic Physiology for Physical Therapists and Occupational Therapists (5)****Lehmann, Staff**

Emphasis on normal and pathologic physiology of the circulatory, respiratory, central nervous and musculo-skeletal systems as basis for treatment in occupational therapy and physical therapy. Required for occupational therapy students and physical therapy students, others by permission. Prerequisites, Anatomy 301, Zoology 208.

**342 Advanced Kinesiology (3)****Lehmann, Staff**

Study of joint motion and muscle function in relation to both the normal and abnormal state. Analysis is made of specific techniques employed in the field of physical medicine and rehabilitation. Required for physical therapy students, others by permission.

**350-351 Function of the Locomotor System (4-4)****Lehmann, Staff**

Functions of musculo-skeletal system as applied to normal and pathologic patterns of motion. Emphasis on upper extremity, shoulder girdle, lower extremity and trunk. Anatomy of peripheral, vascular, and nervous system. Required for occupational therapy students and physical therapy students, others by permission. Prerequisites, Anatomy 301, Zoology 208.

**380 Occupational Therapy Theory I (4)****Bowing, Shevlin, Staff**

Study of fundamentals applicable to all areas of treatment with particular emphasis on the use of occupational therapy in the treatment of physical disabilities. Correlated with 342. Prerequisite, third-year occupational therapy students.

- 408 Tests and Measurements (3)** **McMillan, Redford, Staff**  
Methods of performing, recording, and interpreting test procedures used in physical medicine and rehabilitation; measurement of joint motion, evaluation of muscle strength through manual tests, and posture evaluation. Laboratory. Required for physical therapy students, others by permission.
- 416 Ethics and Administration (2)** **Brunner, Staff**  
Basic principles of medical ethics, professional organizations and obligations of a physical therapist, and the administration of a physical therapy department. Required for physical therapy students, others by permission.
- 451 Anatomy Dissection for Occupational Therapists and Physical Therapists (4)** **Redford, Staff**  
Dissection of musculo-skeletal, peripheral, vascular, and nervous systems, including gross anatomy of other areas. Required for occupational therapy students and physical therapy students, others by permission.
- 461 Massage (3)** **Brunner, Staff**  
History of massage, methods of application, indications and contraindications, with the physiological effects on various systems of the body. Laboratory. Required for physical therapy students, others by permission.
- 463-464 Modality Treatments (4-5)** **Brunner, Staff**  
Theory, technique, demonstration and practice in the use of the physical agents employed in physical therapy which include thermotherapy, actinotherapy, hydrotherapy, low-frequency and high-frequency currents, and ultrasound. Required for physical therapy students, other by permission.
- 466-467 Advanced Biophysical and Physiological Effects of Modalities (2-2)** **Lehmann, Staff**  
Biophysical principles of equipment employed in physical therapy, physiological effects produced. Required for physical therapy students, others by permission.
- 468 Therapeutic Activities I (3-5)** **Bowing, Shevlin**  
Laboratory study of materials and techniques in a variety of handicrafts as they are used in occupational therapy. Includes a study of the design and fabrication of splints, self-help devices, etc. Prerequisite, fourth-year occupational therapy students.
- 469 Therapeutic Activities II (3)** **Bowing, Shevlin**  
Laboratory survey of special skills used in occupational therapy (recreation skills, industrial activities, etc.). Adjusted to meet the needs of the individual student. Prerequisite, fourth-year occupational therapy students.
- 470-471-472 Therapeutic Exercise (3-3-3)** **McMillan, Redford, Staff**  
Methods of application, physiologic and therapeutic effects of exercises commonly used for treatment purposes in physical therapy. Opportunities are provided for supervised clinical practice of skills, and special attention is given to correlation of techniques to appropriate age level and handicap. New developments from the field are analyzed and evaluated. Required for physical therapy students, others by permission.
- 476 Physical Restoration, Ambulation, and Transfer Activities (3)** **McMillan, Staff**  
Instruction in theory and methods of physical restoration of the severely handicapped patient. Laboratory demonstration, practice, and supervised clinical practice in: selection, care and use of wheelchairs, crutches, canes, walkerettes, and other assistive devices; training in use of braces and prostheses; special problems in the area of activities of daily living. Required for physical therapy students, others by permission.
- 477-478-479 Occupational Therapy Clinical Affiliation in Physical Disabilities (2-3-3)** **Bowing, Staff**  
Directed and supervised clinical practice in the Occupational Therapy Clinics of the University Hospital Rehabilitation Center. Required for fourth-year occupational therapy students.
- 481 Occupational Therapy Theory II (3)** **Bowing, Shevlin**  
Correlated with 477- and emphasizing the total rehabilitation of the physically disabled patient. Includes a study of the various professions and agencies and organizations involved in the comprehensive care of the physically disabled. Prerequisite, fourth-year occupational therapy students.
- 482 Occupational Therapy Theory III (3)** **Bowing, Shevlin, Staff**  
A study of the application of occupational therapy in special fields: pediatrics (including cerebral palsy); geriatrics; patients with special problems (blind, mentally retarded, etc.). Prerequisite, fourth-year occupational therapy students.
- 483 Occupational Therapy Theory IV (3)** **Staff**  
A study of the principles and techniques of occupational therapy in the treatment of the psychiatric patient. Prerequisite, fourth-year occupational therapy students.
- 484 Occupational Therapy Theory V (2)** **Bowing, Staff**  
Principles of administration, organization, and supervision as applied in the management of occupational therapy programs. Prerequisite, fourth-year occupational therapy students.
- 486 Special Techniques and Procedures (3)** **Brunner, Staff**  
Special problems encountered in clinical affiliations, discussions and demonstrations of special problems, tests, and operating procedures. For physical therapy students, others by permission.
- 492 Occupational Therapy Clinical Affiliation in General Medicine and Surgery and/or Tuberculosis (1-8, maximum 8)** **Bowing**  
Directed and supervised clinical practice in Occupational Therapy Clinics for general

medical and surgical patients. Arranged in University Hospital or other affiliated hospitals. Required for fourth- or fifth-year occupational therapy students.

- 493 Occupational Therapy Clinical Affiliation in Pediatrics (1-4, maximum 4)** **Bowing**  
Directed and supervised clinical practice in a pediatric occupational therapy service. Arranged in University Hospital or other affiliated hospitals. Required for fifth-year occupational therapy students.
- 494 Occupational Therapy Clinical Affiliation in Psychiatry (1-6, maximum 6)** **Bowing**  
Directed and supervised clinical practice in Psychiatric Occupational Therapy Clinics in University Hospital or other hospitals approved for occupational therapy teaching. Required for fifth-year occupational therapy students.
- 495 Clinical Affiliations in Physical Therapy (12)** **Lehmann, Brunner, Staff**  
Twelve to fifteen weeks with 600 minimum working hours. Clinical application of physical therapy techniques under supervision in the Physical Therapy Departments of affiliated hospitals. Required for physical therapy students.
- 498 Undergraduate Thesis (\*)** **Lehmann, Staff**  
Prerequisite, permission.
- 499 Undergraduate Research (\*)** **Lehmann, Staff**  
a) Research for undergraduate medical students. Participation in clinical and basic research projects in the department. b) Research projects with special reference to modality treatment and physical therapy techniques for physical therapy students. Prerequisite, permission.
- 520 Seminar (1-5)** **Lehmann, Redford, Staff**  
Conferences, seminars, discussions of advanced physical medicine and rehabilitation topics. Prerequisite, permission.

## CURRICULUM IN OCCUPATIONAL THERAPY

The Department of Physical Medicine and Rehabilitation offers courses leading to the degree of Bachelor of Science in Occupational Therapy in the School of Medicine. The total curriculum requires fourteen quarters and is divided into a two-year (six quarters) preprofessional program and a two year and six months (eight quarters) professional program. Although there is a concentration of professional courses in the third and fourth years, the program is designed so the specific course requirements for preprofessional and professional studies are scheduled concurrently with electives in the liberal arts throughout the four years. The curriculum includes the minimum essentials for occupational therapy education programs as established by the Council on Hospitals and Medical Education of the American Medical Association.

### THE PREPROFESSIONAL PROGRAM

The preprofessional program may be taken in the University of Washington College of Arts and Sciences or in any accredited college or university which offers the essential courses. The following courses, or approved substitutes, should be completed in the first two years: Anatomy 301 (General Anatomy); Art 109 (Design), 201 (Ceramics), 290 (Art Education); Chemistry 100 or 110 (General), 120 (General and Organic); Education 182 (General Shop), 280 (Woodworking); Home Economics 329 (Hand Weaving); Physical Medicine and Rehabilitation N107 (Introduction to Occupational Therapy), 290 (Pre-OT Clerkship); Psychology 100 (General), 101 (Adjustment); Sociology 110 (Survey); and Zoology 208 (Human Physiology).

Students are referred to the *College of Arts and Sciences Bulletin* for course descriptions and credits and for an explanation of University requirements for English composition, health education, physical education, and ROTC. Students are urged to procure the detailed instructions for pre-occupational therapy majors which include sample time schedules, possible course substitutions, and recommended electives. These may be obtained from the Advisory Office of the College of Arts and Sciences, 121 Miller Hall, or from the Division of Occupational Therapy, University Hospital.

### THE PROFESSIONAL PROGRAM

Students are admitted to the professional program in the School of Medicine on the junior level, through formal application procedures explained on page 80. The

student must have completed the two-year preprofessional program with a grade-point average of 2.50 and a minimum of 90 quarter credits plus 3 physical education credits.

### SUMMARY OF THE THIRD- AND FOURTH-YEAR PROGRAMS

#### Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Med. & Rehab. 302		Phys. Med. & Rehab. 320-		Phys. Med. & Rehab. -321	
Terminology	1	Medical Science	4-	Medical Science	-4
Phys. Med. & Rehab. 332		Phys. Med. & Rehab. -351		Phys. Med. & Rehab. 342	
Pathologic Physiology	5	Function of Locomotor		Advanced Kinesiology	3
Phys. Med. & Rehab. 350-		System	-4	Phys. Med. & Rehab. 380	
Function of Locomotor		Anat. 331 Neuroanatomy	2	OT Theory I	4
System	4-	Educ. 383 Advanced		Phys. Med. & Rehab. 451	
Psychol. 305 Abnormal		Woodwork	3	Anatomy	4
Psychology	5	Electives*	3	Art 357 Metal Design	3
Electives*	2		16		18
	17				

#### Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Med. & Rehab. 468		Phys. Med. & Rehab. 469		Phys. Med. & Rehab. 479	
Therapeutic		Therapeutic		Clinical Training in	
Activities I	3-5	Activities II	3	Physical Disabilities	3
Phys. Med. & Rehab. 477		Phys. Med. & Rehab. 478		Phys. Med. & Rehab. 483	
Clinical Training in		Clinical Training in		OT Theory IV	3
Physical Disabilities	2	Physical Disabilities	3	Phys. Med. & Rehab. 484	
Phys. Med. & Rehab. 481		Phys. Med. & Rehab. 482		OT Theory V	3
OT Theory II	3	OT Theory III	3	Conjoint 496 Concept of	
Psychiat. 450 Principles		Psychiat. 451 Principles		the Child	3
of Personality Develop-		of Personality Develop-		Psychiat. 452 Clinical	
ment	2	ment	2	Psychiatry	2
Electives*	4-6	Electives*	5	Electives*	2
	16		16		16

\*Students are advised to choose the majority of electives in the third and fourth years from the behavioral sciences.

### SUMMARY OF FIFTH-YEAR PROGRAM

The essentials for occupational therapy education programs require a minimum of nine months of clinical affiliations. The professional program in the fourth year at the University of Washington includes a clinical affiliation in physical disabilities (Phys. Med. & Rehab. 477, 478, 479) which fulfills three months of this requirement. The six months of clinical affiliations in the fifth year must include not less than three months in psychiatry, with the remaining three months in pediatrics, general medicine and surgery, and/or tuberculosis. To assure that the student has experience in various types of hospitals, at least part of this affiliation must be taken in an approved teaching program in an institution outside of the University Hospital. The students are given an opportunity to select from a number of approved teaching programs.

### CURRICULUM IN PHYSICAL THERAPY

The Department of Physical Medicine and Rehabilitation offers courses leading to the degree of Bachelor of Science in Physical Therapy in the School of Medicine. Students are admitted to the Physical Therapy curriculum on the junior level, where they will receive instruction, training, and clinical experience in physical therapy. Prior to enrollment in the curriculum, a student must have completed, with a cumulative grade-point average of 2.50, a two-year program of courses providing a broad educational background, as well as the prerequisites for the curriculum in physical therapy.

The Advisory and Evaluation Committee of Physical Therapy requires the

following courses given at the University of Washington. Students taking pre-physical therapy work at other institutions may compare these courses with those given in their schools by checking the course descriptions given in the *College of Arts and Sciences Bulletin*.

## QUARTER CREDITS

Anatomy 301 .....	4
Chemistry 100 or 110, 120 .....	8 or 9
Mathematics 101, 103, 104, 105, or 120 .....	2-5
Microbiology 301 .....	5
Physics 170, 170L .....	6
Psychology 100, 101 .....	10
Psychiatry 267 .....	2
Sociology 110 .....	5
Speech 100 .....	5
Zoology 118, 118L, or 208 .....	5-6

The Advisory and Evaluation Committee of Physical Therapy recommends that students choose electives with the aim of broadening their background in human relationships and understanding.

High school students desiring to enter the curriculum in physical therapy at the University of Washington should arrange their current course of study to meet the requirements for admission to the College of Arts and Sciences.

## CURRICULUM IN PHYSICAL THERAPY

## First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 100 or 110		Chem. 120 General and		Engl. 103 Composition ..	3
General .....	4-3	Organic .....	5	Physics 170 & 170L	
Engl. 101 Composition ..	3	Engl. 102 Composition ..	3	Introduction to Health	
Health Educ. 110 or 175 ..	2	Speech 100 Basic Speech		Science Physics & Lab. ..	6
Math. 101, 103, 104, 105,		Improvement .....	5	Sociol. 110 Survey .....	5
or 120 Introduction ..	2-5	Phys. Educ. Activity .....	1	Phys. Educ. Activity .....	1
Phys. Educ. Activity .....	1	Approved Electives .....	2	ROTC .....	2-3
Approved Electives .....	2-5	ROTC .....	2-3		
ROTC .....	2-3				
	15-20		16-19		15-18

## Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Psychol. 100 General ..	5	Micro. 301 General .....	5	Anat. 301 General .....	4
Zool. 118, 118L Survey		Psychiatry 267 Introduc-		Approved Electives .....	11
of Physiology & Lab. ....	6	tion to Mental Hygiene. 2		ROTC .....	2-3
Approved Electives .....	4	Psychol. 101 Adjustment. 5			
ROTC .....	2-3	Approved Electives .....	3		
	15-18	ROTC .....	2-3		
			15-18		

## Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Med. & Rehab. 302		Phys. Med. & Rehab.		Phys. Med. & Rehab.	
Terminology .....	1	320- Medical Science. .	4-	N306 Introduction .....	0
Phys. Med. & Rehab. 332		Phys. Med. & Rehab. -351		Phys. Med. & Rehab.	
Pathologic Physiology		Function of the Loco-		-321 Medical Science ..	4
for PT and OT .....	5	motor System .....	4	Phys. Med. & Rehab. 342	
Phys. Med. & Rehab.		Anat. 331 Neuroanatomy. 2		Advanced Kinesiology ..	3
350- Function of the		Nursing 316 Nursing for		Phys. Med. & Rehab. 451	
Locomotor System .....	4-	Physical Therapists .....	2	Anatomy Dissection	
Nursing 315 Nursing for		Approved Electives .....	3	for PT and OT .....	4
Physical Therapists .....	2			Path. 310 General .....	2
Approved Electives .....	3			Approved Electives .....	2
	15				

**Fourth Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Med. & Rehab. 408		Phys. Med. & Rehab. 463-		Phys. Med. & Rehab. 416	
Tests & Measurements . . . 3		Modality Treatments . . . 4-		Ethics & Administration 2	
Phys. Med. & Rehab. 461		Phys. Med. & Rehab. -467 . . .		Phys. Med. & Rehab. -464	
Massage . . . . . 3		Advanced Biophysical & Physiological Effects of Modalities . . . . . -2		Modality Treatments . . . -5	
Phys. Med. & Rehab. 466-		Phys. Med. & Rehab. -471-		Phys. Med. & Rehab. -472	
Advanced Biophysical & Physiological Effects of Modalities . . . 2-		Therapeutic Exercise . . . -3-		Therapeutic Exercise . . . -3	
Phys. Med. & Rehab. 470-		Phys. Med. & Rehab. 476		Phys. Med. & Rehab. 486	
Therapeutic Exercise . . . 3-		Physical Restoration . . . 3		Special Techniques and Procedures . . . . . 3	
Approved Electives . . . . 4		Approved Electives . . . . . 3		Approved Electives . . . . . 2	
	15		15		15
		FOURTH QUARTER	CREDITS		
		Phys Med. & Rehab. 495			
		Clinical Affiliations . . . 12			

## CURRICULUM IN OCCUPATIONAL THERAPY AND CURRICULUM IN PHYSICAL THERAPY

The educational programs in Occupational Therapy and in Physical Therapy share a common need for studies in human anatomy and physiology with a special emphasis on the musculo-skeletal and nervous systems and a need for basic studies in pathological physiology and medical sciences. In these areas of study, the two curricula share identical courses. In other areas, the two curricula are independent programs, with separate faculties for instruction in the professional courses and separate Advisory and Evaluation Committees.

The application procedures, student promotion policies, and fees are departmental policies which apply to both curricula except where exceptions are specifically noted.

### APPLICATION PROCEDURE

For entrance to the Autumn Quarter, the applicant must initiate the following steps on or before March 1: (1) Arrange a personal interview with a member of the teaching staff of the division; (2) Submit formal application to the Advisory and Evaluation Committee of the division concerned, c/o Department of Physical Medicine and Rehabilitation, Room CC814 University Hospital. (Application forms are available from the Department.); (3) Arrange for official transcript(s) to be sent directly from the registrar(s) of previous college(s) to the Advisory and Evaluation Committee, including complete record with grades and credits to date. (When college transcripts do not include a complete list of high school courses and credits, such a list must be submitted with the application. Also include a list of courses the applicant is currently taking or will take to complete preprofessional requirements. An official record of grades for such courses must be submitted when available.); (4) An unmounted recent photograph, 2x2 inches, is desirable but not required.

### PROCESSING OF APPLICATIONS

The Advisory and Evaluation Committee bases its decision on the objective evaluation of applicant's residence, preprofessional training, evidences of scholarship, and evidences of personal qualification for the work. The Committee or any one of its members may request a personal interview with the applicant to supplement the above information.

### NOTIFICATION

The Committee gives written notice to the applicant as soon as possible after decision is made. Within two weeks after a candidate has been notified that he is accepted, the Comptroller of the University requires a deposit of \$50.00. This deposit is applied to the tuition for the first quarter. It is refundable only in cases of withdrawal for bonafide illness, failure to complete basic preprofessional re-



quirements, induction into military service, or failure to pass the physical examination required of all students at the time of registration.

### STUDENT ACHIEVEMENT AND PROMOTION

The University grade-point system is used. Students are notified of their grades at the end of each quarter.

A student must maintain an average of 2.50, and a cumulative average of 2.50 is required for graduation. If the work in a course is incomplete, a grade of I may be given. This Incomplete must be removed before September 15 if the student is to advance into the next year's class.

At the end of each academic year the Advisory and Evaluation Committees evaluate the accomplishment of the student during the year and determine his fitness for promotion. When promotion is not recommended, the student is subject to dismissal from the curriculum. The Advisory and Evaluation Committees reserve the right to dismiss a student from the curriculum for any reason it deems sufficient. A student is advanced only when his general attitude, scholastic progress, and personal attributes are considered satisfactory.

### CLASS SCHEDULES

The curriculum in physical therapy and the curriculum in occupational therapy operate on the quarter system of the University. There are three 11-week quarters in the third and fourth years.

Occupational Therapy requires a minimum of six months or two quarters of additional clinical affiliation. Physical Therapy requires three months of clinical practice which is completed in the summer quarter of the senior year.

### TUITION AND FEES FOR THIRD AND FOURTH YEARS

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice. The following is a table of charges per quarter for the six quarters of academic work in the curriculum of physical therapy and in the curriculum of occupational therapy.

	<i>Tuition</i>	<i>Incidental Fee</i>	<i>ASUW Fee</i>	<i>Total</i>
Resident .....	\$ 65.00	\$37.50	\$8.50	\$111.00
Nonresident .....	\$125.00	\$82.50	\$8.50	\$216.00

### THE FOLLOWING ARE THE CHARGES FOR CLINICAL TRAINING:

#### Summer Quarter (both curricula)

Resident and

Nonresident .....	—	\$82.50	\$2.50	\$ 85.00
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#### Autumn, Winter, and Spring Quarters (Occupational Therapy students only)

Resident .....	\$ 65.00	\$15.00	None	\$ 80.00
Nonresident .....	\$125.00	\$50.00	None	\$175.00

**EXEMPTIONS, SPECIAL FEES, AND REFUND OF FEES** (Same as for medical students, see pages 42-44.)

## PSYCHIATRY

**Executive Officer: HERBERT S. RIPLEY, BB867 University Hospital**

The Department of Psychiatry aims to provide students of medicine, nursing, psychology, social work, education, and others concerned with human problems with a scientific grasp of psychiatric principles so that they will be able to evaluate interpersonal relationships and use to the greatest advantage their potentialities for understanding and dealing with personality reactions.

Instruction in psychiatry is given during each of the four years of the medical course and is coordinated and integrated with the various disciplines in medicine.

Thus from the beginning of his medical career the student is stimulated to think in terms of understanding the totally functioning human being.

## COURSES

- 267 Introduction to Mental Hygiene (2)** **Jarvis**  
A survey of the development of personality and a consideration of minor emotional problems in children and adults. For nonmedical students. Not open to students who have taken 450 or 451.
- 400 Human Personality Development and Behavior (\*, maximum 3)** **Staff**  
Emotional and personality development from infancy through old age; the adaptation of the individual to his environment, with attention to the roles of heredity, constitution, physical changes, and family and social relationships as determinants in psychodynamics. Comparative personality development is illustrated by animal and human behavior. Required for first-year medical students.
- Conjoint 426-427 Clinical Medicine (\*-\*) (See Conjoint Courses, page 70.)**
- 430 Psychopathology (\*)** **Ripley, Staff**  
Abnormalities of behavior, thinking, and feeling, and the structural and psychological factors that produce them. Anxiety, depression, elation, withdrawal, repression, compensation, projection, and other personality reactions are discussed. Required for second-year medical students.
- 440 Physiology of Emotions (\*)** **Holmes**  
Seminar based on discussion of selected reading of original articles from psychophysiological and psychosociologic literature. Designed to orient and interest students for participation in current or future research projects. Elective for first- and second-year medical students. Prerequisite, permission.
- 441 Individual Psychological Testing (\*)** **Preston**  
Instruction in the administration and interpretation of the Rorschach, Thematic Apperception, and Wechsler-Bellevue Test results with patients in psychiatric wards or in outpatient clinics. Elective for second-year medical students. Prerequisite, permission.
- 442 Culture and Illness (\*)** **Jackson, Larson**  
Examination of several social systems with regard to the manner in which patterns of illness are developed, maintained, or modified by cultural elements. A lecture-discussion course with guided reading. Elective for first- and second-year medical students. Prerequisite, permission.
- 450 Principles of Personality Development (2)** **Kaufman**  
Discussion of the principles of personality development and the problems most commonly met. Consideration will be given to the physiologic, psychologic, and cultural factors from infancy through adolescence. For nonmedical students. Not open to students who have taken 267.
- 451 Principles of Personality Development (2)** **Heilbrunn**  
Continuation of 450. Consideration will be given to the physiologic, psychologic, and cultural factors from maturity through old age. For nonmedical students. Prerequisite, 450 or permission.
- 452 Clinical Psychiatry (2)** **Schwartz**  
Discussion of clinical psychiatry considering causation, prevention, treatment, and rehabilitation. Not open to students who have taken 457 or 557. Prerequisite, 267 or 451 or permission.
- 465 Clinical Clerkships (\*)** **Staff**  
Four and one-half weeks of supervised work in an inpatient psychiatric service. The student is responsible for a psychiatric work-up of patients at King County Hospital and Veterans Administration Hospital. Clinical conferences with discussion of psychoses, psychoneuroses, and psychosomatic disorders are held. Weekly lectures are given throughout the year. Required for third-year medical students.
- 475 Psychiatric Externship (\*)** **Staff**  
Three and one-half or seven weeks of work at a private or state psychiatric hospital where the student has an opportunity to learn from firsthand experience and active participation the methods used in caring for seriously ill patients. Elective for fourth-year medical students. Prerequisite, permission.
- 480 Clinical Diagnosis and Treatment (\*)** **Staff**  
Half of the time during a seven-week term is spent at the University Psychiatric Clinic for Children, the Community Psychiatric Clinic for Adults, and at the King County Hospital. Emphasis is placed on an understanding of the total dynamics resulting in emotional and mental problems and the simpler methods of psychotherapy. The student obtains firsthand knowledge of the function of a psychiatric team composed of psychiatrist, social worker, and psychologist, and the utilization of community facilities. Required for fourth-year medical students.
- 490 Advanced Clinical Psychiatry (\*)** **Staff**  
Clinical work, which may include inpatient and outpatient experience, is arranged to accommodate the particular interests of students. The objective is to give more prolonged and intensive experience than is possible in the required fourth-year work. Opportunities for this experience are available at the University Hospital, Seattle Veterans Administration Hospital, the Community Psychiatric Clinic, and King County Hospital. Elective for fourth-year medical students. Prerequisite, permission.

- 491 Seminars and Conferences in Psychiatry (\*)** **Staff**  
Special seminars and conferences on a variety of topics can be arranged to accommodate the particular interests of students. Opportunity will be afforded to gain experience in the theory of the interview and the doctor-patient relationship. Elective for medical students. Prerequisite, permission.
- 492 Behavioral Science Study Unit (\*)** **Staff**  
A variety of topics will be presented under the sponsorship of the Department of Psychiatry with participation of faculty members from the Departments of Neurosurgery, Pediatrics, Pharmacology, Physiology and Biophysics, Psychology, and Sociology. When practicable, selected patients will illustrate topics presented. Elective for medical students. Prerequisite, permission.
- 498 Undergraduate Thesis (\*)** **Staff**  
Supervised library, clinical, or experimental work. Elective for medical students. Prerequisite, permission.
- 499 Undergraduate Research (\*, maximum 15)** **Staff**  
Special projects in various aspects of clinical and laboratory psychiatry, including work in psychoses, psychoneuroses, psychosomatic disorders, child psychiatry, geriatrics, social psychiatry, and psychological testing can be arranged with the instructor. Elective for four-year medical students. Prerequisite, permission.

## COURSES FOR GRADUATES ONLY

- 553 Psychodynamics and Psychopathology (2)** **Heilbrunn**  
Heredity, constitution, physical changes, and family and social relationships as determinants in psychodynamics are discussed. Attention is paid to defense mechanisms such as anxiety, depression, resentment, evasion, withdrawal, repression, projection, and overcompensation as commonly encountered in psychopathology. Prerequisite, 267 or 451 or permission.
- 558 Seminar: Interviewing (2)** **Sayer**  
Case studies are presented by individual students for discussion of the psychodynamics and methods of dealing with personality problems. For graduate students who are having practical experience in interviewing. Prerequisite, permission. Not offered 1960-61.
- 559 Child Psychiatry (2)** **Kaufman**  
Series of discussions and lectures dealing with psychopathology of children. Prerequisite, 267 or 451 or permission.
- 565 Biological Foundations of Psychiatry (2)** **Heilbrunn**  
Anatomical and physiological factors involved in various forms of psychopathology. Prerequisite, permission. Not offered 1960-61.

## RADIOLOGY

**Executive Officer: MELVIN M. FIGLEY, SS230 University Hospital**

The courses given by the Department are designed to acquaint the student with the uses and dangers of radiant energy in medical practice.

## COURSES

- 465 Diagnostic and Therapeutic Radiology (\*)** **Figley, Staff**  
Conferences covering the clinical use of X rays and gamma rays. Required for third-year medical students.
- 480 Experimental Radiation Dosimetry (3)** **Baltzo**  
Radiological instrumentation, standards and techniques pertinent to measurement and control of human exposure to ionizing radiation in X-ray and isotope applications. Prerequisite, Physics 473 or Chemistry 395 or permission.
- 485 Radiation Dosimetry (4)** **Myers, Roesch**  
The measurement of radiation energy loss relationships in gases and solids, detection techniques and circuits, units, consideration of human exposure limits. Prerequisite, permission.
- 493 Special Problems in Radiological Health (2-4, maximum 8)** **Baltzo**  
Observation and participation in research and clinical use of radiation emitters. Prerequisite, permission.
- 494 Clerkship, Diagnostic Radiology (\*)** **Figley, Staff**  
Observation, instruction, and supervised participation in clinical fluoroscopy, radiography, film interpretation, and X-ray conferences. Prerequisites, senior standing and permission.
- 495 Clerkship, Therapeutic Radiology (\*)** **Parker, Staff**  
Observation, instruction, and supervised participation in clinical radiation therapy including clinical examination, treatment planning and administration, and conferences. Prerequisites, senior standing and permission.
- 498 Undergraduate Thesis (\*)** **Staff**  
The student may write a thesis in either therapeutic or diagnostic phases of radiology. Prerequisite, permission.
- 520 Radiology Seminar (1, maximum 3)** **Baltzo**

**604 Research (\*, maximum 12)****Baltzo**

*The following Radiology courses are offered at the Center for Graduate Study at Richland, Washington.*

**R400 Radiobiology (3)****Bair**

Appreciation of the science which underlies radiological safety precautions; of value to students in nuclear field; serves as a survey to those engaged in specialized biological studies. Prerequisite, permission.

**R485 Radiation Dosimetry (4)****Roesch**

(See 485 above for course description.)

## SURGERY

**Executive Officer: HENRY N. HARKINS, BB477 University Hospital**

In the Department of Surgery, instruction is carried on during all four years of the medical student's training and is integrated with that of the other departments in the School of Medicine. In the first year, lectures are given concerning a few selected basic surgical applications of biology. In the second year, emphasis is placed on surgical physical diagnosis, surgical principles, and an introduction to surgery. In the third year, the inpatient clerkship forms the core of the entire program. The student is assigned patients and handles all aspects of care except direction of treatment. In the fourth year, attention is paid to outpatient work and special assignments in affiliated hospitals.

The purpose of the undergraduate instruction in surgery is to provide the student with a basic background of surgical principles and surgical diagnosis and a knowledge of surgical diseases.

In addition to the basic undergraduate instruction, a fully certified surgical residency program is available in general surgery and the surgical specialties. Those participating in these residency programs may work toward a degree of Master of Science by meeting the requirements of the Graduate School as outlined in the *Graduate School Bulletin*. Performance of a fundamental experimental research problem of high caliber is an additional requirement for this advanced degree.

## COURSES

**Conjoint 426-427 Clinical Medicine (\*-\*) (See Conjoint Courses, page 70.)**

**465 Clinical Clerkships (\*)****Staff**

Four equal periods in the divisions of general surgery, neurosurgery, urology, and orthopedics in King County and Veterans Administration Hospitals. The student is assigned interesting cases in rotation and is responsible for a complete work-up of the patient, including the routine laboratory examination. The patient is followed by the student from admission until discharge. Bedside clinics with discussions of the student's write-ups and differential diagnoses, as well as ward rounds are conducted daily. The basic science approach is correlated with the mechanisms of clinical disease. Scrubbing in the operating room is included. Special instruction in technique is a prerequisite to operating room participation. Instruction also includes surgical pathology and formal lecture periods in the surgical specialties. Formal lectures are presented in ophthalmology and otolaryngology. Required for third-year medical students.

**475 Preceptorship in Orthopedics (\*)****Clawson, Anderson, Andrews**

Student will follow a preceptor in all his work for a period of twelve days, to understand better the management of orthopedic problems. Elective for medical students. Prerequisite, permission.

**476 Orthopedic Externship (\*)****Clawson, Duncan**

Students serve as externs participating in work-ups, treatment and care of inpatients and outpatients. Elective for medical students. Prerequisite, permission.

**477 Electroencephalography-Neurosurgical Laboratory (\*)****Chatrian**

Introduction to EEG techniques and interpretation as well as the opportunity to obtain superficial acquaintance with neurophysiological techniques. Elective for medical students. Prerequisite, permission.

**478 Neurosurgery Research (\*)****Ward, Foltz, White, Chatrian**

Investigation of special problems as an intimate member of the research team in the neurosurgical laboratory. Research to lead to a thesis if desired. Elective for medical students. Prerequisite, permission.

- 479 Experimental Animal Surgery (\*)** **Stevenson**  
 Student may participate in surgical research programs in progress. This course offers the student an opportunity to participate in the surgical team as well as to familiarize himself with methods and instrumentation involved in surgical research. Elective for medical students. Prerequisite, permission.
- 480 Clinical Clerkships (\*)** **Staff**  
 Time is divided among the outpatient service departments of the divisional specialties of surgery, the emergency room, and the inpatient and outpatient services of the divisions of ophthalmology and otolaryngology. This experience is similar to office practice. The interview is conducted by the student; a review of the case and final recommendations are made by the student with staff supervision. Required for fourth-year medical students.
- 481 Surgical Externship in Ophthalmology and Otolaryngology (\*)** **Cain, Joseph, Williams**  
 The student will function as an extern in the outpatient departments of ophthalmology and otolaryngology of various hospitals. Will assist in surgery, ward rounds, and inter-service consultations with staff, attend hospital conferences and meetings. Elective for medical students. Prerequisite, permission.
- 482 Surgical Externship in General Surgery (\*)** **Baker, Lane, Speir, Staff**  
 Essentially inpatient ward rounds, operating room, patient work-ups, etc., in various hospitals. Elective for medical students. Prerequisite, permission.
- 483 Urology Research (\*)** **Ansell**  
 The student participates in current urologic research projects under supervision of full-time staff. Certain specific problems may be elected by the student. Elective for medical students. Prerequisite, permission.
- 484 Clinical Urology (\*)** **Ansell**  
 Students work up patients and study case material in the cystoscopic clinic two mornings and two afternoons a week. Elective for medical students. Prerequisite, permission.
- 487 Pediatric Ophthalmology (\*)** **Laughlin, Staff**  
 One morning in ophthalmology clinic and one morning in ophthalmology operating room. Elective for medical students. Prerequisite, permission.
- 498 Undergraduate Thesis (\*)** **Staff**
- 499 Undergraduate Research (\*)** **Staff**

## COURSES FOR GRADUATES ONLY

- 520 General Surgery Seminar (5)** **Harkins, Merendino, Nyhus, Stevenson**  
 Conferences, seminars, and round-table discussions of advanced surgical topics and recent literature in the field.
- 521 Orthopedic Research Seminar (\*)** **Clawson, Andrews, Anderson**  
 Each week a current laboratory topic is discussed with members of the attending and resident staff. Active participation of the student is required. Prerequisite, graduate student.
- 522 Orthopedic Seminar (\*)** **Clawson, Staff**  
 Seminar in current topics of orthopedic interest. Prerequisite, senior medical student or graduate student.
- 585 Surgical Anatomy (2-4, maximum 12) (See Conjoint Courses, page 70.)**
- 590 Surgical Experimental Techniques (5)** **Harkins, Merendino, Nyhus, Stevenson**  
 Basis for graduate research and advanced thesis work.
- 598 Seminar in Urology (\*)** **Ansell, Staff**  
 Problems in the field of urology discussed by various visiting members of the faculty of urology and of other departments to provide a well-rounded basic scientific and clinical presentation.
- 600 Research (\*)** **Harkins, Ansell, Merendino, Ward, Staff**
- 700 Thesis (\*)** **Staff**

## ROSTER OF STUDENTS IN MEDICINE

### CLASS OF 1960

- ALLEN, William C., Bothell  
University of Washington
- ANDERSON, James L., Seattle  
B.A., University of Washington
- ANDERSON, Robert W., Hilo, Hawaii  
B.A., College of Puget Sound
- ANDERSON, William F., Tacoma  
B.A., Pacific Lutheran College
- ANGLE, Herbert G., Jr., Shelton  
B.A., University of Washington
- BELL, Eldon E., Snohomish  
B.S., University of Washington
- BELL, Jack W., Seattle  
University of Washington
- BOSWELL, John W., Fairbanks, Alaska  
Stanford University  
University of Washington
- BOYER, Garry O., Spokane  
B.S., Washington State College
- BRANDT, Alan D., Spokane  
B.S., University of Idaho
- BRAY, Ronald E., Seattle  
University of Washington
- CALLERO, Vern L., Seattle  
Gonzaga University  
B.S., Seattle University
- CONNELLY, Glenn Hart, Jr., Portland,  
Oregon  
University of Washington  
B.S., Oregon State College
- CORBETT, Ronald Kendall, Spokane  
B.A., University of Washington
- CURRIN, Douglas Ross, Clarkston  
B.A., Washington State College
- DAUS, Joseph Keller, Seattle  
B.S., Washington State College
- DIPPE, Donald W., Grand Forks, N.D.  
B.A., B.S., University of North Dakota  
University of Illinois
- DOBBS, Larry Shannon, Kirkland  
Harvard University  
B.A., University of Washington
- DUNPHY, Barry E., Lynnwood  
B.A., Yale University
- EVANGER, Arden E., Camas  
Willamette University  
B.A., University of Washington
- FERGUSON, Donald E., Klamath Falls,  
Oregon  
B.S., Whitworth College
- FORGAARD, Dean M., Seattle  
University of Washington  
B.S., Washington State College
- FREEMAN, Melvin L., Seattle  
B.S., University of Washington
- GAUB, Margaret L., Seattle  
B.S., University of Washington
- GAUGER, Grant E., Seattle  
B.S., University of Washington
- HALL, George A., Missoula, Mont.  
Montana State University  
B.S., University of Washington
- HALL, George M., Edmonds  
University of Minnesota  
B.S., University of Washington
- HARRIS, Arthur K., Camas  
B.S., University of Washington
- HEUPEL, Alden R., Eureka, S.D.  
B.A., Sioux Falls College  
M.A., University of South Dakota
- HILLMAN, R. S. Lyle, Mountain, N.D.  
B.A., B.S., University of North Dakota
- HOLLINGSWORTH, Kennan H., Bellevue  
University of Washington
- HUNT, Hal H., Denver, Colorado  
University of Washington  
University of California  
B.A., Whitman College
- JOHNSON, George M., Bismarck, N.D.  
B.A., B.S., University of North Dakota
- JONES, Dwaine L., Edmonds  
University of Washington
- KENNEDY, John B., Everett  
University of Washington  
B.A., Stanford University
- KNORR, William C., Kent  
University of Washington  
Eastern Washington College of Education  
B.A., Pacific Lutheran College
- KNUTSON, Lyman Burns, Miles City,  
Montana  
University of Utah  
B.S., Utah State Agricultural College
- KOKENGE, Le Roy F., Yakima  
B.S., Gonzaga University
- LESTER, Edward L., Port Angeles  
B.S., Washington State College
- LUEHRS, James G., Mercer Island  
U.S. Naval Dental Technician School  
University of Washington
- McKINLAY, Glenn W., Spokane  
Washington State College  
B.S., Whitworth College
- MAHNKE, James H., Walla Walla  
B.A., Harvard College
- MANRING, Daniel A., Spokane  
B.S., Washington State College
- MATHESON, David L., Seattle  
B.A., Central Washington College of  
Education
- MEZISTRANO, Joseph S., Seattle  
B.S., University of Washington
- MORLOCK, Noel L., Oak Harbor  
University of Washington
- MORRIS, Ralph L., Mossyrock  
B.A., University of Washington
- MULFORD, Beatrice A., Onalaska  
A.A., Lower Columbia Junior College  
B.A., Pacific Lutheran College
- MURPHY, Solbritt S., Stockholm, Sweden  
University of Washington  
Candidate of Medicine—Royal Charles  
Institute of Medicine, Stockholm,  
Sweden
- MYERS, Lafe H., Jr., Richland  
B.A., University of Washington
- NELSON, Leslie G., Everett  
B.S., Seattle Pacific College
- NIELSEN, Tore K., Tacoma  
B.A., Pacific Lutheran College
- NORMANN, Sigurd J., Edmonds  
University of Washington
- PHILLIPS, Clarence A., Jr., Oklahoma  
City, Oklahoma  
B.A., University of Washington
- PROCTOR, Merton D., Great Falls, Mont.  
Carleton College  
San Diego Junior College  
University of Washington
- RALSTON, L. Atley, Sheridan, Wyo.  
B.A., Whitman College

RICE, Edwin G., Grand Forks, N.D.  
B.A., B.S., University of North Dakota

RUDY, Lloyd W., Jr., Wenatchee  
B.S., Washington State College

SHERARD, Donald J., Seattle  
B.A., Yale University

SIGURDSON, Thorbjorg, Edmonds  
University of Washington  
R.N., Ancker Hospital Training School  
for Nurses

SMITH, Robert F., Seattle  
University of Washington  
B.S., Seattle Pacific College

SORENSEN, Lowell Edward, Pierre, S.D.  
B.S., South Dakota State College  
B.S., University of South Dakota

TENNYSON, Eugene H., Bremerton  
B.A., Whitman College

THOMPSON, Gale E., Libby, Mont.  
Montana State College  
B.A., Pacific Lutheran College

## CLASS OF 1961

ALMQUIST, Edward E., Seattle  
University of Washington

AMBUR, Richard F., Seattle  
B.S., Seattle University

ANDERSON, Lennart L., Seattle  
B.A., University of Washington

BADER, Max C., Seattle  
University of Washington

BASKIN, Michael S., Tacoma  
University of Washington

BOROZAN, Bronko, Butte, Mont.  
B.A., University of Washington

BRUNTON, Robert I., Walla Walla  
B.A., Whitman College

CASEY, Kenneth L., Olympia  
B.A., Whitman College

CHAMPION, William M., Seattle  
B.S., University of Washington

CLIFFORD, Joseph C.  
Great Falls, Montana  
B.S., College of Great Falls

COCHRAN, Gerald E., Seattle  
University of Washington

CONNER, Patrick L., Hoquiam  
B.A., Whitman College

CRIM, Eleanor C., Fargo, N.D.  
University of Washington

DALEN, James E., Seattle  
B.S., Washington State College  
M.A., University of Michigan

DALTON, John J., Norfolk, Nebr.  
Norfolk Junior College  
Creighton University  
University of Washington

DAVIES, John R., Simms, Mont.  
Montana State University  
University of Washington

DAVIES, Raymond Owen, Jr., Spokane  
B.S., University of Idaho

DODGE, James T., Seattle  
University of Washington

EDWARDS, Ira M., Lynnwood  
B.A., Northwest Nazarene College

EELKEMA, Robert C., Grand Forks, N.D.  
B.S., University of Minnesota  
D.V.M., University of North Dakota

FOEGE, William H., Colville  
B.A., Pacific Lutheran College

GHIGLERI, Richard E., Wallace, Idaho  
B.S., Seattle University  
Stritch School of Medicine

TURNER, David L., E. Stroudsburg, Pa.  
B.S., Whitworth College

TWISS, Richard D., The Dalles, Ore.  
Gonzaga University

WATSON, Milton R., Walla Walla  
B.A., Whitman College

WILHYDE, David E., Tacoma  
Whitman College  
B.S., College of Puget Sound

WOOD, Edward M.  
Texas Tech. College  
B.S., Oregon State College  
Ph.D., Cornell University

WRIGHT, Bruce C., Newport  
B.A., Whitman College

YOUNG, Gary J., Camas  
University of Portland  
B.A., University of Washington

ZASKE, Merlin R., Vancouver  
Clark Junior College

GIMLETT, David M., Tacoma  
B.A., Stanford University  
Harvard University  
University of Washington

GLICKMAN, Kenneth I., Seattle  
University of Washington

GRANT, Gary B., Seattle  
University of Washington

GREENE, Larry M., Seattle  
B.A., University of Washington

GULDJORD, Knute M., Poulsbo  
B.S., Washington State College

HANSEN, Sigvard T., Jr., Yakima  
B.A., Whitman College

HAYNES, James M., Seattle  
B.A., University of Washington

HEDGES, Gary R., Juneau, Alaska  
B.A., Johns Hopkins University

HENRY, Robert R., Ardmore, Okla.  
Oklahoma Baptist University  
University of Washington

HOLCENBERG, John S., Seattle  
Harvard College

HOLLINGSWORTH, Ralph R., Kelso  
Lower Columbia Junior College  
University of Washington

HUNTINGTON, Howard W., Tacoma  
B.A., St. Olaf College

JACKLIN, Alexander J., Seattle  
University of Washington  
University of California

JENSEN, Hanne M., Copenhagen, Denmark  
University of Copenhagen

JOHNSON, Rick L., Kelso  
B.S., Washington State College

KAMM, Ralph F., Lebanon, Illinois  
University of Washington

KEENE, John E., Yakima  
B.S., Washington State College

KENNEY, G. James, Jr., Gig Harbor  
B.A., University of Washington

KRAUSE, Ronald L., Snohomish  
B.A., Whitman College

LEECH, Richard W., Bothell  
B.A., University of Washington

LEWIS, Karsten C., Albany, Oregon  
University of Washington

LING, Shun C., Tacoma  
B.A., University of Washington

LOOP, Maj T., Stockholm, Sweden  
Royal Medical School of Uppsala  
Medical School of Lund  
University of Chicago

- LOTTSFELDT, Fredrik I., Kirkland  
 University of Wisconsin  
 University of Washington  
 McALISTER, Robert, Seattle  
 Princeton University  
 MELTON, Russell W., Veradale  
 B.A., Gonzaga University  
 MILLETT, David W., Seattle  
 B.S., Seattle University  
 MILNER, John E., Bremerton  
 B.S., U.S. Military Academy  
 University of Washington  
 MURPHY, William P., Seattle  
 Los Angeles City College  
 Los Angeles State College  
 University of Washington  
 ODELL, Rollin W., Jr., Seattle  
 B.A., University of Washington  
 OGDEN, Frank W., Honolulu, Hawaii  
 B.S., Seattle Pacific College  
 OWENS, Delwin T., Jr., Joseph, Utah  
 University of Utah  
 Weber College  
 B.A., University of Washington  
 PELTER, William M., San Diego, Calif.  
 B.S., University of Nevada  
 University of Washington  
 PETERSON, Norman E., Seattle  
 University of Washington  
 POWELL, William J., Coeur d'Alene, Idaho  
 Northern Idaho Junior College  
 Gonzaga University  
 University of Washington  
 PRICE, Richard F., Gig Harbor  
 B.S., College of Puget Sound  
 RAHE, Richard H., Seattle  
 Princeton University  
 RANDOLPH, Gerald G., Richland  
 B.S., The Citadel  
 RANEY, James O., Tacoma  
 B.S., Washington State College  
 SCHEGOLKOV, Lea V., Seattle  
 University of Washington  
 SHORT, Denis S., Grand Coulee  
 B.A., Central Washington College of  
 Education  
 STROM, Clarence G., Everett  
 B.A., Pacific Lutheran College  
 SULLIVAN, Frank W., Kennewick  
 B.A., University of Washington  
 THORSEN, Richard C., Chinook, Mont.  
 Northern Montana College  
 University of Washington  
 VAN DER WEKEN, Duane W., Everett  
 Seattle Pacific College  
 Bob Jones University  
 VON SEGGERN, James G., Huron, S.D.  
 University of South Dakota  
 WANG, Hugh H., Honolulu, Hawaii  
 University of Hawaii  
 University of Washington  
 WOLF, John A., Jr., Seattle  
 B.S., University of Washington

#### CLASS OF 1962

- AMY, Bruce M., Spokane  
 B.A., Pacific Lutheran College  
 ANDERSON, Charles L., Seattle  
 College of Puget Sound  
 University of Washington  
 ANDERSON, W. Dale, Covina, Calif.  
 B.A., Pomona College  
 BACKUS, Frank I., Prosser  
 B.S., Washington State College  
 BENSUSEN, Charles I., Seattle  
 University of Washington  
 BINTLIFF, Sharon J., Beaumont, Texas  
 Rice Institute  
 University of Texas  
 University of Galveston  
 BOURNE, Marvin L., Milwaukee, Wis.  
 University of Washington  
 BRADEN, John P., Seattle  
 University of Washington  
 BRASSEUR, Roosevelt G., Miles City,  
 Mont.  
 Concordia College  
 Northern Montana College  
 Montana State University  
 University of North Dakota  
 BROWN, William R., Spokane  
 Washington State College  
 Gonzaga University  
 CARLSON, Robert L., Snohomish  
 Washington State College  
 B.A., Central Washington College of  
 Education  
 University of Washington  
 CRABS, Jack M., Puyallup  
 B.A., University of Washington  
 CRILL, Wayne E., Nampa, Idaho  
 College of Idaho  
 DELZELL, Allen W., Vermillion, S.D.  
 University of South Dakota  
 DRISCOLL, Thomas A., Spokane  
 Notre Dame University  
 Gonzaga University  
 DUDLEY, Donald L., Forks  
 B.S., College of Puget Sound  
 ENDEN, James A., Aberdeen  
 University of Washington  
 EVANS, Kirk E., Olympia  
 B.A., Stanford  
 University of Washington  
 FITZ, Rudolph G., Jr., Nampa, Idaho  
 B.A., Northwest Nazarene College  
 B.D., Nazarene Theological Seminary  
 University of Kansas City  
 FLOOD, John A., Seattle  
 B.S., University of Washington  
 GARD, Kenley E., Vancouver  
 Clark College  
 Washington State College  
 GEORGE, Harold C., Rochester, N.Y.  
 State University of New York  
 Queen's University, Canada  
 B.S., College of Puget Sound  
 GOFFE, Bernard S., Eugene, Oregon  
 University of Washington  
 GUYER, Robert E., Seattle  
 B.A., University of Washington  
 HANSEN, Thomas J., Spokane  
 B.S., Whitworth College  
 HARDY, William E., Seattle  
 B.S., Saint Mary's College  
 HARRIS, Stanley E., Spokane  
 Washington State College  
 B.A., University of Washington  
 HECHT, William H., Seattle  
 B.S., California Institute of Technology  
 University of Washington  
 HIGGINS, Michael H., Ellensburg  
 B.A., Central Washington College of  
 Education  
 HODGE, Janet M., Bellingham  
 University of Washington  
 HONDA, James I., Seattle  
 B.S., Seattle University



- HOSKINS, Blaine L., Dayton  
B.A., University of Washington
- JARVIS, David B., Puyallup  
B.A., Yale
- JUDGE, Terrence P., Helena, Montana  
B.A., Carroll College
- KNORR, James E., Kent  
B.A., Pacific Lutheran College
- KULANDER, Bruce G., Bellingham  
Western Washington College of Education  
University of Washington
- KYLLO, John E., San Diego, Calif.  
Wisconsin State College  
University of South Dakota
- LAWRENCE-BERREY, Robert E.,  
Walla Walla  
B.A., Whitman College
- LEITCH, Cecil M., Grand Forks, N.D.  
St. Olaf College  
University of North Dakota
- LEMIRE, Ronald J., Seattle  
College of William and Mary  
University of Washington
- LILLIBRIDGE, Clinton B., Olympia  
University of Washington
- MacLEAN, James B., Spokane  
University of Washington
- MACS, Juris M., Tacoma  
B.S., College of Puget Sound
- MILLETT, Fay E., Jr., Seattle  
University of Washington
- MOON, John B., Fresno, California  
B.A., Pacific Lutheran College
- MUSTO, David F., Seattle  
B.A., University of Washington
- NILSEN, John A., Graham  
B.A., Pacific Lutheran College
- NOMURA, Fred M., Jr., Seattle  
University of Washington
- OBENCHAIN, Dean F., Boise, Idaho  
Westmont College  
Boise Junior College  
College of Idaho  
State University of South Dakota
- ODELL, Gary R., Seattle  
University of Oregon  
University of Washington
- O'HARA, Brian A., Vancouver  
B.A., Stanford  
Portland State College
- PREWITT, Charles D., Twisp  
B.A., Eastern Washington College of  
Education
- RADACK, Morris L., Avon, S.D.  
South Dakota State College  
State University of South Dakota
- REDFIELD, William J., Bellevue  
College of Puget Sound  
B.A., Stanford
- REEDY, Michael K., Seattle  
University of Chicago  
University of Washington
- SACHS, Marshall H., Seattle  
B.A., University of Washington
- SCHEYER, Stanley C., Tacoma  
Stanford University  
University of Washington
- SCHIMMELBUSCH, Werner H., Seattle  
University of Washington
- SCHWARZ, Merle R., American Falls,  
Idaho  
Pacific Lutheran College
- SCHWINDT, Robert R., Castle Rock  
Pacific Lutheran College  
University of Washington
- SEYMOUR, Paul D., Centralia  
Centralia Junior College  
University of Washington
- SHEA, Michael W., Spokane  
B.A., Gonzaga University
- SMITH, Donald C., Aberdeen  
Grays Harbor Junior College  
University of Washington
- SMITH, Michael R., Spokane  
University of Notre Dame
- STERN, Robert, Seattle  
Harvard College
- TAYLOR, Neal, Burley, Idaho  
B.S., Brigham Young University
- TURNER, Eugene F., Seattle  
Shasta College  
Westmont College  
B.A., University of Washington  
University of South Dakota
- WALDRON, Frank D., Tacoma  
D.V.M., Washington State College  
Central Washington College of Education
- WALKUP, Gary L., Richland  
Eastern Washington College of Education  
B.S., University of Washington
- WEITLAUF, Harry M., Seattle  
University of Washington
- WENNERBERG, Richard P., Longview  
B.S., Stanford
- WERTHMANN, Florian J., Fall City  
B.S., Rensselaer Polytechnic Institute  
Ohio State University  
University of Washington
- WESTRUM, Lesnick E., Roy  
Washington State College
- WONG, Guy Y., Seattle  
B.A., University of Washington
- WORTHINGTON, John V., Seattle  
University of Washington
- ZUEGE, Robert H., Ottawa, Illinois  
B.S., Harvard

# CLASS OF 1963

- ANDERSON, Robert D., Seattle  
University of Washington  
B.A., Brigham Young University
- ANDERSON, Seth E., Jr., Tacoma  
B.A., Pacific Lutheran College
- BERNHARD, Dan C., Seattle  
B.S., University of Wisconsin
- BOETTCHER, William G., Sitka, Alaska  
B.S., Washington State University
- BOYCE, Noble E., Jr., Mercer Island  
B.A., Whitman College
- BOZARTH, William R., Culdesac, Idaho  
B.A., Harvard University
- BROUGHTON, Tom W., Seattle  
University of Washington
- BRUNZELL, John D., Spokane  
B.A., Whitman College  
University of Washington
- CANTY, Charles R., Jr., Butte, Mont.  
B.A., Carroll College
- CHARD, Ronald L., Pomeroy  
B.S., Washington State University  
Duke University  
University of Washington
- CHINN, Joseph, Seattle  
B.A., Yale University  
University of Washington
- CHINN, Mullan A., Seattle  
University of Washington

- DeLATEUR, Barbara J., Hoquiam  
University of Washington  
Marylhurst College  
B.S., St. Louis University
- DICKERSON, Ben R., Spokane  
B.A., Eastern Washington College of  
Education  
Oregon State College  
University of California, Los Angeles  
Gonzaga University
- DONAHOO, Stanley E., Seattle  
University of Washington
- ELLINGSEN, Donald A., Spokane  
B.S., Washington State University
- FALL, Gordon F., Seattle  
B.S., University of Washington
- FAUCHALD, Nils, Jr., Mercer Island  
B.A., Yale University
- FORSYGREN, Robert W., Bozeman, Mont.  
Montana State College
- FRAGOLA, Louis A., Jr., Seattle  
B.S., University of Connecticut  
University of Washington
- FRANK, Peter G., Shelton  
University of Washington
- FRITZ, Kirkland J., Marquette, Mich.  
Northern Michigan College  
B.A., Pacific Lutheran College
- GOWING, Burton R., Seattle  
University of Washington
- GRANT, Frederick J., Seattle  
B.A., University of Washington
- GREEN, Ralph R., Seattle  
B.A., University of Washington
- GROESBECK, Clarence J., Seattle  
Central Washington College of Education  
B.S., University of Washington
- HANSEN, Peter O., Cheney  
Eastern Washington College of Education
- HARRINGTON, Robert L., Seattle  
Gonzaga University  
B.S., Washington State University  
B.A., University of Washington
- HAUGLAND, David O., Seattle  
University of Washington
- HIKSON, Beverly J., Seattle  
University of Washington
- HOFELDT, Fred D., Parma, Idaho  
B.S., College of Idaho
- HONSINGER, Richard W., II., Palouse  
Washington State University
- HOUK, Robert L., Seattle  
University of Washington
- HOWELL, William B., Lynden  
University of Washington
- HULL, Paul Q., Seattle  
University of Washington
- JOHNSTON, Gerald P., Spokane  
B.A., Gonzaga University
- JONES, Albert L., Spokane  
B.S., Whitworth College
- KAMMER, Darrell A., Jr., Puyallup  
B.S., College of Puget Sound
- KAPELOWITZ, Robert F., Sharp Park,  
Calif.  
University of Alaska  
B.A., University of Washington
- KAY, Kenneth G., Seattle  
University of Washington
- KEMP, Aaron W., Seattle  
Washington State University  
University of Washington
- KINZIE, John D., Tonasket  
B.A., LaVerne College
- MATHESON, George W., Chehalis  
B.A., University of Washington
- McCOY, Claude O., Seattle  
Seattle Pacific College
- McDONALD, George B., Jr., Richland  
University of Washington  
B.A., Whitman College
- McDONALD, Herbert B., Spokane  
B.A., Gonzaga University
- McFARLANE, Claude L., Tacoma  
College of Puget Sound
- McGILL, Charles R., Tacoma  
B.S., College of Puget Sound
- MILLARD, Philip R., Everett  
B.S., Washington State University
- MURAI, Edward T., Seattle  
University of Washington
- NAGLE, John P., Jr., Pullman  
Washington State University
- PIM, Kenneth L., Seattle  
University of Washington
- REED, Thomas H., LaPine, Oregon  
A.B., Whitman College
- REID, Robert H., Nampa, Idaho  
B.S., College of Idaho
- REMBE, Armin M., Seattle  
B.A., University of Washington
- RIEFLIN, Robert E., Tacoma  
B.A., College of Puget Sound
- ROLLINS, William H., Seattle  
B.A., Whitman College
- RUDD, Theodore H., Tieton  
Washington State University
- SALISBURY, Robert B., Seattle  
University of Washington
- SCOTVOLD, Marvin J., Alderwood Manor  
University of Washington
- SELLS, Clifford J., Longview  
B.A., Pacific Lutheran College
- STANLEY, Garrit E., Oak Harbor  
B.S., Seattle Pacific College
- STRUM, Donald H., Seattle  
University of Washington
- SULLIVAN, Clyde E., Jerome, Idaho  
B.S., College of Idaho
- SULLIVAN, Robert W., Butte, Montana  
Gonzaga University
- SYTMAN, Alexander L., Seattle  
University of Washington
- THOMAS, David B., Seattle  
B.S., University of Washington
- THOMAS, Neil F., Pullman  
University of Hawaii  
B.S., Utah State University  
M.A., Washington State University  
University of Idaho  
Idaho State College
- TRUNKY, Donald D., St. John  
B.S., Washington State University
- VALL-SPINOSA, Arthur, Bellevue  
B.A., Whitman College
- WAKEFIELD, William C., Seattle  
B.S., Washington State University  
University of Washington
- WHITE, Asher A., Jr., Minneapolis, Minn.  
B.A., Amherst College  
University of Minnesota
- WHITE, Lon R., Boise, Idaho  
Boise Junior College  
University of Washington
- WINNINGHAM, Donald G., Seattle  
University of Washington
- WINTER, William W., Seattle  
University of Washington
- WYMER, Michael E., Bremerton  
B.A., Whitman College

## THE CLASS OF 1958

## Degrees of Doctor of Medicine conferred June 14, 1958

- ALEXANDER, Heywood L., Plainfield, N.J.  
B.S., Shaw University  
Howard University  
Sacramento County Hospital,  
Sacramento, Calif.
- ALKSNE, John F., Palo Alto, Calif.  
B.S., University of Washington  
North Carolina Memorial Hospital,  
Chapel Hill, North Carolina
- ANDERSON, Kenneth N., Seattle  
B.S., University of Washington  
King County Hospital System, Seattle
- BEATY, Harry N., Tacoma  
University of Washington  
University of Minnesota Hospitals,  
Minneapolis, Minn.
- BECKWITH, John B., Great Falls, Mont.  
B.A., Whitman College  
Children's Orthopedic Hospital, Seattle
- BENSON, Robert L., Seattle  
University of Washington  
Royal Jubilee Hospital, Victoria, B.C.
- CASSIDY, Patrick H., Bellingham  
University of Washington  
University of Kansas Medical Center,  
Kansas City, Kansas
- CHRISTOPHERSON, Alvin, Seattle  
B.A., University of Washington  
The Doctors Hospital, Seattle
- CONVERY, Frederick R., Chehalis  
B.A., University of Washington  
Minneapolis General Hospital,  
Minneapolis, Minn.
- DANFORTH, Howard B., Seattle  
University of Washington  
U.S. Army—Letterman, San Francisco,  
California
- DAVENPORT, Phillip M., Wenatchee  
B.A., Washington State College  
Sacramento County Hospital,  
Sacramento, Calif.
- DUNBAR, June H., Nome, Alaska  
University of Colorado  
Minneapolis General Hospital,  
Minneapolis, Minn.
- DUNCAN, Elmore E., Mossyrock  
B.A., Pacific Lutheran College  
U.S. Navy—Great Lakes,  
Great Lakes, Illinois
- EGGLIN, Johann G., Germany  
M.D., University of Würzburg
- ELY, Neal E., Tacoma  
B.S., Juilliard School of Music  
M.S., Columbia University  
College of Puget Sound  
King County Hospital System, Seattle
- ERIE, Norman A., Billings, Mont.  
B.S., College of Great Falls  
U.S. Navy—Great Lakes, Great Lakes, Ill.
- FORD, William P., Seattle  
B.S., University of Washington  
Minneapolis General Hospital,  
Minneapolis, Minn.
- GLEESON, Francis G., Longview  
B.A., University of Washington  
U.S.P.H.S.—San Francisco,  
San Francisco, Calif.
- GOLLER, Vernon L., Seattle  
B.A., University of Washington  
Harbor General Hospital, Torrance, Calif.
- GRAHAM, Charles A., Valleyford  
B.S., Washington State College  
University of Washington  
U.S. Navy—Jacksonville,  
Jacksonville, Fla.
- GRAHAM, C. Benjamin, Richland  
B.A., University of Illinois  
Children's Orthopedic Hospital, Seattle
- HARDING, George T., Olympia  
University of Washington  
U.S.P.H.S.—Norfolk, Norfolk, Va.
- HARDY, Thomas C., Yakima  
B.A., San Jose State College  
Seattle University  
Salt Lake County General,  
Salt Lake City, Utah
- HART, John C., Seattle  
University of Washington  
Charity Hospital of Louisiana,  
New Orleans, La.
- HELLE, Loretta S., Anchorage, Alaska  
B.S., Washington State College  
San Diego County General Hospital,  
San Diego, Calif.
- HORTON, Richard, Seattle  
University of Washington  
Grace-New Haven Community Hospital,  
New Haven, Conn.
- HUFFMAN, Philip G., Seattle  
B.S., University of Washington  
Highland-Alameda County Hospital,  
Oakland, Calif.
- JOHNSON, Dexter W., Bellingham  
B.A., Western Washington College of  
Education  
King County Hospital System, Seattle
- JOHNSON, Ronald L., Tacoma  
B.S., Seattle University  
University of Texas Medical Branch  
Hospital, Galveston, Texas
- KEITH, Donald M., Seattle  
B.A., Pacific Lutheran College  
Minneapolis General Hospital,  
Minneapolis, Minn.
- KLEINBERG, Henry, Seattle  
B.A., University of Washington  
University of California Hospital,  
San Francisco, Calif.
- KNIGHT, Lawrence L.  
B.S., University of Idaho  
Denver General Hospital,  
Denver, Colo.
- LAGERBERG, Eugene V., Seattle  
B.S., University of Washington  
King County Hospital System, Seattle
- LANE, Katherine E., Bellingham  
B.A., University of Denver  
M.S., University of Chicago  
State University of New York Upstate  
Medical Center, Syracuse, N.Y.
- LARSON, Roger K., Tacoma  
B.A., Pacific Lutheran College  
Ancker Hospital, St. Paul, Minn.
- LARSON, Stuart M., Bremerton  
B.S., University of Washington  
Minneapolis General Hospital,  
Minneapolis, Minnesota
- LEBENZON, Albert B., Portland, Ore.  
B.S. (Optics), Pacific University  
Doctors Hospital, Seattle
- LEE, John, Spokane  
B.A., University of Washington  
Los Angeles County-Harbor General,  
Torrance, Calif.
- LIKANE, Juhan, Seattle  
B.S., University of Washington  
Los Angeles County Hospital,  
Los Angeles, Calif.

- McALEXANDER, Robert A., Pullman  
B.S., Washington State College  
Johns Hopkins Hospital, Baltimore,  
Maryland
- MEBUST, Winston K., Kalispell, Mont.  
University of Washington  
King County Hospital System, Seattle
- MEYER, Melvin B., Seattle  
B.A., Yale University  
Minneapolis General Hospital,  
Minneapolis, Minn.
- MILLER, Fred W., Seattle  
B.S., University of Washington  
Stanford University Hospitals,  
San Francisco, Calif.
- MITCHELL, Robert G., Burley, Idaho  
B.S., University of Idaho  
Philadelphia General Hospital,  
Philadelphia, Pa.
- MONAHAN, James T., Mercer Island  
University of Washington  
Philadelphia General Hospital  
Philadelphia, Pa.
- MOSS, Norman W., Pullman  
B.S., Washington State College  
Ancker Hospital, St. Paul, Minn.
- NEHRING, Charles H., Jr., Olympia  
B.S., Washington State College  
B.S., University of Washington  
Providence Hospital, Seattle
- NORMAN, Allen C., Bremerton  
B.A., University of Washington  
San Francisco Hospital,  
San Francisco, Calif.
- NORTON, James J., Seattle  
B.S., Oregon State College  
Santa Clara County Hospital,  
San Jose, Calif.
- O'LANE, John M., Seattle  
B.S., University of Washington  
King County Hospital System, Seattle
- O'LEARY, Jay F., Tacoma  
A.B., Harvard College  
Boston City Hospital, Boston University,  
Straight Specialties Service, Boston,  
Mass.
- OSTLUND, James A., Seattle  
B.S., Seattle University  
San Diego County General Hospital,  
San Diego, Calif.
- PARKER, Frank, Seattle  
University of Washington  
Presbyterian Hospital, New York, N.Y.
- PARKER, Richard H., Seattle  
B.S., University of Washington  
Duke Hospital, Durham, N.C.
- PORTELANCE, Herbert J., Tahsis, B.C.  
B.A., University of Washington  
Royal Jubilee Hospital, Victoria, B.C.
- REICHENBACH, Dennis D., Billings,  
Montana  
B.S., University of Washington  
King County Hospital System, Seattle
- RIEKE, William O., Cashmere  
B.A., Pacific Lutheran College  
Academic Medicine, Anatomy,  
University of Washington, Seattle
- RILEY, Patrick J., Seattle  
B.S., Gonzaga University  
Washington Hospital Center,  
Washington, D.C.
- ROBERTS, Richard W., Tacoma  
Doctors Hospital, Seattle
- ROGERS, Donald R., Tacoma  
B.S., College of Puget Sound  
Minneapolis General Hospital,  
Minneapolis, Minn.
- ROLLMAN, Albert J., New York  
B.S., Fordham University  
Basel University  
Boston City Hospital, Boston, Mass.
- ROTOUS, Helen A., Aberdeen  
B.S., University of Washington  
Sacramento County Hospital,  
Sacramento, Calif.
- SHAW, Spencer W., Seattle  
B.S., University of Washington  
U.S. Navy—Portsmouth, Portsmouth, Va.
- STAVNEY, Luthard S., Seattle  
University of Washington  
Minneapolis General Hospital,  
Minneapolis, Minn.
- STUART, Ronald R., Seattle  
B.S., University of Washington  
King County Hospital System, Seattle
- THAI, Ben, Bellingham  
B.A., University of Washington  
Minneapolis General Hospital,  
Minneapolis, Minn.
- THOMPSON, Douglas W., Centralia  
B.S., Washington State College  
Minneapolis General Hospital,  
Minneapolis, Minn.
- TUCKER, Keith B., Seattle  
University of Washington  
King County Hospital System, Seattle
- VERHEY, Joseph W., Sunnyside  
B.S., Seattle University  
King County Hospital System, Seattle
- WEBB, Vivien E., Edmonds  
B.S., University of Washington  
San Francisco Hospital, San Francisco,  
Calif.
- WHITEBACK, Donald C., Vancouver  
B.S., University of Washington  
University of Illinois Research and  
Educational Hospitals, Chicago, Ill.
- WILSON, Wayne R., Jr., Ellensburg  
B.S., University of Washington  
U. S. Navy—Great Lakes,  
Great Lakes, Ill.
- WYNIA, Robert E., Poplar, Montana  
B.A., University of Washington  
Hurley Hospital, Flint, Mich.

## CLASS OF 1959

### Degrees of Doctor of Medicine conferred June 13, 1959

- ANDERSON, Richard P., Seattle  
B.S., University of Washington  
Johns Hopkins Hospital, Baltimore,  
Maryland
- BALDECK, Eugene M., Lewiston, Idaho  
B.S., University of Idaho  
King County Hospital, Seattle
- BIGELOW, John C., Bremerton  
University of Washington  
B.A., Washington State College  
University of Oregon Medical School,  
Portland, Ore.
- BIRKELAND, Ivar W., Jr., Bellevue  
B.A., University of Washington  
King County Hospital, Seattle
- BODEMAN, William H., Aberdeen, S.D.  
Jamestown College  
B.S., Northern State Teachers College  
B.S., University of South Dakota  
Sacramento County Hospital,  
Sacramento, Calif.
- BOWEN, Dale A., Ellensburg  
B.S., Washington State College  
Strong Memorial Hospital,  
Rochester, N.Y.

- BOYETT, Harry L., San Francisco, Calif.  
Sacramento County Hospital,  
Sacramento, Calif.
- BURNETT, Leland L., Seattle  
B.S., Washington State College  
University Hospital, Seattle
- CHIPMAN, Dennis C., Seattle  
University of Washington  
University of Nebraska Hospitals,  
Omaha, Nebraska
- COLFELT, Robert H., Seattle  
A.B., University of Washington  
Henry Ford Hospital, Detroit, Mich.
- DERBY, Alfred J., Walla Walla  
B.A., University of Washington  
Minneapolis General Hospital,  
Minneapolis, Minn.
- EDDY, Roger C., Mercer Island  
B.S., University of Washington  
Reed College  
University Hospital, Seattle
- ELLINGHAM, Hayden C., Yakima  
B.A., Whitman College  
Minneapolis General Hospital,  
Minneapolis, Minn.
- ENGSTROM, Donald E., Seattle  
B.S., University of Washington  
Philadelphia General Hospital,  
Philadelphia, Pa.
- FISHBACK, Malcolm E., Chehalis  
University of Washington  
B.S., Washington State College  
D.V.M., Washington State College  
U.S. Army—William Beaumont,  
El Paso, Texas
- FREDERICKS, Richard L., Helena, Mont.  
Montana State University  
University of California  
B.S., Montana State College  
Philadelphia General Hospital,  
Philadelphia, Pa.
- FREDERICKS, Sally O., Seattle  
University of Washington  
Philadelphia General Hospital,  
Philadelphia, Pa.
- FULLINGTON, Frank F., Bremerton  
B.A., University of Washington  
King County Hospital, Seattle
- GAISER, Donald F., Vancouver  
A.A., Clark College  
University of Washington  
Cuvahoga County Hospital, Cleveland,  
Ohio
- GLUCKSMAN, Myron L., Vancouver, B.C.  
University of British Columbia  
King County Hospital, Seattle
- GORAI, Arthur S., Pasadena, Calif.  
University of California  
B.S., University of Nebraska  
M.S., Harvard University  
U.S.P.H.S.—Seattle, Seattle
- GRAY, Gary M., Seattle  
B.S., Seattle University  
Bellevue, Second Medical Division,  
New York 16, N.Y.
- GUDBRANDSEN, Cato B. O., Skien,  
Norway  
B.A., Pacific Lutheran College  
Orange County General Hospital,  
Orange, Calif.
- HART, James E., Malaga  
Walla Walla College  
B.A., University of Washington  
Philadelphia General Hospital,  
Philadelphia, Pa.
- HARVEY, Emerson C., Jr., Spokane  
B.S., University of Oregon  
Henry Ford Hospital, Detroit, Mich.
- HAYDEN, Daniel T., Zenith  
B.S., University of Washington  
Ph.D., University of Washington  
U.S.P.H.S.—Seattle, Seattle
- HENRIE, Harold P., Seattle  
Black Hills Teachers College  
School of Medicine, University of  
South Dakota  
B.S., University of Idaho  
San Francisco Hospital, Stanford  
Service, San Francisco, Calif.
- HOFFMAN, Roger D., Snohomish  
B.A., Whitman College  
Sacramento County Hospital,  
Sacramento, Calif.
- JONES, Myles C., Seattle  
University of Washington  
U.S.P.H.S.—Seattle, Seattle
- KIRK, Richard A., Helena, Mont.  
Hiram College  
Montana State College  
University of Oregon Medical School,  
Portland, Ore.
- KJAER, George C., Seattle  
B.A., University of Washington  
Detroit Receiving Hospital, Detroit,  
Mich.
- LA FONT, Harold L., Anderson, Ind.  
Pacific Bible College  
University of Oregon  
B.A., Whitman College  
San Diego County General Hospital,  
San Diego, Calif.
- LEIDIG, Raymond, Seattle  
Lafayette College  
University of Washington  
Vancouver General Hospital,  
Vancouver, B.C.
- LING, Shun Mei, Tacoma  
B.S., B.S., University of Washington  
University of California Hospitals,  
Los Angeles, Calif.
- LONN, Lawrence I., Seattle  
B.S., University of Washington  
Minneapolis General Hospital,  
Minneapolis, Minn.
- MACK, Robert M., Quincy, Illinois  
University of Washington  
A.B., Oberlin College  
King County Hospital, Seattle
- MADSEN, Arthur J., Spokane  
B.A., University of Washington  
University of Minnesota Hospitals,  
Minneapolis, Minn.
- McINTYRE, David J., Bellingham  
University of Washington  
Philadelphia General Hospital,  
Philadelphia, Pa.
- MEDLICOTT, William J., Tacoma  
Oregon State College  
B.B.A., University of Washington  
Hospital of the University of  
Pennsylvania, Philadelphia, Pa.
- MOE, Roger E., Brainerd, Minnesota  
B.S., University of Washington  
King County Hospital, Seattle
- MORNINGSTAR, Douglas A., Seattle  
Yale University  
Swedish Hospital, Seattle
- MURPHY, Gerald P., Seattle  
B.S., Seattle University  
Johns Hopkins Hospital, Baltimore,  
Maryland
- NELSON, James R., Kirkland  
B.A., University of Washington  
University Hospitals, Cleveland, Ohio
- NOBLE, Richard F., Spokane  
B.A., Gonzaga University  
U.S. Navy—Oakland, Oakland, Calif.

- PAULSEN, Suzanne M., Seattle  
B.S., University of Washington  
Jackson Memorial Hospital, Miami, Fla.
- PETERSON, Wilbur R., Fall City  
University of Washington  
Cincinnati General Hospital,  
Cincinnati, Ohio
- PHILLIPS, Zaiga Alksnis, Chehalis  
B.S., University of Washington  
Doctors Hospital, Seattle
- SCHENK, Eric A., Seattle  
Hillyer College  
B.S., University of Connecticut  
M.S., University of Washington  
Presbyterian Hospital, New York, N.Y.
- SCHOPER, Glenn W., Montpelier, Idaho  
San Diego State College  
B.S., University of Washington  
Thomas D. Dec Memorial Hospital,  
Ogden, Utah
- SCHWINDT, Walter D., Castle Rock  
B.A., Pacific Lutheran College  
University of Utah Affiliated Hospital,  
Salt Lake City, Utah
- SCOTT, Clifford, Seattle  
University of Washington  
University of Minnesota Hospital,  
Minneapolis, Minn.
- SIDELL, Sheldon, Seattle  
B.S., University of Washington  
Cuyahoga County Hospital, Cleveland,  
Ohio
- SILBERMAN, Stanford J., Seattle  
University of Washington  
Philadelphia General Hospital,  
Philadelphia, Pa.
- STARCEVICH, George T., Renton  
B.S., Seattle University  
Highland-Alameda County Hospital,  
Oakland, Calif.
- STRIKER, Gary E., Seattle  
University of Washington  
University Hospital, Seattle
- STRUNK, Stanley W., Tacoma  
B.A., University of Washington  
King County Hospital, Seattle
- STURMAN, Melvin J., Everett  
B.S., University of Washington  
University Hospitals, Columbus, Ohio
- SWANSON, William H., Seattle  
B.S., University of Washington  
University of California Hospitals,  
Los Angeles, Calif.
- TAYLOR, Ronald E., Everett  
University of Washington  
University of Texas Medical Branch,  
Galveston, Texas
- TEMPLIN, David W., Helena, Mont.  
B.S., Wheaton College  
U.S.P.H.S.—Seattle, Seattle
- THORSON, Richard D., Bremerton  
B.A., Whitman College  
Ancker Hospital, St. Paul, Minn.
- TINLING, David C., Seattle  
University of Washington  
University Hospital, Seattle
- TOOTHAKER, Joel H., Centralia  
B.A., B.A., University of Washington  
Vancouver General Hospital,  
Vancouver, B.C.
- WELSH, Robert L., Bismarck, N.D.  
B.A., University of Washington  
B.S., University of North Dakota  
Santa Clara County Hospital,  
San Jose, Calif.
- WIGHTMAN, Bruce K., Seattle  
B.S., University of Washington  
Milwaukee County Hospital,  
Milwaukee, Wis.
- WILSKE, Kenneth R., Nampa, Idaho  
B.S., College of Idaho  
Presbyterian Hospital, New York, N.Y.
- WILSON, Wesley W., Sunnyside  
B.A., University of Washington  
Cincinnati General Hospital,  
Cincinnati, Ohio
- WOLD, Sylvester M., Remmer, S.D.  
B.S., University of South Dakota  
King County Hospital, Seattle

## ROSTER OF STUDENTS IN MEDICAL TECHNOLOGY

### CLASS OF 1961

- DICKEVICH, Ruth Linda Forsman,  
Seattle
- HARLINGTON, Floyd, Jr., Naches
- KAYLOR, Ann Whitfield, Seattle
- McCOUBREY, Pamela Grace Phares,  
Seattle
- MELVILLE, Sherrin Isabelle, Union Gap

- MUNNS, Rubye Layne, Pomeroy
- PLATT, Kay Jeanne, Chelan
- SASAI, Marilyn H. Naganine, Seattle
- TAKAHARA, Louise Misako, Seattle
- WHITE, Dorothy Laura, Tacoma
- YOSHIOKA, Karen Tomoko, Tacoma

### CLASS OF 1960

- GRISWOLD, Roberta Jean, Spokane
- KRUSE, Arlene Ann, Seattle
- LILLIBRIDGE, Jacqueline Jo Struthers,  
Walla Walla
- LINDE, Patricia Alice Campbell, Seattle

- LOBBEREGET, DeAnne Marie,  
Mercer Island
- MENARD, Virginia Louise, Seattle
- STOVER, Janis Ann, Seattle
- SUDMAN, Dorothea Marie, North Platte,  
Nebraska
- WELLS, Shirley Ann, Seattle

### CLASS OF 1959

#### Degree of Bachelor of Science in Medical Technology conferred June, 1959

- GREER, Eileen M., Mt. Vernon
- HARRIS, Sylvia M., Yakima
- KIEBURTZ, Karin, Seattle
- LLOYD, Nettie L., Gig Harbor
- LOCKWOOD, Marilyn R. Gray, Seattle
- MORGAN, Norma L., Harrah

- NELSON, Marilyn J., Tacoma
- PARKER, Margaret J., Spokane
- RAMALEY, Shirley A., Seattle
- SPARKS, Jean M. Hansen, Seattle
- VIEBROCK, Marilyn A., Douglas

**CLASS OF 1958**

**Degree of Bachelor of Science in Medical Technology conferred June, 1958**

CARLSTROM, Margery Lillian, Tacoma

COOK, Marilyn Jean, Seattle

HECKER, Joan Louise, Spokane

OKAMURA, Lillian Yuriko, Seattle

PALOLA, Darlene Carol Sigurdson, Seattle

PARKINSON, Marilyn J. Baisch, Twin Falls, Idaho

ROSELLI, Sally Lee Brown, Seattle

SUNDEN, Janet Lynn, Zenith

WANAMAKER, Barbara Blanche, Oak Harbor

WHITE, Sarah Jane, Seattle

**ROSTER OF STUDENTS IN OCCUPATIONAL THERAPY**

**CLASS OF 1961**

DECKER, Mary Christine, Seattle

**ROSTER OF STUDENTS IN PHYSICAL THERAPY**

**CLASS OF 1960**

DAMMEIER, Arrol Anne, Gig Harbor

DAVIES, Laurie Ann, Chehalis

ESHLEMAN, Donna Mae, Seattle

INMAN, Douglas Allen, Everett

LEWIS, Donald Wayne, Richland

REID, Betty J. Burton, Bellevue

VAN DIVORT, Judith Philbrick, Bellingham

**CLASS OF 1961**

ADAMS, Judith Esther, Seattle

ALFRED, Judith Payson, Plattsburg, N.Y.

CARMIGNANI, Merlina Dominica, Seattle

COURTION, Bonnie Jeanne, Kirkland

ELDRIDGE, Dale Raymond, Mercer Island

PERKINS, Harold Doyle, Seattle

ROMSTAD, Karen Dell, Seattle

SCHMITZ, Arlene Marie, Mt. Angel, Ore.

STANG, Ingri, Seattle

WEIMER, Bonnie Kate, Anchorage, Alaska

**BULLETIN • UNIVERSITY OF WASHINGTON**



**SCHOOL OF NURSING**

**1960-1962**



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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; Summer Quarter Bulletin; the bulletin of the Center for Graduate Study at Hanford; and bulletins of the Division of Correspondence Study and the Division of Evening Classes.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Addressograph Service.

#### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS (RESTRICTED DISTRIBUTION)  
INTRODUCTION TO THE UNIVERSITY  
UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

#### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING  
COLLEGE OF ARTS AND SCIENCES  
COLLEGE OF BUSINESS ADMINISTRATION  
SCHOOL OF DENTISTRY  
COLLEGE OF EDUCATION  
COLLEGE OF ENGINEERING  
COLLEGE OF FISHERIES  
COLLEGE OF FORESTRY  
GRADUATE SCHOOL  
SCHOOL OF LAW  
SCHOOL OF MEDICINE  
SCHOOL OF NURSING  
COLLEGE OF PHARMACY  
SCHOOL OF SOCIAL WORK

#### *Other Bulletins*

SUMMER QUARTER  
CENTER FOR GRADUATE STUDY AT HANFORD  
CORRESPONDENCE STUDY  
EVENING CLASSES

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BULLETIN  
UNIVERSITY OF WASHINGTON  
General Series No. 961  
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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	12
Board of Regents	
Officers of Administration	
Board of Health Sciences	
School of Nursing Faculty	
GENERAL INFORMATION . . . . .	23
Philosophy and Objectives	
Facilities	
Admission to the University	
Admission Procedure	
Registration	
Qualifications for Graduation	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE PROGRAMS IN NURSING . . . . .	45
Bachelor of Science in Nursing	
Undergraduate Scholarships, Awards, and Loans	
Graduate Programs	
Course Numbering System	
Courses	

## CALENDAR

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in the following Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

### WINTER QUARTER, 1961

#### REGISTRATION PERIOD

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for students in residence Autumn Quarter, 1960, who did not complete Winter Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 9.</i>
DEC. 2	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
DEC. 27-29	In-Person Registration for ALL new students.
DEC. 29	Last day to register for Winter Quarter, 1961. Note application deadlines above.
JAN. 3-9	Change of Registration by appointment only.

#### ACADEMIC PERIOD

JAN. 3—TUESDAY	Instruction begins for all students
JAN. 9—MONDAY	Last day to add a course
FEB. 17—FRIDAY	Last day to submit applications for advanced credit examinations
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
MAR. 4—SATURDAY	Advanced credit examinations
MAR. 13-16	Final examinations (4 o'clock classes, Friday, March 10, 4-6 p.m.)
MAR. 16—THURSDAY	Quarter ends

**SPRING QUARTER, 1961****REGISTRATION PERIOD**

JAN. 23-FEB. 17	Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 21-23	In-Person Registration for students in residence Winter Quarter, 1961, who did not complete Spring Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
MAR. 21-23	In-Person Registration for former students not in residence Winter Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is March 10.</i>
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
MAR. 21-23	In-Person Registration for ALL new students.
MAR. 23	Last day to register for Spring Quarter, 1961. Note application deadlines above.
MAR. 27-31	Change of Registration by appointment only.

**ACADEMIC PERIOD**

MAR. 27—MONDAY	Instruction begins for all students
MAR. 31—FRIDAY	Last day to add a course
MAY 12—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 27—SATURDAY	Advanced credit examinations
MAY 30—TUESDAY	Memorial Day holiday
JUNE 4—SUNDAY	Baccalaureate Sunday
JUNE 5-8	Final examinations (4 o'clock classes, Friday, June 2, 4-6 p.m.)
JUNE 8—THURSDAY	Quarter ends
JUNE 10—SATURDAY	Commencement

**SUMMER QUARTER, 1961****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

June 1, 2, 5

June 12-16

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hospital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 17, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 18, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 19, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 20, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1961*, may obtain an Application for Appointment or Permit by writing to or calling in person, at the Registrar's Office, Room 109, Administration Building, or telephoning LAkeview 4-6000, Extension 2551, beginning April 17 and preferably *no later than May 15*. Application for Registration Appointment must be received before registration materials can be processed. *New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

#### ACADEMIC PERIOD

JUNE 19—MONDAY	Instruction begins for all students
JUNE 20—TUESDAY	Last day to add a course for the first term
JUNE 23—FRIDAY	Last day to add a course for the full quarter
JUNE 30—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—TUESDAY	Independence Day holiday
JULY 15—SATURDAY	Advanced credit examinations
JULY 19—WEDNESDAY	Final examinations and first term end
JULY 20—THURSDAY	Second term begins
JULY 21—FRIDAY	Last day to add a course for the second term
JULY 28—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 12—SATURDAY	Advanced credit examinations
AUG. 18—FRIDAY	Final examinations and second term end

#### AUTUMN QUARTER, 1961

##### REGISTRATION PERIOD

MAY 1-26	Advance Registration only for students in residence Spring Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 5-22	In-Person Registration for students in residence Spring Quarter, 1961, who did not complete Autumn Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 5-22	In-Person Registration for former students not in residence Spring Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 15.</i>

AUG. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 7-22	In-Person Registration for ALL new students.
SEPT. 22	Last day to register for Autumn Quarter, 1961. Note application deadlines above.
SEPT. 25-29	Change of Registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 25—MONDAY	Instruction begins for all students
SEPT. 29—FRIDAY	Last day to add a course
NOV. 1—WEDNESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1962, due at Registrar's Office
NOV. 11—SATURDAY	State Admission Day holiday
NOV. 17—FRIDAY	Last day to submit applications for advanced credit examinations
NOV. 22-27	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 2—SATURDAY	Advanced credit examinations
DEC. 7-12	Final examinations (4 o'clock classes, Wednesday, Dec. 6, 4-6 p.m.)
DEC. 12—TUESDAY	Quarter ends

**WINTER QUARTER, 1962****REGISTRATION PERIOD**

OCT. 23-Nov. 17	Advance Registration only for students in residence Autumn Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 26-28	In-Person Registration for students in residence Autumn Quarter, 1961, who did not complete Winter Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
DEC. 26-28	In-Person Registration for former students not in residence Autumn Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 8.</i>
DEC. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

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*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in this Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
DEC. 26-28	In-Person Registration for ALL new students.
DEC. 28	Last day to register for Winter Quarter, 1962. Note application deadlines above.
JAN. 2-8	Change of Registration by appointment only.

#### ACADEMIC PERIOD

JAN. 2—TUESDAY	Instruction begins for all students
JAN. 8—MONDAY	Last day to add a course
FEB. 16—FRIDAY	Last day to submit applications for advanced credit examinations
FEB. 22—THURSDAY	Washington's Birthday and Founder's Day holiday
MAR. 3—SATURDAY	Advanced credit examinations
MAR. 12-15	Final examinations (4 o'clock classes, Friday, Mar. 9, 4-6 p.m.)
MAR. 15—THURSDAY	Quarter ends

#### SPRING QUARTER, 1962

##### REGISTRATION PERIOD

JAN. 22-FEB. 16	Advance Registration only for students in residence Winter Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 20-22	In-Person Registration for students in residence Winter Quarter, 1962, who did not complete Spring Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
MAR. 20-22	In-Person Registration for former students not in residence Winter Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is March 9.</i>
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
MAR. 20-22	In-Person Registration for ALL new students.
MAR. 22	Last day to register for Spring Quarter, 1962. Note application deadlines above.
MAR. 26-30	Change of Registration by appointment only.

**ACADEMIC PERIOD**

MAR. 26—MONDAY	Instruction begins for all students
MAR. 30—FRIDAY	Last day to add a course
MAY 11—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 26—SATURDAY	Advanced credit examinations
MAY 30—WEDNESDAY	Memorial Day holiday
JUNE 3—SUNDAY	Baccalaureate Sunday
JUNE 4-7	Final examinations (4 o'clock classes, Friday, June 1, 4-6 p.m.)
JUNE 7—THURSDAY	Quarter ends
JUNE 9—SATURDAY	Commencement

**SUMMER QUARTER, 1962****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

May 31-June 2, 4

June 11-15

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hospital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 16, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 17, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 18, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 19, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1962*, may obtain an Application for Appointment or Permit by writing to or calling in person, at the Registrar's Office, Room 109, Administration Building, or telephoning LAkeview 4-6000, Extension 2551, beginning April 16 and preferably *no later than May 15*. Application for Registration Appointment must be received before registration materials can be processed. *New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 18—MONDAY	Instruction begins for all students
JUNE 19—TUESDAY	Last day to add a course for the first term
JUNE 22—FRIDAY	Last day to add a course for the full quarter

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in this Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*



JUNE 29—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—WEDNESDAY	Independence Day holiday
JULY 14—SATURDAY	Advanced credit examinations
JULY 18—WEDNESDAY	Final examinations and first term end
JULY 19—THURSDAY	Second term begins
JULY 20—FRIDAY	Last day to add a course for the second term
JULY 27—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 11—SATURDAY	Advanced credit examinations for second term
AUG. 17—FRIDAY	Final examinations and second term end

## AUTUMN QUARTER, 1962

### REGISTRATION PERIOD

APR. 30—MAY 25	Advance Registration only for students in residence Spring Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-28	In-Person Registration for students in residence Spring Quarter, 1962, who did not complete Autumn Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 10-28	In-Person Registration for former students not in residence Spring Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 1.</i>
JULY 15	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointments will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 12-28	In-Person Registration for ALL new students.
SEPT. 28	Last day to register for Autumn Quarter, 1962. Note application deadlines above.
OCT. 1-5	Change of Registration by appointment only.

### ACADEMIC PERIOD

OCT. 1—MONDAY	Instruction begins for all students
OCT. 5—FRIDAY	Last day to add a course
NOV. 1—THURSDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1963, due at Registrar's Office.
NOV. 12—MONDAY	State Admission Day holiday
NOV. 21—WEDNESDAY	Last day to submit applications for advanced credit examinations

Nov. 21-26	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 8—SATURDAY	Advanced credit examinations
DEC. 13-18	Final examinations (4 o'clock classes, Wednesday, Dec. 12, 4-6 p.m.)
DEC. 18—TUESDAY	Quarter ends

**WINTER QUARTER, 1963****REGISTRATION PERIOD**

OCT. 29-Nov. 27	Advance Registration only for students in residence Autumn Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
JAN. 2-4	In-Person Registration for students in residence Autumn Quarter, 1962, who did not complete Winter Quarter, 1963, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
JAN. 2-4	In-Person Registration for former students not in residence Autumn Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 10.</i>
DEC. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
JAN. 2-4	In-Person Registration for ALL new students.
JAN. 4	Last day to register for Winter Quarter, 1963. Note application deadlines above.
JAN. 7-11	Change of registration by appointment only.

**ACADEMIC PERIOD**

JAN. 7—MONDAY	Instruction begins for all students
JAN. 11—FRIDAY	Last day to add a course
FEB. 21—THURSDAY	Last day to submit applications for advanced credit examinations
FEB. 22—FRIDAY	Washington's Birthday and Founder's Day holiday
MAR. 9—SATURDAY	Advanced credit examinations
MAR. 18-21	Final examinations (4 o'clock classes, Friday, March 15, 4-6 p.m.)
MAR. 21—THURSDAY	Quarter ends

*For further information concerning subsequent quarters inquire at the Registrar's Office.*

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in this Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

## ADMINISTRATION

### BOARD OF REGENTS

JOHN L. KING, <i>President</i>	Seattle
JOSEPH DRUMHELLER, <i>Vice-President</i>	Spokane
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ALBERT B. MURPHY	Everett
HAROLD S. SHEFELMAN	Seattle
ROBERT J. WILLIS	Yakima

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NELSON A. WAHLSTROM, *Treasurer*

### OFFICERS OF ADMINISTRATION

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Provost of the University</i>
GLENN H. LEGGETT, Ph.D.	<i>Vice-Provost of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
HAROLD A. ADAMS, M.S.	<i>Director of Admissions</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
MARY S. TSCHUDIN, Ph.D.	<i>Dean, School of Nursing</i>
KATHERINE J. HOFFMAN, Ph.D.	<i>Assistant Dean and Director of Graduate Programs, School of Nursing</i>

### BOARD OF HEALTH SCIENCES

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
GEORGE N. AAGAARD, M.D.	<i>Dean of the School of Medicine; Chairman of the Board</i>
MAURICE J. HICKEY, D.M.D., M.D.	<i>Dean of the School of Dentistry</i>
JOSEPH L. MCCARTHY, Ph.D.	<i>Dean of the Graduate School</i>
PAUL C. CROSS, Ph.D.	<i>Professor of Chemistry, Executive Officer</i>
JACK E. ORR, Ph.D.	<i>Dean of the College of Pharmacy; University Health Officer</i>
MARY S. TSCHUDIN, R.N., Ph.D.	<i>Dean of the School of Nursing</i>
SOLOMON KATZ, Ph.D.	<i>Dean of the College of Arts and Sciences</i>
MARY ADAMS, <i>Secretary</i>	

### SCHOOL OF NURSING FACULTY

(As of July 1, 1960)

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

- Abhold, Avis Ann, 1960, *Acting Assistant Professor of Maternal-Child Nursing*  
Diploma, 1948, St. Elizabeth Hospital School of Nursing, Yakima, Washington;  
B.S.N., 1951, Seattle University; M.N., 1955, Washington
- Batey, Marjorie, 1956 (1958), *Assistant Professor of Psychiatric Nursing*  
Diploma, 1947, Sacred Heart Hospital School of Nursing, Washington; B.S., 1953,  
Washington; M.S., 1956, Colorado

- Beckwith, Eveline M., 1960, *Assistant Professor of Psychiatric Nursing*  
Diploma, 1931, Mt. Sinai Hospital School of Nursing, Cleveland, Ohio;  
B.S., 1951, M.N., 1953, Washington
- Boozer, Mary Kathryn, 1960, *Assistant Professor of Medical-Surgical Nursing*  
B.S., 1947, Colorado; M.N., 1955, Washington
- Brandt, Edna Mae, 1954 (1955), *Assistant Professor of Medical-Surgical Nursing*  
Diploma, 1939, St. Joseph's Hospital School of Nursing, Bloomington, Illinois;  
B.A., 1952, Redlands; M.N., 1953, Washington
- Breckenridge, Flora Jane, 1953, *Instructor in Medical-Surgical Nursing*  
Diploma, 1941, Evanston Hospital School of Nursing; B.S., 1952, Western Reserve
- Bruno, Pauline, 1958, *Assistant Professor of Nursing*  
B.S., 1952, M.S.N., 1954, Catholic University
- Burke, A. Evelyn, 1943 (1953), *Associate Professor of Public Health Nursing*  
B.S., 1930, Akron Municipal; Diploma, 1930, M.A., 1941, Western Reserve;  
C.P.H.N., 1943, Washington
- Cashar, Leah G., 1960, *Instructor in Psychiatric Nursing*  
Diploma, 1945, St. Joseph's Hospital School of Nursing, Wichita, Kansas;  
B.S., 1951, Washington
- Chinque, Katherine, 1951, *Assistant Professor of Maternal-Child Nursing*  
Diploma, 1931, Providence Hospital School of Nursing, Detroit; B.S., 1946, Wayne;  
M.A., 1951, Michigan
- Christian, Doris Cowles, 1958, *Instructor in Public Health Nursing*  
B.S.S., 1950, Chicago; M.A., 1957, Washington
- Cobb, Mary Marguerite, 1953 (1958), *Assistant Professor of Public Health Nursing*  
B.S.N., 1949, M.N., 1957, Washington
- Cross, Harriet, 1932 (1941), *Assistant Professor of Public Health Nursing*  
Diploma, 1921, Columbia Hospital School of Nursing, Wisconsin; B.S., 1952, Minnesota;  
C.P.H.N., 1938, M.N., 1940, Washington
- DeMeyer, JoAnna, 1959, *Instructor in Medical-Surgical Nursing*  
B.S., 1953, Oregon; M.N., 1959, Washington
- Enos, Lucy DeReid, 1954 (1958), *Assistant Professor of Medical-Surgical Nursing*  
Diploma, 1942, Pennsylvania Hospital School of Nursing; B.S., 1946, M.A., 1954, Minnesota
- Frederickson, Shirley M., 1957, *Instructor in Public Health Nursing*  
B.S.N., 1953, Washington; M.Ed., 1957, Minnesota
- Giblin, Elizabeth Clare, 1959, *Associate Professor of Medical-Surgical Nursing*  
B.S.N., 1943, M.N., 1954, Washington; Ed.D., 1959, Colorado
- Gray, Florence Irene, 1945 (1959), *Associate Professor of Nursing, Director of Undergraduate Programs*  
B.S.N., 1945, M.S., 1950, Washington
- Hansen, Julia Anne, 1953 (1956), *Assistant Professor of Medical-Surgical Nursing*  
B.A., 1939, Redlands; Diploma, B.A., 1942, Stanford; M.N., 1955, Washington
- Hay, Stella Ida Leader, 1955 (1958), *Assistant Professor of Medical-Surgical Nursing*  
Diploma, 1942, Eitel Hospital School of Nursing, Minneapolis; B.S., 1944, M.A., 1951, Minnesota
- Heinemann, Margot Edith, 1954 (1956), *Assistant Professor of Nursing, Educational Director, The Harborview Teaching Unit*  
B.S.N., 1945, Seattle University; M.N., 1954, Washington
- Hillmer, Max L., Jr., 1960, *Research Instructor in Nursing*  
B.S., 1942, Northwestern; M.S., 1958, Ph.D., 1960, Washington
- Hoffman, Katherine Janet, 1942 (1956), *Professor of Nursing; Assistant Dean of the School of Nursing; Director of Graduate Programs*  
A.B., 1929, College of Puget Sound; Diploma, 1934, Tacoma General Hospital School of Nursing; M.N., 1941, Ph.D., 1956, Washington
- Jansen, Mary Catherine, 1959, *Acting Instructor in Maternal-Child Nursing*  
B.S.N., 1951, M.N., 1959, Washington

- Jeschke, Dorothy I., 1957, *Instructor in Medical-Surgical Nursing*  
Diploma, 1951, Massachusetts General Hospital School of Nursing; B.S., 1941, Hood College, Maryland; M.Ed., 1957, Minnesota
- Keim, Dorcas Irene, 1958, *Instructor in Psychiatric Nursing*  
Diploma, 1934, Conemaugh Valley Memorial Hospital School of Nursing, Pennsylvania; B.S., 1951, Washington
- Klutas, Edna May, 1960, *Assistant Professor of Occupational Health Nursing and Public Health Nursing*  
Diploma, 1940, Columbia-Presbyterian Hospital School of Nursing, New York; B.S., 1951, Washington; M.P.H., 1957, Yale
- Leahy, Kathleen M., 1935 (1949), *Professor of Public Health Nursing*  
Diploma, 1921, Stanford School of Nursing; A.B., 1926, C.P.H.N., 1927, Oregon; M.S., 1931, Washington
- Lilleoren, Inez I., 1960, *Instructor in Medical-Surgical Nursing*  
B.S., 1950, M.N., 1960, Washington
- Little, Dolores Emma, 1951 (1958), *Assistant Professor of Medical-Surgical Nursing*  
B.S.N., 1946, M.N., 1957, Washington
- Mack, Virginia Ann, 1954 (1958), *Assistant Professor of Medical-Surgical Nursing*  
Diploma, 1943, St. Joseph's Hospital School of Nursing, Tacoma, Washington; B.S., 1945, Seattle University; M.N., 1957, Washington
- Mansfield, Louise, 1951 (1952), *Assistant Professor of Medical-Surgical Nursing*  
Diploma, 1937, Samaritan Hospital School of Nursing, Idaho; B.S., 1947, Ohio State; M.A., 1951, Teachers College, Columbia University
- McConnell, Nola, 1960, *Instructor in Maternal-Child Nursing*  
B.S.N., 1956, M.N., 1960, Washington
- Midthun, Aline, 1957, *Instructor in Medical-Surgical Nursing*  
Diploma, 1932, Tennessee; B.S., 1956, Oregon
- Murray, B. Louise, 1957, *Assistant Professor of Maternal-Child Nursing*  
B.S., 1938, Portland University; M.N., 1950, Washington
- Nash Shirley Istas, 1952 (1957), *Assistant Professor of Nursing; Educational Director of Virginia Mason Hospital Teaching Unit*  
Diploma, 1941, Virginia Mason Hospital School of Nursing; B.S., C.N.S., 1949, M.N., 1956, Washington
- Nehren, Jeanette Goodwin, 1959, *Assistant Professor of Psychiatric Nursing*  
B.S., 1956, Indiana University; M.S., 1958, Colorado
- Olcott, Virginia, 1931 (1945), *Associate Professor of Medical-Surgical Nursing*  
Diploma, 1926, Peter Bent Brigham Hospital School of Nursing, Massachusetts; B.S., 1927, M.S., 1931, C.P.H.N., 1949, Washington
- Pedersen, Roma Kittelsby, 1953 (1956), *Assistant Professor of Medical-Surgical Nursing*  
B.S.N., 1943, Minnesota; M.N., 1955, Washington
- Pesznecker, Betty Louise, 1958 (1960), *Research Assistant Professor in Psychiatric Nursing*  
Diploma, 1948, St. Luke's Hospital School of Nursing, Spokane; B.S., 1951, M.N., 1957, Washington
- Schultz, Frances Koster, 1960, *Instructor in Psychiatric Nursing*  
B.S., 1944, M.S., 1960, California
- Shanahan, Marilyn, 1959, *Instructor in Medical-Surgical Nursing*  
B.S.N., 1953, Wisconsin; M.N., 1959, Washington
- Smith, Harriet Holbrook, 1949 (1960), *Associate Professor of Nursing Service Administration*  
A.B., 1918, Mount Holyoke College; Diploma, 1920, Seattle General Hospital School of Nursing; M.N., 1957, Washington
- Sorensen, Karen Mae, 1959, *Instructor in Medical-Surgical Nursing*  
B.S.N., 1958, M.N., 1959, Washington
- Soule, Elizabeth Sterling, 1920 (1950), *Professor of Nursing; Dean Emeritus of the School of Nursing*  
Diploma, 1907, Malden Hospital School of Nursing, Massachusetts; B.A., 1926, M.A., 1931, Washington; D.Sc. (Hon.), 1944, Montana State College

- Stewart, Lucille Blanche, 1954, *Instructor in Maternal-Child Nursing*  
Diploma, 1949, Evanston Hospital School of Nursing, Illinois; B.S., 1952, Washington
- Svelander, Katherine Gustafson, 1946, *Assistant Professor of Nursing; Educational Director of the Swedish Hospital Teaching Unit*  
Diploma, 1928, Swedish Hospital School of Nursing; B.S., 1928, Washington; M.A., 1960, Seattle Pacific College
- Tschudin, Mary Stickels, 1942 (1955), *Professor of Nursing; Dean of the School of Nursing*  
B.S.N., 1935, C.P.H.N., 1936, M.S., 1939, Ph.D., 1959, Washington
- White, Helen Elaine, 1960, *Instructor in Psychiatric Nursing*  
B.S., 1954; M.N., 1960, Washington

#### CLINICAL NURSING FACULTY

- Airth, Annabelle, 1959, *Clinical Instructor in Nursing, Assistant Director of Nursing Service, King County Hospital*  
B.S.N., 1946, M.N., 1959, Washington
- Andrews, Elizabeth Adams, 1960, *Clinical Instructor in Nursing, Supervisor, Medical Division, University Hospital*  
B.S.N., Simmons, 1950
- Birkbeck, Lyndall Helen, 1954 (1957), *Clinical Assistant Professor of Nursing*  
Diploma, 1942, Pennsylvania Hospital School of Nursing; B.S., 1946, Minnesota; M.A., 1954, Teachers College, Columbia University
- Blackman, Helen Marie, 1945 (1959), *Clinical Assistant Professor of Nursing*  
Diploma, 1929, St. Luke's Hospital School of Nursing, Iowa; B.S., 1942, C.N.S., 1942, Washington
- Brown, Eleanor, 1955, *Clinical Instructor in Nursing; Supervising Nurse of the Bremerton-Kitsap County Department of Public Health*  
Diploma, 1939, Indianapolis General Hospital School of Nursing; B.S., C.P.H.N., 1949, Washington
- Coombe, Evelyn Irene, 1960, *Clinical Instructor in Nursing, Assistant Director of Nursing Service and Educational Director, Seattle-King County Health Department and Visiting Nurse Service*  
Diploma, 1945, Providence Hospital, Kansas City, Kansas; B.S., 1955, Colorado; M.N., 1956, Washington
- Dean, Ruth Whewell, 1959, *Clinical Assistant Professor of Nursing, Assistant Chief, Division of Nursing, Washington State Department of Health*  
B.N., 1936, Yale; M.A., 1941, Teachers College, Columbia University
- Dike, Barbara, 1959, *Clinical Instructor in Nursing, Assistant Director of Nursing Service, Northern State Hospital*  
Diploma, 1937, Port Angeles General Hospital School of Nursing, Washington; C.P.H.N., 1943, B.S., 1948, M.N., 1953, Washington
- Evans, Eileen M., 1960, *Clinical Instructor in Nursing, Evening Supervisor, University Hospital*  
B.S.N., 1952, Marquette
- Fine, Ruth Barney, *Clinical Instructor in Nursing, Assistant Director of Nursing Service, University Hospital*  
Diploma, 1939, Garfield Memorial Hospital, Washington, D.C.; B.S.N., 1956, M.N., 1957, Washington
- Gannon, Margaret Elizabeth, 1949, *Clinical Instructor in Nursing, Chief Dietitian, Swedish Hospital*  
B.A., 1932, Montana
- Gihring, Lydia, 1956, *Clinical Assistant Professor of Nursing, Director of Nursing Service, Swedish Hospital*  
Diploma, 1924, Wesley Memorial Hospital School of Nursing, Chicago; B.S., 1946, M.A., 1956, Chicago
- Glynn, Dorothy Elizabeth, 1948, *Clinical Assistant Professor of Nursing, Director of Nursing Service, King County Hospital System*  
B.A., 1926, Colorado School of Education; Diploma, 1932, Kahler Hospital School of Nursing

- Johnson, Jean Gordon, 1960, *Clinical Instructor in Nursing, Assistant Director of Nursing Service, King County Hospital*  
B.S., 1949, St. Lawrence University; M.N., 1952, Yale
- Kane, Kathleen, 1960, *Clinical Instructor in Nursing, Supervisor of Obstetrical Division, University Hospital*  
Diploma, 1932; S.C.M., 1936, St. Giles School of Nursing, London
- Kintner, Nancy Jane, 1942, *Clinical Instructor in Nursing, Director of Nurses, Northern State Hospital*  
B.S., 1940, Washington; M.S., 1960, California
- Larson, Margaret Linn, *Clinical Instructor in Nursing, Supervisor of Psychiatric Nursing Division, University Hospital*  
Diploma, 1944, St. Luke's Hospital School of Nursing, Denver; B.S., 1949, Colorado
- Mansperger, Marguerite, 1958, *Clinical Instructor in Nursing, Director of Nursing Service, Virginia Mason Hospital*  
Diploma, 1932, Seattle General Hospital School of Nursing; B.S., 1939, Washington
- Mitchell, Edith Laubscher, 1947, *Clinical Instructor in Nursing, Supervising Nurse, Tacoma-Pierce County Public Health Nursing Association*  
Diploma, 1929, General Hospital of Everett School of Nursing; C.P.H.N., 1929, B.S., 1929, Washington
- Moody, Adeline Lucille, 1952, *Clinical Assistant Professor of Nursing, Director of Nurses, Doctors Hospital*  
Diploma, 1929, Saskatoon City Hospital School of Nursing, Canada
- Northrop, Mary Watson, 1931, *Clinical Instructor in Nursing, Chief Dietitian and Housekeeper, King County Hospital*  
B.A., 1920, Vassar College; M.S., 1923, Teachers College, Columbia University
- Opal, Muriel Joan, *Clinical Instructor in Nursing, Supervisor of Surgical Division, University Hospital*  
B.S.N., 1953; M.N., 1959, Minnesota
- Pittman, Rosemary Jeanne, 1954, *Clinical Instructor in Nursing, Supervising Nurse, Clark-Skamania District Health Department*  
B.S.N., 1940, Iowa; M.S., 1947, Chicago
- Rohrbaugh, Alice R., 1958, *Clinical Assistant Professor of Nursing, Director Nursing Division, Seattle-King County Health Department and Visiting Nurse Service*  
B.A., 1934, Wooster College; M.N., 1940, Western Reserve
- Smith, Elizabeth Mary, 1954, *Clinical Assistant Professor of Nursing, Director of Nursing Service, Children's Orthopedic Hospital*  
Diploma, 1928, Presbyterian Hospital School of Nursing, Illinois
- Talbot, Myrtle O., 1960, *Clinical Instructor in Nursing, Director of Nursing Service, Spokane City Health Department and Visiting Nurse Service*  
Diploma, 1937, St. Luke's School of Nursing, Spokane; B.S., 1953, Gonzaga University
- Watters, Helen Frances, 1958, *Clinical Assistant Professor of Nursing; Director of Nursing Service, University Hospital*  
B.S., 1952, M.N.A., 1955, Minnesota
- Wax, Betty Korte, 1960, *Clinical Instructor in Nursing, Supervisor of Operating Room, University Hospital*  
B.S.N., 1951, Washington
- Workman, Eugenia Warner, 1960, *Clinical Instructor in Nursing, Education Supervisor, Spokane City Health Department and Visiting Nurse Service*  
A.B., 1932, Evansville College; Diploma, 1937, Methodist Hospital School of Nursing, Indiana; C.P.H.N., 1942, Washington

#### MEDICAL LECTURERS IN THE SCHOOL OF NURSING

- Ahern, James J., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*  
B.S., 1938, Washington; M.D., 1945, Chicago
- Anderson, O. William, *Clinical Instructor in Pediatrics; Lecturer in Nursing*  
B.S., 1931, Idaho; B.M., 1935, M.D., 1936, Northwestern

- Anderson, Roger, *Senior Consultant in Orthopedic Surgery; Lecturer in Nursing*  
B.S., 1915, Hamline (Minnesota); M.D., 1918, Northwestern
- Banks, Albert Lawrence, *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*  
A.B., 1940, M.D., 1943, Duke
- Bannick, Edwin G., *Clinical Professor of Medicine; Lecturer in Nursing*  
B.S., 1918, M.D., 1920, Iowa
- Biddle, Arthur S., *Clinical Associate in Surgery (Neurosurgery); Lecturer in Nursing*  
A.B., 1948, Harvard; M.D., 1952, Northwestern
- Bill, Alexander H., Jr., *Clinical Associate Professor in Surgery; Lecturer in Nursing*  
A.B., 1935, M.D., 1939, Harvard
- Bingham, James B., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*  
B.S., 1935, M.D., 1937, Wisconsin
- Boisseau, David W., *Lecturer in Nursing*  
B.S., 1940, Chicago; M.D., 1944, Boston
- Bruenner, Bertram F., *Clinical Instructor in Medicine; Lecturer in Nursing*  
B.S., 1926, M.D., 1929, Minnesota
- Burnell, James M., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*  
M.D., 1949, Stanford
- Campbell, Alexander D., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*  
B.A., 1930, Whitman College; M.D., 1934, Johns Hopkins
- Campbell, Robert M., *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*  
B.S., 1942, Washington; M.D., 1945, M.S., 1949, Michigan
- Chism, Carl E., *Clinical Instructor in Surgery; Lecturer in Nursing*  
B.S., 1936, M.D., 1941, Nebraska
- Christoffersen, Olaf H., *Affiliate in General Practice; Lecturer in Nursing*  
M.D., 1917, Rush Medical College
- Coe, Herbert E., *Senior Consultant in Surgery; Lecturer in Nursing*  
A.B., 1904, M.D., 1906, Michigan
- Cole, Harold Cecil, *Lecturer in Nursing*  
B.B.A., 1928, B.S., 1934, Washington; M.D., 1939, Creighton
- Crystal, Dean K., *Clinical Instructor in Surgery; Lecturer in Nursing*  
B.S., 1936, Washington; B.A., 1938, Oxford; M.D., 1941, Johns Hopkins
- Davidson, Samuel H., *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*  
A.B., 1939, Yale; M.D., 1943, Harvard
- Deane, Philip G., *Research Associate in Pediatrics; Lecturer in Nursing*  
B.A., 1952, Middlebury College; M.D., 1952, Yale
- DeMarsh, Quin B., *Clinical Associate Professor of Medicine; Lecturer in Nursing*  
B.S., 1935, Washington; M.S., 1937, B.M., 1939, M.D., 1940, Northwestern
- Di Furia, Giulio, *Lecturer in Nursing*  
M.D., 1951, Bologna
- Dirstine, Morris J., *Clinical Associate in Surgery; Lecturer in Nursing*  
Ph.G., 1926, Washington State College; B.S., 1932, Washington; M.D., 1937, Northwestern
- Doctor, Jack Merton, *Clinical Assistant Professor of Pediatrics; Lecturer in Nursing*  
B.S., 1937, Washington; M.D., 1941, Columbia
- Elgee, Neil J., *Clinical Instructor in Medicine; Lecturer in Nursing*  
B.S., 1946, New Brunswick (Canada); M.D., 1950, Rochester
- Flashman, Forrest L., *Clinical Associate in Orthopedic Surgery; Lecturer in Nursing*  
M.D., 1941, Northwestern
- Francis, Byron F., *Clinical Professor in Medicine; Lecturer in Nursing*  
B.S., 1922, Washington; M.D., 1926, Washington University



- Frayser, Lois, *Clinical Instructor in Medicine; Lecturer in Nursing*  
B.A., 1928, Richmond; M.S., 1935, M.D., 1943, Michigan
- Geraghty, Thomas P., *Clinical Instructor in Medicine; Lecturer in Nursing*  
B.S., 1934; M.D., 1939, Oregon
- Guntheroth, Warren G., *Assistant Professor in Pediatrics; Lecturer in Nursing*  
B.S., 1948, M.D., 1952, Harvard
- Hagen, John M. V., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*  
B.A., 1942, Wyoming; M.D., 1950, Rochester
- Hallett, Wilbur York, *Clinical Associate in Medicine; Lecturer in Nursing*  
M.D., 1953, Rochester
- Hartmann, John R., *Clinical Instructor in Pediatrics; Lecturer in Nursing*  
M.D., 1947, Johns Hopkins
- Haviland, James West, *Clinical Professor of Medicine; Assistant Dean of the School of Medicine; Lecturer in Nursing*  
A.B., 1932, Union College, New York; M.D., 1936, Johns Hopkins
- Hoffman, Robert W., *Clinical Instructor in Pediatrics; Lecturer in Nursing*  
M.D., 1946, St. Louis
- Hudson, Dean G., *Clinical Associate in Medicine; Lecturer in Nursing*  
B.S., 1946, Washington; M.D., 1950, Cornell
- Hutchinson, William B., *Consultant in Surgery; Lecturer in Nursing*  
B.S., 1931, Washington; M.D., 1936, McGill (Canada)
- Jackson, Joan, *Lecturer in Sociology; Research Assistant Professor in Psychiatry; Lecturer in Nursing*  
M.A., 1947, McGill (Canada); Ph.D., 1955, Washington
- Jobb, Emil, *Clinical Assistant Professor in Medicine; Lecturer in Nursing*  
B.S., 1941, M.D., 1942, Wayne
- Johnson, Roger H., *Clinical Associate in Surgery (Ophthalmology); Lecturer in Nursing*  
B.S., 1937, M.D., 1939, Wisconsin; M.S., 1944, Minnesota
- Kiriluk, Lawrence B., *Clinical Instructor in Surgery; Lecturer in Nursing*  
B.M., 1945, M.D., 1946, Minnesota
- Klemperer, Wolfgang W., *Clinical Associate in Anatomy; Lecturer in Nursing*  
M.D., 1936, Cornell
- Koler, John J., *Clinical Associate in Medicine; Lecturer in Nursing*  
B.S., 1950, M.D., 1953, Washington
- Krael, Louis Henry, *Clinical Instructor in Pathology; Lecturer in Nursing*  
M.D., 1940, Iowa
- Kretz, Alexander Walter, *Lecturer in Nursing*  
B.S., 1938, Washington; M.D., 1941, Oregon
- Leede, William Edward, *Clinical Instructor in Medicine; Lecturer in Nursing*  
B.S., 1934, M.D., 1937, Oregon
- Lobb, Allan W., *Clinical Instructor in Surgery*  
B.S., 1941, Washington; M.D., 1946, George Washington
- MacMahon, Charles E., *Clinical Instructor in Surgery; Lecturer in Nursing*  
B.S., 1932, Washington; M.D., 1936, Harvard
- Mackoff, Leslie, *Instructor in Pediatrics; Lecturer in Nursing*  
A.B., 1948, California; M.D., 1953, Washington
- Martin, Carroll J., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*  
B.S., 1936, M.D., 1940, Iowa
- McCormack, John L., *Clinical Associate in Surgery; Lecturer in Nursing*  
B.S., 1943, Idaho; M.D., 1948, Jefferson Medical College
- Michel, Jean C., *Clinical Instructor in Medicine; Lecturer in Nursing*  
B.S., 1943, Bowdoin College; M.D., 1946, Columbia
- Miller, Walter Taylor, *Lecturer in Nursing*  
M.B.C.B., 1944, Aberdeen (Scotland)
- Mousel, Lloyd H., *Lecturer in Nursing*  
B.S., 1928; M.D., 1930, Nebraska

- Olson, Clarence, *Clinical Associate in Surgery; Lecturer in Nursing*  
B.S., 1928, Chicago; M.D., 1933, Rush Medical College
- Phillips, James W., *Clinical Instructor in Surgery (Otolaryngology); Lecturer in Nursing*  
B.S., 1934, M.D., 1938, Stanford
- Potter, Robert T., *Clinical Associate Professor of Medicine; Lecturer in Nursing*  
B.S., 1937, M.B., 1939, M.D., 1940, Minnesota; M.P.H., 1944, Johns Hopkins
- Proaño, Augusto, *Lecturer in Nursing*  
M.D., 1952, Central University, Quito, Ecuador
- Rankin, Robert M., *Clinical Assistant Professor of Medicine (Neurology); Lecturer in Nursing*  
B.S., 1937, Washington; M.D., 1942, Johns Hopkins
- Rutherford, Frederick, *Lecturer in Nursing*  
A.B., 1930, Illinois; M.D., 1935, Harvard
- Rutherford, Robert N., *Clinical Assistant Professor of Obstetrics and Gynecology; Lecturer in Nursing*  
A.B., 1932, Illinois; M.D., 1936, Harvard
- Sata, William K., *Clinical Instructor in Medicine (Neurology); Lecturer in Nursing*  
B.A., 1945, M.D., 1947, Utah
- Schroeder, Herman J., *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*  
Ph.C., 1931, Washington; M.D., 1940, Oregon
- Shaffrath, Louise E., *Lecturer in Nursing*  
B.A., 1935, M.S.W., 1955, Washington; New York School of Social Work, 1946
- Skinner, Alfred Loring, *Clinical Instructor in Pediatrics; Lecturer in Nursing*  
A.B., 1947, Harvard; M.D., Harvard Medical School, Boston
- Skubi, Kazimer B., *Clinical Assistant Professor in Medicine; Lecturer in Nursing*  
B.S., 1932, Washington; M.D., Rush Medical
- Speir, Edward B., *Consultant in Surgery; Lecturer in Nursing*  
B.A., 1929, M.D., 1933, Kansas
- Stamm, Stanley J., *Clinical Instructor in Pediatrics; Lecturer in Nursing*  
B.S., 1948, M.D., 1952, St. Louis
- Stevens, Alexander R., Jr., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*  
B.A., 1943, Yale; M.D., 1946, Cornell
- Stipp, Charles, *Lecturer in Nursing*  
A.B., 1939, M.D., 1943, Kansas
- Stroh, James E. S., *Clinical Associate Professor of Medicine; Lecturer in Nursing*  
B.S., 1928, South Dakota; M.D., 1931, Illinois
- Thomas, Gerald Frederick, *Lecturer in Nursing*  
M.D., 1933, Nebraska
- Tjossem, Theodore, *Assistant Professor of Psychiatry; Lecturer in Nursing*  
B.A., 1940, Drake; M.D., 1941, Iowa
- Wanamaker, Frank Herman, *Consultant in Surgery (Otolaryngology); Lecturer in Nursing*  
D.D.S., 1922, M.D., 1929, Northwestern
- Wildermuth, Orliiss, *Clinical Associate Professor of Radiology; Lecturer in Nursing*  
A.B., 1939, B.S., 1941, Missouri; M.D., 1943, Cincinnati

#### CHANGES IN UNIVERSITY REGULATIONS

The University and its colleges and schools reserve the right to change the fees, rules, and calendar regulating admission and registration, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses at any time.

A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.

SCHOOL OF  
NURSING  
ADMINISTRATION



GENERAL INFORMATION

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# GENERAL INFORMATION

**T**HE UNIVERSITY OF WASHINGTON SCHOOL OF NURSING is an independent professional school within the Division of Health Sciences. It is an integral part of the University and its programs meet all University standards and requirements.

The School's origin in 1917 represented a pioneer effort in university nursing education. The first offerings consisted of a few service courses for graduate nurses. Under the leadership of Mrs. Elizabeth S. Soule the opportunities in nursing education were extended, and both undergraduate and graduate programs were developed. The Department of Nursing Education, which was established in 1921, became the School of Nursing in the College of Arts and Sciences in 1934. In 1945 it became an autonomous professional school in the Division of Health Sciences with Mrs. Soule as its first Dean.

During the 43-year history of the School, the curricular offerings have kept pace with the needs and trends of the nursing profession. A pre-service basic nursing program leading to the Bachelor of Science degree has been offered since 1921, and a baccalaureate degree program for graduate nurses since 1924. A graduate program leading to the Master's degree was approved in 1938. Affiliate courses in psychiatric and tuberculosis nursing for students from hospital schools of nursing have been offered since 1937.

All programs of the School, undergraduate and graduate, are fully approved by the Accrediting Service of the National League for Nursing. Both baccalaureate programs are approved for preparation for public health nursing.

## THE DIVISION OF HEALTH SCIENCES

The Division of Health Sciences of the University of Washington was established in the autumn of 1945 to include the Schools of Dentistry, Medicine, and Nursing, the College of Pharmacy, the Student Health Service, and the University Hospital. Each School or College within the Division of Health Sciences functions as an autonomous unit. The Division coordinates development, research, and teaching activities to strengthen and reinforce the work of each unit.

The Health Sciences Building, which was completed in 1949, overlooks the Portage Bay Yacht Basin between Lake Washington and Lake Union. It houses the administrative units of the Schools of Dentistry, Medicine, and Nursing, classrooms, research and laboratory facilities, a library, and an auditorium. Future plans include a west wing to house the College of Pharmacy.

The University Hospital, which has a bed capacity of 300, was opened in May, 1959. It provides extensive in-patient and out-patient departments; thus, it is an excellent teaching and research facility for students in all health sciences fields.

The Health Sciences Library serves the schools and departments within the Division of Health Sciences, and is used by various other disciplines of the University. It has about 80,000 volumes (with stack space for 40,000 more), and subscribes to more than 1,500 periodicals. Library facilities include ten glass-panelled and soundproofed reading, study, and conference rooms, as well as adequate space for microfilm and microcard readers and special study groups. All other University library facilities are available to students and faculty members.

## **PHILOSOPHY AND OBJECTIVES OF THE SCHOOL OF NURSING**

The School of Nursing acknowledges its responsibility for promoting complete nursing service for the people of the state of Washington through teaching, research, and public service. Complete nursing care embodies the recognition of the patient's physical, emotional, and spiritual needs. Kindness, tolerance, and understanding are essential to the fulfillment of a therapeutic patient-nurse relationship.

The School of Nursing believes that the qualified student brings to the professional school a background from which she makes her individual contribution to nursing. Opportunity for self-direction in the management of her own life is a part of personal and professional growth. Diversified interests promote cultural and emotional maturity. Breadth of academic background, which is gained through the use of all of the resources of the University, contributes to fulfillment of professional responsibilities and personal interests. The physical, biological, and social sciences and the humanities are recognized as essential parts of the professional nursing curriculum.

Curricular offerings are planned to develop the professional nurse who is able to give complete nursing care within the framework of the physician's therapeutic design, to carry out nursing procedures skillfully and with understanding, to exercise discriminative judgment and insight, and to assist in the prevention of disease and in the conservation of physical and mental health in her community. Better learning occurs where sound psychological principles are utilized. Correlated theory and clinical practice are offered in the care of the physically and mentally ill in the hospital and in the home and in teaching, treatment, rehabilitation, prevention, and health conservation for all age groups. Nursing experiences are planned to provide for continuity, sequence, and integration in all areas in order to effect gradual broadening and deepening of understandings, values, and skills. Individual counseling and supervision are directed toward helping the student to develop her personal and professional potentialities. This broad background of education followed by graduate professional experience prepares the nurse for advanced levels of service.

The School of Nursing believes that the professional nurse is characterized by the ability to give complete nursing care in all fields; to use the basic communication skills competently in organizing, planning, and directing the work of others; to cooperate democratically with allied professional and citizen groups for the improvement of total health services; to maintain her personal identity; and to attain individual satisfactions in her daily life at the same time as she serves her community. These responsibilities she accepts in contributing to nursing research, in upholding the ideals of the nursing profession, and in working toward its continued improvement and growth.

In keeping with this philosophy, the School of Nursing works toward the attainment of the following objectives in the bachelor's curricula:

The School of Nursing endeavors to develop a nurse who is a mature, well-adjusted person capable of directing her own life, assuming responsibility for her own actions, and accepting her responsibility as a contributing member of social groups.

The School of Nursing endeavors to develop a nurse who is a professionally and technically competent person possessing an understanding of the physical, biological, and social sciences and the humanities essential to effective nursing

practice, and who is skillful in meeting the nursing needs of the individual and community for care during illness and in the conservation of health.

The School of Nursing endeavors to develop a nurse who is a responsible professional person, as an individual and as a member of the health team, and who is capable of maintaining effective interpersonal, professional, and inter-professional relationships.

The School of Nursing endeavors to develop a nurse who is a responsible citizen capable of accepting her role as a contributing member of society and who is able to interpret her profession and professional activities to the community.

The School of Nursing endeavors to develop a nurse who is a creative individual capable of making her unique contribution to the improvement of nursing and who accepts responsibility for self-directed activity toward her own established goals.

The general philosophy of the School holds for graduate education in nursing also:

The School of Nursing believes that the University of Washington School of Nursing has an obligation to provide an environment and climate in which any professional nurse, who has met the entrance requirements of the Graduate School of the University and of the School of Nursing, may engage in study directed toward individual goals of advanced professional competence; and that the curricula offered to candidates for graduate degrees, while containing a nucleus of required courses, should be sufficiently flexible to enable students to meet individual needs. Graduate education in nursing should enable the student to enlarge the view she holds of her profession and its relationship to society. Graduate study connotes that the student will increasingly assume independent responsibility for learning, scholarly investigation, and communication of the outcome of research.

The School of Nursing believes that it should promote and foster opportunities for individual, group, intra- and inter-disciplinary study and research, and for sharing the contributions which students engaged in graduate study can make to one another, to the School, and the profession.

The School of Nursing believes that the functions of the teacher in graduate education are to provide the environment and the climate within which the learner can learn, and to guide and counsel, and to share his knowledge with the learner.

The School recognizes that the objectives for the master's degree program are similar to those for the undergraduate degree program in content, but advance the level of competence which the learner should seek to attain. In order to qualify for a graduate degree every student should possess the ability to work effectively with others to meet the health needs of people and, since research in nursing is essential for the continuing growth of the profession, every student should increase the ability to use a scientific approach in solving nursing problems and to communicate findings in an appropriate manner. It is recognized that graduate study realistically must be directed toward intensive study in a selected area (or areas) of nursing and, therefore, the level of accomplishment in teaching supervisory or clinical skills will vary for each student. Graduate study in any area of nursing implies that a student, regardless of age, kind or amount of experience, will be basically competent in nursing; it is, however, essential that a student who elects a clinical major for graduate study be basically competent in that clinical area.

The School believes that the constantly-changing concepts and practices in nursing and the ever-increasing demands for nurses with graduate education support the convictions that: (1) the maximum freedom which is consistent with sound educational practice should be permitted graduate students in nursing in order that individuals with varying degrees of ability and experience may have equal opportunities to progress; and (2) that creative and critical thinking should be stimulated and disciplined by the study and practice of research methods, by conducting individual research and reporting findings.

The School of Nursing works toward the following objectives for graduate education in nursing:

- Ability to work effectively with others to meet the health needs of people;
- Ability to use scientific approach in solving nursing problems and to communicate findings in an appropriate manner;
- Ability to perform skillfully in a selected area of nursing;
- Ability to teach individuals and groups; and
- Ability to use administrative skill.

## CLINICAL TEACHING UNITS

The clinical teaching programs of the School of Nursing are conducted in a variety of hospitals and community agencies which cooperate with the School through making their facilities available for student instruction. In addition to the University Hospital, the School of Nursing uses the general facilities of King County Hospital System with a bed capacity of 450 in King County Unit I, and 220 in Unit II; Swedish Hospital with a bed capacity of 377; Virginia Mason Hospital with a bed capacity of 217; and The Doctor's Hospital with a bed capacity of 187. Special hospitals and agencies include the Children's Orthopedic Hospital with a capacity of 200 beds; Firland Sanatorium with a capacity of 1,086; and the state mental hospitals, Northern State Hospital, capacity 2,273, Western State Hospital, capacity 3,007, and Eastern State Hospital, capacity 2,361. The psychiatric unit of the United States Veteran's Administration Hospital in Seattle, capacity 80 beds, provides an additional facility in this area. Experience in public health nursing is arranged through the public health departments of Seattle-King County, Tacoma-Pierce County, Snohomish County, and the City of Spokane. Other community facilities are used as necessary to provide instruction for students.

## ADMISSION TO THE UNIVERSITY

### PRELIMINARY STATEMENTS

The Board of Admissions, which is appointed by the President, is responsible for the interpretation and administration of the regulations governing admission to the University.

The University recognizes high school diplomas, college credits presented for advanced standing, and college degrees earned in the following institutions: (1) high schools accredited by the Washington State Department of Public Instruction; (2) out-of-state high schools accredited by their state university and state department of public instruction, or by the regional accrediting association of the area; (3) colleges and universities accredited by their regional accrediting association.

**Resident.** Defined for purposes of admission and/or assessment of fees as an individual who has been domiciled in the state of Washington for one year immediately prior to his registration. The domicile of a minor is that of his parents or his legal guardian.

**Nonresident.** An applicant whose credentials are received from a school or college located outside the state of Washington. An applicant who believes himself eligible for resident status may apply for reclassification through the Office of Residence Classification which has final authority in determining such status.

**Qualified Student.** One whose scholastic standing and preparation meet the standards for admission to the University.

**Regular Student.** One who fulfills the following requirements: (1) has been granted regular admission to a college or school of the University; (2) whose current schedule for credit is satisfactory to the dean of his college or school; (3) has completed all of the required steps for registration, including the payment of

tuition and fees, the filing of class cards, and the depositing of registration materials at Sections.

**Grade-point averages** are based on a four-point system in which  $A = 4$ ,  $B = 3$ ,  $C = 2$ ,  $D = 1$ ,  $E = 0$ . An adjustment to this system is made as necessary in the computation of grade-point averages earned at other institutions.

#### ELIGIBILITY FOR ADMISSION WITH FRESHMAN STANDING

(Applicable to Residents of the State of Washington)

Undergraduate programs offered by the University lead to the baccalaureate degree; students, therefore, are admitted when, in the judgment of the University, they appear qualified to pursue a degree program with a reasonable probability of success. In making this judgment, the University's Board of Admissions considers the applicant's total record, including such factors as scholastic achievement in a college preparatory program, recommendations of the high school principal or counselor, rank in class, and scores on any nationally administered tests associated with college entrance.

Scholastic achievement is measured largely in terms of the criteria listed below. All students entering the University are expected to meet these criteria. Non-residents and students who enter with advanced standing will find additional criteria in subsequent sections.

#### SCHOLASTIC CRITERIA

1. Graduation with diploma from an accredited high school.
2. Achievement of an over-all high school grade-point average of at least 2.50 in courses completed after September 1960, and a grade-point average of at least 2.00 in courses completed prior to September, 1960.
3. Completion of a college preparatory program of at least 16 units to include the following:
 

a. English	at least 3 units
b. One foreign language	at least 2 units
c. College preparatory mathematics	at least 2 units
d. One laboratory science	at least 1 unit
e. Social science	at least 2 units
f. Electives	at least 2 units

from the above subjects

Additional electives may be chosen from any subjects acceptable for high school graduation.

Students planning to enter the School of Nursing are advised to select chemistry as their first laboratory science and biology or physics as an elective in preparation for the professional nursing program. A fourth unit of English also will be found helpful.

Because an appropriate choice of high school electives serves to strengthen a student's preparation, the University will give this part of her record the same careful attention it gives to other aspects of her qualifications.

#### ELIGIBILITY FOR ADMISSION WITH ADVANCED STANDING

(Applicable to Residents of the State of Washington)

A qualified student in good standing at an accredited institution may apply for admission with advanced standing. Such an applicant is expected to have the same high school preparation as the student who enters as a freshman, and to have a college grade-point average which meets the standards herein specified.

With fewer than 45 acceptable credits, an applicant must present a grade-point average of 2.50 in high school work completed after September, 1960; a 2.00 grade-point average in such work completed prior to this date; and a 2.00 cumulative average in all college work.

With 45 or more acceptable credits an applicant is expected to present a cumu-



lative and last-term grade-point average of at least 2.00. See also section on transfer of advanced credit, page 29.

#### **ADMISSION OF NONRESIDENTS TO UNDERGRADUATE STANDING**

Applications from nonresidents will be considered, but first preference is given legal residents of the state of Washington, and sons and daughters of University of Washington alumni residing outside the state.

Nonresident applicants are selected on the basis of their preparation and scholastic standing. In general, a freshman applicant must be eligible to enter the university of his own state, and satisfy the foregoing scholastic criteria with a 3.00 (B) grade-point average or place in the upper 25 per cent of his graduating class.

An applicant for admission with advanced standing with fewer than 45 college credits must have a cumulative grade-point average of at least 3.00 in standard college courses as well as a high school grade-point average of at least 3.00 or have been in the upper fourth of his class. An applicant presenting more than 45 credits for advanced standing must present a 2.70 grade-point average in standard college courses.

Sons and daughters of University of Washington alumni are admitted according to resident standards but are required to pay the regular nonresident tuition fees. Applicants for admission to curricula in which the University serves on a regional basis will be accorded special consideration by the Board of Admissions.

#### **ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Non-high school graduates who are 21 or older and legal residents of Washington may apply to the Board of Admissions for admission with special standing. With their application they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the dean of the college permits, but may not participate in student activities or receive degrees. By fulfilling conditions specified by the Board of Admissions, special students may change their status to that of regular students and may receive degrees.

Persons 21 or older may register as auditors in nonlaboratory courses or the lecture sessions of laboratory courses by obtaining the consent of the dean of the college and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter.

#### **ADMISSION OF FOREIGN STUDENTS EDUCATED ABROAD**

Applicants for admission with graduate or advanced undergraduate standing are expected to meet the same general requirements as nonresidents of Washington educated in American schools and demonstrate a satisfactory command of the English language.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in University attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students must meet the scholarship requirements for nonresident students. See above.

#### **ADMISSION OF VETERANS**

Veterans and children of deceased veterans should meet the general admission criteria and follow the general procedures outlined for all applicants. Applications for and questions about government aid should be addressed to the Veterans Division Regional Office. See page 31.

#### **ADMISSION OF UNDERGRADUATE STUDENTS WHO DO NOT MEET THE ADMISSIONS STANDARDS**

An applicant whose preparation and previous scholarship does not clearly qualify him for admission may submit additional evidence in support of his appli-

cation. This may include scores on nationally recognized tests of scholastic aptitude or achievement; letters from school administrators, teachers or counselors; and other information which may assist the Board of Admissions in evaluating his probability of success in the University.

Students admitted by special action of the Board of Admissions will be expected to achieve and maintain a satisfactory scholastic average in their University work and to fulfill any conditions specified by the Board at the time of their admission.

A student thus admitted on probation may continue attendance at the discretion of the dean of his college, but may not (1) be pledged or initiated into a fraternity or sorority, or engage in those other student activities in which his right to participate is restricted by the regulations of the Committee on Student Welfare; (2) engage in those athletic activities in which his right to participate is restricted by regulations of the University Intercollegiate Athletics Committee. Such a student shall be removed from probation when he has earned a minimum of 12 credits, exclusive of those in physical education activity and lower-division military training, with a 2.00 grade-point average. Provided, that if such a student carries less than 12 credits in one quarter he may not be removed from probation unless he has earned a minimum 2.00 grade-point average for the current quarter, as well as a minimum cumulative average of 2.00 for his total quarters in attendance. A student removed from probation under these provisions shall henceforth be subject to the regular scholarship rules.

#### ADMISSION TO THE GRADUATE SCHOOL

Basic requirements for admission to the Graduate School are a bachelor's degree from an institution of recognized standing, a grade-point average of 3.00 in the senior year of college work, approval of the Graduate School, and approval of the department in which the work is to be taken. For complete information, see the *Graduate School Bulletin*.

#### TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS

The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted.

1. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined before the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or senior standing. Transfer credit will not be allowed in the senior year.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution.

3. Transfer credits from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training schools credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the senior year.

6. A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of the credits can apply in the senior year. Extension and correspondence credits from schools that are not members of the National University Extension Association are accepted only after examination.

7. Credits earned in evening and extension classes or correspondence courses at

this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and/or correspondence credits is acceptable; the 90 credits may include the 45 extension and/or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Division of Evening Classes or Division of Correspondence Study. All credits earned in advanced-credit examinations and all acceptable Armed Forces training schools credits must be counted in the 90 extension credit maximum. Up to ten evening class or correspondence course credits from this University can apply toward the work of the senior year.

8. For work done in unaccredited institutions, extended secondary programs in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advanced credit examinations must be filed during the first quarter in residence.

9. No credit will be granted for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

## ADMISSIONS PROCEDURE

Requests for Application for Admission forms and correspondence regarding admission to any college or school of the University should be addressed to the Office of Admissions, University of Washington, Seattle 5, Washington. Graduates of high schools in the state of Washington may obtain this form from their principals.

Applications and required transcripts must be filed with the Office of Admissions prior to the following dates in order to be assured of consideration for admission to the quarter for which application is being made: August 1 for Autumn Quarter, 1961, July 15 for subsequent Autumn Quarters, December 1 for Winter Quarter, March 1 for Spring Quarter, May 15 for Summer Quarter.

All records become a part of the official file and can neither be returned nor duplicated for any purpose. Failure to submit complete credentials will be considered a serious breach of honor, and may result in permanent dismissal from the University.

A student entering the University for the first time is required to submit to the Student Health Service (Hall Health Center) a form containing his health history, as well as a report of a physical examination by a physician. The Office of Admissions will send new students the form and necessary instructions.

*The admissions credentials of applicants who do not register for the quarter to which they have been admitted are normally retained in the Office of Admissions for a period of one year from the date of application. At the end of this period, credentials on file are discarded unless the applicant has notified the Office of his continued interest in attending the University or of his enrollment in the Evening Classes program. Should a student wish to renew his application after the one-year lapse he must submit new credentials in advance of the date given above for the quarter desired.*

## FOR FRESHMAN STANDING

An application form, obtained from the University's Office of Admissions or from a Washington high school, should be completed according to instructions appearing on the form and returned to the Office of Admissions. Pages two and three of the same form should be given to the applicant's high school principal with the request that the scholastic record be entered and forwarded to the University's Office of Admissions as soon as possible.

Students may apply through their high schools on completion of the first

semester of the senior year. Those who are qualified will be issued notices of early or conditional admission which become valid on graduation with a grade-point average of no less than 2.50 for the final semester. Others also will be notified of their admission status.

Scores on a nationally administered college aptitude test are not required. However, they may be helpful in evaluating a borderline student's probability of success.

#### FOR ADVANCED UNDERGRADUATE STANDING

An application form, obtained from the University's Office of Admissions or from a Washington junior college should be completed according to instructions appearing on the form and sent to the Office of Admissions. In addition, the applicant should request the principal of his high school and the registrar of each college he has attended to forward an official transcript of his record to the University's Office of Admissions. When these credentials have been evaluated, the applicant will be notified of his admission status.

#### FOR GRADUATE STANDING

An application form, obtained from the University's Office of Admissions should be completed according to instructions appearing on the form and returned to the Office of Admissions. In addition an applicant should request the registrar of each college or university in which he has been enrolled as an undergraduate or graduate student to forward *two* official transcripts to the University's Office of Admissions. When these credentials have been evaluated, the applicant will be notified of his admission status. The student will find it convenient to have an additional copy of the record for reference.

#### WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges. See page 38.

#### KOREAN VETERANS

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. If the veteran has any questions regarding application for a certificate, he should consult the Veterans Division, Safety Division Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

##### Korean Certificate

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented, along with his Program of Studies, to the Veterans Division, Safety Division Building, as soon as registration is completed. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

##### Quarter Credit Requirements (Public Law 550)

14 credits .....	Full subsistence
10 to 13 credits.....	Three-fourths subsistence
7 to 9 credits.....	One-half subsistence
6 credits or less.....	Established tuition and fees
or credits $\div$ 14 $\times$ \$110.00, whichever is the lesser.	

**Graduate Credit Requirements (Public Law 550) 500-level Courses or Above**

9 credits .....	Full subsistence
7 to 8 credits .....	Three-fourths subsistence
5 to 6 credits .....	One-half subsistence
4 credits or less .....	Established tuition and fees
or credits $\div 14 \times \$110.00$ , whichever is the lesser.	

*If a graduate is combining 400-level courses with 500-level courses, he should consult with the Veterans Division, Safety Division Building, to determine the scale of pay.*

**Termination of Training**

A veteran *eligible* under Public Law 550 must complete his training by *eight years* after his release from active service, or by January 31, 1965, whichever is earlier.

**DISABLED VETERANS**

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

**CHILDREN OF DECEASED VETERANS**

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, Safety Division Building, on the date of registration.

**REQUIRED TESTS AND EXAMINATIONS****Washington Pre-College Differential Guidance Test**

This grade prediction test is required of all entering freshmen, including those transferring to the University with fewer than 45 credits. It is also required of transfer students who have not completed courses which are equivalent to English 101 (English composition) or Humanistics-Social Studies 265 (Techniques of Communication). High school seniors are advised to arrange through their high schools to take this test in the spring when it is offered throughout the state of Washington. Nonresidents of Washington may take the test at the time of their registration according to instructions mailed with the notice of admission. Sample copies are not available. Special, foreign, blind students, and auditors are exempted.

The several parts of this test have been selected because of their proven value for the prediction of grades most likely to be earned by a student. The results of the test are used by departmental advisers as an aid in assigning students to appropriate sections in English composition and other subjects, therefore it is advisable that the student bring a copy of the results with him when he comes for his first conference with his counselor or adviser.

**Mathematics Placement Tests**

One section of the Pre-College Differential Guidance Test evaluates a student's mastery of intermediate algebra and plane geometry. A satisfactory score on this section qualifies a student to enroll in Mathematics 104 (trigonometry) or Mathematics 105 (college algebra). Those who fail to qualify and wish to proceed to the study of more advanced mathematics courses may choose one of the following alternative plans:

1. Pass Mathematics 101, and then take 104 or 105, or both. Mathematics 101 is given only through the Division of Evening classes or the Department of Correspondence Study. No credit is given for Mathematics 101 to students who have completed the third semester of high school algebra.
2. Pass Mathematics 103, in which the first four weeks are devoted to a review of intermediate algebra and the last six weeks to the study of plane trigonometry equivalent to Mathematics 104. The satisfactory completion of this course qualifies the student to enroll in Mathematics 105 (college algebra).

Students who have studied trigonometry, fourth semester algebra, mathematical analysis, or similar subjects in high school, will be placed in the next appropriate course at the University according to their scores in additional placement tests given by the Department of Mathematics. It is advisable to review before taking these examinations. This generally applies to students entering such fields as engineering, architecture and urban planning, fisheries, forestry, pharmacy, mathematics, and the physical and marine sciences.

#### **Medical Examination**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the Student Health Service (Hall Health Center) a form containing his health history and a report of a physical examination by a physician. The form will be sent to new students by the Office of Admissions, and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the Student Health Service without charge.

With the exception of Canadian students, who will follow the above instructions, foreign students must take the required physical examination at the Student Health Service when they arrive on the campus.

### **MISCELLANEOUS INFORMATION**

**Junior High School Courses.** The University recognizes college preparatory courses given in the junior high school and assigns them the same value as equivalent courses offered by the high school. Students who elect these subjects in the junior high may subsequently achieve a superior degree of competence in related subject areas in high school.

**Accelerated, Honors, and Advanced Placement Courses.** The University encourages qualified students to extend themselves academically by taking advantage of advanced, accelerated, and honors courses offered by their schools. The degree of achievement attained by students in selected areas may be measured by their performance in College Entrance Examination Board Advanced Placement Examinations and by other means which are described briefly in the following paragraphs.

The University of Washington endorses the Advanced Placement Program of the College Entrance Examination Board and grants placement and/or credit at the discretion of the University department concerned on the basis of scores earned in College Entrance Examination Board Advanced Placement Examinations. Successful participation in such challenging opportunities assures superior academic preparation and serves to identify those students more likely to profit from University-level honors courses.

### **REGISTRATION**

#### **REGULAR STUDENT**

See page 26.

**PROCEDURE**

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration procedures, dates, and deadlines which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to, calling at, or telephoning the Registrar's Office at the time specified in the Calendar, but in *no case* later than the stated deadline (see pages 4-12).

**ADVISING**

After notification of admission, and before registration, new students should visit or write to the College for help in planning their course programs. Academic and other counseling of nursing students is given by faculty advisers in the College.

**REGISTERED CREDITS ALLOWED EACH QUARTER**

Except with the consent of his dean, no students may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent) or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no case may a student be registered for, or receive credit for more than 20 credits (or the equivalent) of work, exclusive of physical education activity courses, and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove entrance deficiencies, or concurrently in evening classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

**CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the Dean of the College. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean and the instructor whose class the student wishes to enter.

**WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has

been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

#### **WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the Dean of the College the Request for Withdrawal From the University form. The same system of grading applies as that described under Withdrawal from a Course.

### **QUALIFICATIONS FOR GRADUATION**

#### **MINIMUM SUBJECT REQUIREMENTS**

The University credit requirement for graduation is 180 academic credits (including Health Education 110 or 175) and the required quarters of military training and physical education activity. The School of Nursing requires that 9 credits or the equivalent in English 101, 102, and 103 (English Composition) be included in the total. At least 60 of the 180 credits must be in upper-division courses, those numbered 300 and above. Advanced ROTC courses do not count as upper-division credit, and no more than 18 credits in advanced ROTC courses may be counted toward graduation.

Students who transfer from other institutions are normally required to earn at least 10 credits in their major subject in this College.

#### **SCHOLARSHIP**

Grade points per credit are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; D, 1 point. The grade of E or EW signifies failure and the grade point is 0. The quarterly and cumulative grade-point averages are computed by multiplying the grade point received in a course by the total number of credits the course carries, totaling these values, and dividing by the total number of credits the student attempted. Courses for which any of the following symbols are recorded are not considered in determining the grade-point average: I, N, S, W, PW, X. Grade-point averages are calculated on the basis of all grades received in courses which carry academic credit, including courses repeated. Grades received in repeated courses do not cancel or replace any other grades. Only University of Washington residence credits will be used in these computations.

Any undergraduate student who has completed three or more quarters in the University and whose cumulative grade-point average is below 2.00 shall be placed on academic probation. Any undergraduate student who has completed not more than two quarters at the University shall be placed on probation when his cumulative grade-point average is below 1.80. The dean of the school or college in which the student is enrolled shall notify the student as soon as possible that he is on probation. Such action will be noted permanently on the student's official academic record.

Academic probation is essentially a warning to the student that he must show improvement if he is to remain in the University. University regulations regarding scholastic eligibility for participation in intercollegiate athletics and other student activities shall be recommended to the Senate by the Faculty Committee on Intercollegiate Athletics and the Faculty Committee on Student Welfare respectively.

An undergraduate student on academic probation will be removed from probation at the end of any quarter in which his cumulative grade-point average reaches 2.00 or better.

Any undergraduate student on academic probation will be dropped: (1) if he fails to attain at least a 2.00 for the following quarter's work; or (2) if he fails to attain a 2.00 cumulative average at the end of the two subsequent quarters. Any student dropped under this rule will be notified in writing of this action by the dean of the school or college in which he is enrolled.

Only under exceptional circumstances will a student dropped under low scholar-



ship rules be readmitted to the University. Such a student will be readmitted only at the discretion of the dean of the school or college to which he seeks admission. A student readmitted after being dropped under these rules will enter on academic probation. Such a student will be dropped: (1) if he fails to attain a 2.00 for the following quarter's work; or (2) if he fails to attain a 2.00 cumulative average at the end of two quarters. He will be removed from probation at the end of the quarter in which his cumulative grade-point average reaches 2.00 or better.

A senior who has completed the required number of credits for graduation but whose work in what would normally be his final quarter places him on probation will not receive a degree until he has been removed from probation. A senior who has completed the required number of credits for graduation but whose work in his last quarter results in his being dropped for low scholarship shall not receive a degree until he has been readmitted and removed from probation.

#### SENIOR-YEAR RESIDENCE

Senior standing is attained when 135 credits, plus the required quarters of ROTC and physical education, have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in three quarters of residence. The remaining 10 credits may be earned either in residence or in this University's evening classes or correspondence courses.

#### MILITARY TRAINING

The Departments of Air Science, Military Science, and Naval Science conduct the ROTC programs under agreements between the University and the United States Air Force, Army, and Navy. At the University, these programs are coordinated by the Dean of the College of Engineering.

The University requires male students who enter the University as freshmen or sophomores to complete six quarters of military training. (For exemptions, see below). The two-year basic programs offered by the Departments of Air Science and Military Science and the four-year program offered by the Department of Naval Science, satisfy this requirement. For a complete list of courses offered by these Departments, see the *Yearly Time Schedule*. In addition to the basic programs, the Department of Air Science and the Department of Military Science each offers for selected students an advanced program which leads to commissioning in the Air Force or the Army. The four-year program of the Department of Naval Science, also for selected students, leads to commissioning in the Navy or Marine Corps.

Students enrolling in Naval ROTC, and those who take the advanced program of Air Force or Army ROTC must agree in writing to complete the course of training and accept a commission in the service for which they are trained. *The honoring of this commitment is a condition of graduation from the University.*

The basic program of the Department of Air Science consists of three quarters of military classroom instruction on the Foundations of Air Power. These are offered in the spring quarter of the first year and the autumn and winter quarters of the second year. During each of the other three quarters, the student must substitute an approved University course in lieu of Air Science. Leadership Laboratory is required each of the six quarters of the basic program and is conducted one hour each week.

The basic program (freshmen and sophomores) of the Department of Military Science requires drill one hour each week. Classroom military studies for freshmen require two hours per week in the first quarter, one hour per week in the second quarter, and none in the third quarter. As a substitute for classroom military studies in the third freshman quarter, registration is required in a selected three-credit or five-credit course in another department. The list of courses from which this substitute course may be selected is printed in the *Yearly Time Schedule*. Classroom military studies for sophomores require two hours per week throughout the academic year.

Information concerning the Naval Science ROTC program can be found in the bulletins of the College of Arts and Sciences, the College of Business Administration, and the College of Engineering.

Exemptions from the military requirement are granted to:

1. Students who are twenty-three or over at the time of original entry into the University.

2. Students who enter as juniors or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who are not citizens of the United States.

6. Students who, because of physical condition, are exempted by the University Health Officer.

7. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.

8. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.

9. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.

10. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.

11. Students who seek exemptions on grounds other than specified above, and whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the Dean of the College after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 5 or 11 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

## PHYSICAL AND HEALTH EDUCATION

**ACTIVITY COURSES.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

*Men* students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

*Women* students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

The following students are exempt from the requirement of activity courses:

1. Students who have attained the age of twenty-five. A student who attains the age of twenty-five during a quarter in which he is registered for a required physical education activity course shall be held for the completion of that course. This rule shall not be retroactive in its application to students who entered prior to Spring Quarter, 1951, and were exempted from required physical education courses under previous rules.

2. Students who enter as sophomores, juniors, or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who because of physical condition are exempted by the Graduation Committee upon the recommendation of the Dean of the College. Such action will be taken only when the Dean has received a joint recommendation for exemption

from the University Health Officer and the Executive Officer of the Department of Physical Education for Men or for Women, whichever is appropriate. All other students who are reported by the University Health Officer as physically unfit to join regular classes will be assigned by the Executive Officer of the Department of Physical Education for Men or for Women to special programs adapted to their needs.

6. Students who are veterans of military service. Complete exemption is granted for one year or more of active duty. This exemption does not grant credit. Veterans with less than one year of service receive no exemption.

7. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**Health Courses.** All men students who enter the University as freshmen are required to take Health Education 175, a course in personal health, within the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption does not grant credit.

Women students who enter the University as freshmen are required to take Health Education 110 within the first three quarters of residence. Women entering the University for the first time may satisfy this requirement by passing a health-knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 110.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Bulletin*.

### Tuition

Resident students, per quarter \$35.00

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter 105.00

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter 12.00

Veterans of World War I and II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one half the nonresident tuition. This exemption is not granted to Summer Quarter students.

Proof of eligibility should be met as follows:

- (1) World War I veterans should present copy of discharge papers to Comptroller's Office, 203 Administration Building.
- (2) World War II veterans with Korean service or who have suffered disability should present a letter from the Veterans Administration Regional Office to the Veterans Division, Safety Division Building, stating they are no longer eligible for any federal educational benefits. (Excepted are those veterans who have had both World War II benefits and Korean benefits and have expired those benefits at the University of Washington.)

(3) World War II veterans who have not suffered any disability or served in the Korean Conflict should present an 8½-inch x 11-inch photostat of discharge papers to the Veterans Division, Safety Division Building.

*Exemption must be cleared prior to student's appointment day for registration in order to prevent personal payment.*

#### *Incidental Fee, per quarter*

Full-time resident students	27.50
Part-time resident students (registered for 6 credits or less, exclusive of ROTC)	10.00
Full-time nonresident students	52.50
Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC)	35.00
Auditors do not pay an incidental fee; there are no other exemptions.	

#### *ASUW Fees*

Membership, per quarter	8.50
Optional for auditors and part-time students.	
Athletic admission ticket (optional for ASUW members)	3.50-6.50
Autumn, Winter, and Spring Quarter, \$6.50; Winter and Spring Quarters, \$3.50; Spring Quarter, \$3.50.	

#### *Military Uniform Deposit*

Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.	25.00
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#### *Breakage Ticket Deposit*

Required in some laboratory courses; ticket is returnable for full or partial refund.	3.00
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#### *Locker Fee, per quarter*

Required of men students taking physical education activities.	1.50
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#### *Quarterly Grade Report Fee*

One quarterly grade report is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.	.50
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#### *Transcript Fee*

One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.	1.00
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#### *Graduation Fee*

	10.00
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#### **SPECIAL FEES**

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Appointments or Permits to register by In-Person Registration by action of the Registration Appeal Board. A late registration fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters by action of the Registration Appeal Board. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. The fee for a special examination is \$1.00 and for removal of an Incomplete, \$2.00. A fee of \$5.00 is charged each student, entering with less than 45 credits, who has not previously taken the Washington Pre-college Differential Guidance (Grade Prediction) Test.

**MUSIC FEES, per quarter are:** Private lessons, one-half hour a week (2 credits), \$25.00. Private lessons, one hour a week (3 credits), \$37.50. Group lessons, \$5.00. Piano practice, \$3.00, one hour a day; \$5.00, two hours a day; \$6.00, three hours a day. Organ practice, \$6.00, one hour a day; \$10.00, two hours a day; \$12.00, three hours a day. Practice rooms are available only to students taking music courses.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter are: bowling, \$5.00; canoeing, \$2.50; golf instruction, \$1.50.

#### REFUND OF FEES

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

#### ESTIMATE OF YEARLY EXPENSES

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

##### *Tuition, Incidental, and ASUW Membership Fees*

Full-time resident student	\$213.00
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Full-time nonresident student	498.00
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<i>Athletic Admission Ticket (optional)</i>	6.50
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<i>Health and Accident Insurance (optional)</i>	16.50
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<i>Special Fees and Deposits</i>	38.50
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Military uniform deposit, breakage ticket, and locker fees.

<i>Books and Supplies</i>	90.00
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##### *Board and Room*

Room and meals in Men's Residence Halls	675.00
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Room and meals in Women's Residence Halls	615.00-720.00
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Room and meals in fraternity or sorority house	670.00-760.00
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(Including dues and social fees.)

Initial cost of joining is not included; this information may be obtained from the Interfraternity Council or Panhellenic Council.

<i>Personal Expenses</i>	300.00
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In addition to above yearly costs, students should be prepared to pay the cost of transportation between the University campus and the teaching units. This amount will vary from quarter to quarter. Basic degree students should plan approximately \$50.00 for the purchase of uniforms. Graduate students who are candidates for an advanced degree should plan for approximately \$150.00 for costs connected with the preparation of the Master's thesis.

#### STUDENT ACTIVITIES AND SERVICES

##### ASSOCIATED STUDENTS

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

**FINANCIAL AIDS**

A considerable number of scholarships are awarded annually on a competitive basis. Applications are available through the Office of the Dean of Students during Winter Quarter, and awards are made late in the spring for the following academic year. The University bulletin *Handbook of Scholarships* describes the various awards.

Short- and long-term loan funds, including the National Defense Student Loan fund, are administered by the Office of the Dean of Students. Full-time students who are making normal and satisfactory progress are eligible to apply.

For information about scholarships and loans for nursing students see pages 49 and 51.

**OFFICE OF THE DEAN OF STUDENTS**

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering assistance with personal and social problems.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, and employment should be referred to this Adviser. Students who are interested in studying abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

**COUNSELING CENTER**

The Counseling Center offers vocational and personal counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors and psychologists, works closely with other student services and supplements the academic advisory program.

**HOUSING**

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time sub-faculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted

for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

#### HEALTH SERVICES

The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week, a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

Health and accident insurance for students is available at the time of registration.

All students in the School of Nursing are required to take a special health examination, chest X rays, and inoculation for smallpox, typhoid, tetanus, poliomyelitis, and diphtheria before beginning clinical laboratory courses and previous to the public health nursing field quarter. Defects must be corrected at the student's own expense.

#### EMPLOYMENT

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Application must be made in person after residence in Seattle has been established. Placement in jobs on campus is handled by the Personnel Department and the ASUW Personnel Office.



## THE PROGRAMS IN NURSING



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## THE PROGRAMS IN NURSING

**T**WO CURRICULA ARE OFFERED leading to the degree of Bachelor of Science in Nursing: one for the basic student with no previous preparation in nursing, and one for the graduate nurse. A post-bachelor's supplementary program in public health nursing is offered for those students with bachelor's degrees who do not have first-level preparation in public health nursing. Curricula leading to the Master of Arts or the Master of Nursing degrees are offered. On the post-master's level, advanced programs in a clinical area, in research, or in administration are available. A minor in nursing is offered on the doctoral level for the student who wishes to matriculate for the major in another discipline.

The School also presents courses of general interest to any University student. Courses in specific clinical fields are offered to affiliating undergraduate students in other schools of nursing.

Students in other colleges of the University who wish to receive a degree from the School of Nursing simultaneously must receive approval from the Dean of the School of Nursing at least three quarters before completing the requirements for the degree from this School.

### **BACHELOR OF SCIENCE IN NURSING**

Students working toward the degree of Bachelor of Science in Nursing must qualify for admission to the University (see Admission to the University, page 26), and the School as well as for the particular course requirements of the nursing curriculum. These general requirements include scholarship and minimum credits, physical and health education, and senior-year residence.

Students should apply for a Bachelor of Science in Nursing degree during the first quarter of the senior year. If not more than ten years have elapsed since the date of a student's entry into the school or college in which he is to graduate, he may choose to graduate under the requirements set out in either the bulletin published by the appropriate school or college most recently prior to the date of his entry, or that published most recently prior to his anticipated date of graduation; provided, that when, in the opinion of the faculty of the school or college or a departmental executive officer or a dean acting for such faculty, substantial

changes have been made in the curriculum since the student's entry, the student's choice shall be subject to the approval of the appropriate faculty, executive officer, or dean. Disapproval of the student's choice shall be faculty action and subject to the procedures of the Faculty Code. All responsibility for fulfilling graduation requirements shall rest with the student concerned. No student whose standing is in any way provisional can have an application for degree accepted.

### BASIC PROGRAM

The basic curriculum, which leads to the degree of Bachelor of Science in Nursing, is planned for four academic years plus one summer quarter. The summer quarter's work must be taken in either the first or second year of the program, as determined by the School of Nursing.

Courses in the first three quarters may be taken at any accredited junior college, college, or university. The remainder of the program must be taken at the University of Washington. The curriculum includes courses in the humanities, social sciences, and natural sciences, in addition to the major in nursing. A rich variety of nursing experience in hospitals and health agencies is provided. A graduate of the program is prepared for beginning positions in all fields of professional nursing, including public health nursing. Upon completion of the program she is eligible to take the state licensing examination to become a registered nurse.

Majors in nursing are held responsible for knowing and adhering to the rules and regulations of the University of Washington and the School of Nursing. Because the School has a responsibility to the public and the profession of nursing, it must require of its graduates not only adequate knowledge of nursing theory and practice, but also the qualifications which are important to a professional nurse. Maintenance of good relationships with patients and co-workers, a well adjusted mental outlook, and a sincere interest in people are considered requisite for a successful nursing career. In addition to the personal suitability for nursing, the student must maintain a 2.00 (C) grade-point average in her major. Good physical health is another necessary factor for continuing success in nursing.

The School of Nursing reserves the privilege of retaining only those students who, in the judgment of the faculty, satisfy the requirements of scholarship, health, and personal suitability for nursing.

Students who wish to transfer to this School from another school of nursing may be admitted to the basic professional program if they qualify for admission to the University and meet the professional requirements of the School as determined by the Admissions Committee of the School of Nursing.

### PROGRAM OF STUDIES I

First Year							
AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS	SUMMER QUARTER	CREDITS
Nursing 101 . . . . .	2	Nursing 102 . . . . .	2	English 103 . . . . .	3	Conjoint 317- . . . .	6-
Chemistry 101 . . . . .	5	Chemistry 102 . . . . .	5	Health Educ. 110 . . .	2	Microbiology 301 . .	5
English 101 . . . . .	3	English 102 . . . . .	3	Humanities 103 . . . .	5		
Humanities 101 . . . . .	5	Humanities 102 . . . .	5	Physics 170 . . . . .	5		11
Phys. Educ. 112 . . . .	1	Phys. Educ. 114 . . . .	1	Phys. Educ. Activity . . . . .	1		
	16		16		16		
Second Year							
Nursing 227 . . . . .	2	Nursing 228 . . . . .	4	Nursing 371 . . . . .	5		
Conjoint -318 . . . . .	6	Home Ec. 119 . . . . .	4	Nursing 372 . . . . .	5		
Sociology 110 . . . . .	5	Pharmacy 261 . . . . .	3	Public Health 423 . . .	3		
Elective . . . . .	2	Psychology 100 . . . .	5				
	15		16		13		
Third Year							
Nursing 373 . . . . .	5	Nursing 298 . . . . .	2	Nursing 299 . . . . .	2		
Nursing 374 . . . . .	5	Nursing 367 . . . . .	3	Nursing 369 . . . . .	5		
Elective . . . . .	3	Nursing 368 . . . . .	5	Nursing 370 . . . . .	5		
	13	Elective . . . . .	3	Elective . . . . .	3		
			13		15		

Fourth Year							
AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS	SUMMER QUARTER	CREDITS
Nursing 412 .....	3	Nursing 413 .....	5	Nursing 407 .....	3		
or		Nursing 414 .....	5	Nursing 409 .....	2		
Nursing 499 .....	3	Nursing 429 .....	2	Nursing 421 .....	4		
Nursing 415 .....	3			Nursing 422 .....	6		
Nursing 416* .....	5		12				
Public Health 470 .....	3						15
	14						

\*Students should be prepared to have a car for use in the public health nursing fieldwork quarter.

## PROGRAM OF STUDIES II

First Year							
AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS	SUMMER QUARTER	CREDITS
English 101 .....	3	Chemistry 100 (4) .....	5	Chemistry 102 .....	5		
Humanities 101 .....	5	or 101 .....	5	English 103 .....	3		
Nursing 101 .....	2	English 102 .....	3	Nursing 102 .....	2		
Sociology 110 .....	5	Humanities 102 .....	5	Humanities 103 .....	5		
PE-W 112 .....	1	Health Educ. 110 .....	2	PE-W Activity .....	1		
	16	PE-W 114 .....	1		16		
			16				

Second Year							
Home Econ. 119 .....	4	Conjoint 317 .....	6	Conjoint 318 .....	6	Nursing 298 .....	2
Nursing 227 .....	2	Elective .....	3	Nursing 228 .....	4	Nursing 367 .....	3
Physics 170 .....	5	Microbiology 301 .....	5	Pharmacy 261 .....	3	Nursing 368 .....	5
Psychology 100 .....	5		14		13	Public Health 423 .....	3
	16						13

Third Year							
Nursing 299 .....	2	Nursing 371 .....	5	Nursing 373 .....	5		
Nursing 369 .....	5	Nursing 372 .....	5	Nursing 374 .....	5		
Nursing 370 .....	5	Elective .....	2	Elective .....	3		
Elective .....	3		12		13		
	15						

Fourth Year							
Nursing 413 .....	5	Nursing 415 .....	3	Nursing 407 .....	3		
Nursing 414 .....	5	Nursing 416* .....	5	Nursing 409 .....	2		
Nursing 429 .....	2	Nursing 412 .....	3	Nursing 421 .....	4		
		or		Nursing 422 .....	6		
	12	Nursing 499 .....	3				
		Public Health 470 .....	2				15
			13				

## GRADUATE NURSE PROGRAM

The University offers a Bachelor of Science in Nursing degree to graduate nurses seeking a broad background of general and professional education as preparation for further professional practice. The curriculum is designed to extend the previous preparation of the nurse; it develops increasing ability to give complete nursing care and to assist in prevention and control of disease and in promotion of health in work with individual patients, families, and community health groups. The content of professional nursing courses includes new medications and treatments, and recent developments in the special fields of nursing, health teaching, and nursing management. Public health nursing is an integral part of the curriculum. Students are given the opportunity to apply these concepts to the care of patients and family groups in hospital and community agencies.

Candidates for admission to the graduate nurse program must be graduates of an approved school of nursing, and must be registered to practice nursing in a state or country. Moreover, they must qualify for admission to the University. Students who have not had psychiatric nursing preparation as a part of their basic nursing program must remove the deficiency before the application for the degree can be submitted.

Prospective students should request from the University Office of Admissions

an application for admission to advanced standing in the University. The form should be completed and returned to the Admissions Office, and the following should be sent directly from the principal or registrar of each institution: (1) an official transcript of subjects and grades from the high school; (2) an official transcript from any college or university previously attended; (3) an official transcript of grades and practice days from the school of nursing, with a statement of the date of graduation, signed by the director and bearing the seal of the school. Any work which a student has taken at a junior college, college, or university must be reported on the application for admission to the University, even though this work may have been taken during the time the student was in a school of nursing. Failure to comply with this regulation may result in permanent dismissal from the University.

In addition to the application for admission to the University, a separate application for admission to the School of Nursing is required. This form should be obtained from and returned directly to the School.

Students will be expected to take the Graduate Nurse Qualifying Examination in time for the results to be filed with the School of Nursing prior to registration. The student should (1) request an application from the adviser of the Graduate Nurse Program, (2) complete this form and send it to the Evaluation and Guidance Service of the National League for Nursing, 10 Columbus Circle, New York 19, New York. At that time arrangements should be made with the Evaluation and Guidance Service to take the examination. It is given in various parts of the country on established dates. It can be given in a special location upon a specific request for an additional fee. For further information write to the National League for Nursing, Evaluation and Guidance Service.

If the examination indicates areas in the student's background which should be strengthened, an individual program will be worked out by the student and her adviser. This program may include work experience in clinical areas. Students are not eligible for fieldwork in health agencies until any deficiencies have been removed.

The graduate nurse student is allowed a maximum of 65 credits toward the degree of Bachelor of Science in Nursing for a basic program taken at an approved school of nursing. These credits are withheld until the student has satisfactorily completed 30 credits of college work (15 of them in residence at this University). The background program must be completed before the clinical or field experience during the senior year.

An achievement test in public health nursing is required of all students on completion of the public health nursing field experience.

#### FIELD INSTRUCTION

Public health nursing field instruction is offered in cooperating public health agencies. Each student's field placement is planned on an individual basis, with consideration given to the amount and type of previous experience. In general, during the field instruction quarter, the student lives in the area to which she has been assigned. This may be outside of Seattle. She is responsible for providing her own uniforms and her own transportation during this quarter to and from the agency. Any student planning to use a personally owned car for transportation during this quarter must have a current driver's license and meet the state requirements for insurance protection. Students should be prepared to have a car for use in the fieldwork quarter.

The candidate for the Bachelor of Science in Nursing is advised to select proportionately those scientific and cultural courses which will strengthen her preparation in nursing and aid in establishing a minor as a basis for future graduate study. The student's interest should govern her selection of a minor field. The program is set up within the following framework, which meets University requirements, allows adaptations to meet individual needs and interests, and assures a broad general education:

<i>Professional Courses</i>	90 credits
Nursing 361, 365, 366, 405, 406, 417, 418, 419, 425; plus credit from school of nursing	
<i>General Education Courses</i>	90 credits
Humanities, including English 101, 102, 103 (15 credits)	
Social Sciences, including Psychology 101, Sociology 310 (15-17 credits)	
Biological and Physical sciences (15 credits)	
Social Work and Public Health (8-10 credits)	
Electives (35 credits)	
<i>Total</i>	180 credits

A total of 180 credits is required for graduation. Sixty credits in this program must be in upper-division courses.

Because of the inclusion of clinical practice as an integral part of the program, students are urged to carry professional liability insurance.

## UNDERGRADUATE SCHOLARSHIPS, AWARDS, AND LOANS

The University of Washington offers a number of scholarships for outstanding achievement. These are listed in the *Handbook of Scholarships*, which may be obtained from the Office of the Dean of Students.

In general, scholarships are awarded on the basis of (1) scholarship achievement above the 3.00 (B) grade-point average, (2) financial need, and (3) participation in the extracurricular activities of the campus and community. High school seniors should apply through their principal to the Office of the Dean of Students, and are encouraged to investigate local resources.

All scholarships, with the exception of those reserved for entering freshmen, require the recipient to have successfully completed at least one quarter in residence at the University of Washington. Application forms and information are available in the Office of the Dean of Students.

A limited number of scholarships, awards, and loans are administered by the School of Nursing Scholarship Committee for currently enrolled students. Reserved for students in the basic curriculum are the *University of Washington School of Nursing Memorial Scholarship* and the *Evelyn H. Hall Scholarship*. The *Wealthy Ann Robinson Scholarship* is awarded to an outstanding graduate nurse preparing for public health nursing. Basic students may also apply through this Committee to the Washington State League for Nursing. The *Elizabeth Sterling Soule Scholarship* is awarded by this organization and the Washington State Nurses' Association.

The Seattle-King County Visiting Nurse Service provides scholarships to basic and graduate nurse students who plan to enter the field of public health nursing and expect to remain in the state of Washington.

Federal grants and traineeships are available to qualified students in the graduate nurse program. Application is made to the Dean of the School of Nursing.

Some awards are presented each year to students of outstanding achievement by hospitals and other community organizations.

Loan funds of both an emergency and long-term nature are available upon application to the Office of the Dean of Students. This office also assumes responsibility for the National Defense Student Loan Program. Amounts up to \$200 are loaned upon application to the School of Nursing Scholarship Committee from the Kellogg Nursing Loan Fund and the King County Nursing Home Fund. Graduate nurses may apply directly to the Loan Fund of the Washington State Nurses' Association.

The University of Washington awards 100 tuition scholarships each academic year to worthy students from other countries. There are no scholarships available for the Summer Quarter. These awards are made on the basis of the academic record of the student, recommendations from his professors, his need for such assistance, and the availability of such openings in his department at the University. These scholarships cover tuition only and are administered by the Foreign Exchange Scholarship Committee, Foreign Students Office, University of Washington, Seattle 5, Washington, U.S.A. Applications for these scholarships must be made by March 1 for the following year.

#### **EDUCATIONAL PROGRAMS OFFERED BY THE MILITARY SERVICES**

The Army Student Nurse Program provides two years of educational opportunity on enlisted reserve status during the junior and senior years of the curriculum. The Navy Nurse Corps Candidate Program offers a similar opportunity for qualified students during the senior year.

### **GRADUATE PROGRAMS**

The School of Nursing offers opportunity for graduate study. All programs are designed to assist the student in the development of increased competence in the major field. Candidates for admission to programs beyond the bachelor's level must be graduates of an accredited college or university and an approved school of nursing, and must be registered to practice nursing in a state or country. Students must meet graduate admission requirements as outlined in the *Graduate School Bulletin*.

Prospective students should request from the University Office of Admissions an application for admission to the Graduate School in the University. The form should be completed and returned to the Admissions Office, and the following should be sent directly from the registrar of each institution: (1) two official transcripts from the college or university; (2) two official transcripts from the school of nursing, if other than a college or university school of nursing. Students who wish to develop a minor in nursing on the doctoral level with the major in another academic discipline must meet the prerequisites of that discipline for candidacy. The student should write directly to that department for information. (See *Graduate School Bulletin* for details.)

#### **MASTER'S PROGRAM**

Majors are offered in the following areas: medical-surgical nursing; maternal-child nursing; psychiatric-mental health nursing; public health nursing, school nursing, and occupational health nursing; administration of nursing services; and administration in schools of nursing.

Within the first quarter the student should plan her program with her major adviser in order to insure the best possible sequence of major and minor courses. They are designed to develop superior professional competence in administration, teaching, or advanced clinical nursing, and increasing ability to assume leadership responsibility. All students enrolled in these programs carry out original research in nursing and present written theses.

Most master's degree programs are four quarters in length, but will vary with the program selected and the number of credits carried each quarter. Candidates must complete 45 credits as follows: 18 credits in major courses, 12 credits in minor or supporting courses from other disciplines, and 15 credits in research and thesis. The majority of the major courses should be in nursing, although, occasionally, another department offers related courses which can be incorporated into the major plan. Minor courses are in the student's secondary area of interest, and are planned with the minor department. This area should be one in which the student has the necessary prerequisites, and which, if desired, might serve as the basis for future advanced study. Supporting courses may be selected from a

variety of areas outside of nursing and are determined by the student's interest and departmental prerequisites.

#### POST-MASTER'S PROGRAMS

Students who hold the master's degree may enroll for an additional period of study. Individual programs may be planned to include advanced clinical field work, supporting sciences or related fields, and research in nursing.

The School of Nursing offers a minor on the doctoral level for those students who are matriculated in another discipline. The minor in nursing should total 35 credits in courses offering graduate credit, of which at least half must be at the 500 level. The recommended sequence of courses for each student is determined in the light of her previous work.

#### GRADUATE TRAINEESHIPS, ASSISTANTSHIPS, AND FELLOWSHIPS

The University of Washington participates in the Professional Nurse Traineeship Program as administered by the Division of Nursing Resources of the U.S. Public Health Service. This program offers a limited number of traineeships for qualified applicants who are preparing for educational, supervisory, or public health positions in nursing.

The National Institute of Mental Health has made available to the School of Nursing a limited number of traineeships for nurses eligible for advanced study in psychiatric nursing.

Applications for the above traineeships should be made directly to the Office of the Dean of the School of Nursing.

The Graduate School provides for the employment of teaching and research assistants. (See *Graduate School Bulletin*, page 53). Requests for assistantship application forms should be sent to the Admissions Office, and the completed application should be returned to the Dean, School of Nursing.

Post-master's students in nursing and pre-doctoral students with the major in another discipline and the minor in nursing may be eligible for financial assistance through one of the following fellowship programs. Applications should be made directly to the agency administering the fellowship. *The United States Public Health Service Fellowship*: Chief, Research Fellowship Branch, Division of Research Grants, National Institutes of Health, Bethesda 14, Maryland; *The National League for Nursing Fellowship*: Chairman, National League for Nursing Fellowship Program, 10 Columbus Circle, New York 19, N.Y.

#### COURSE NUMBERING SYSTEM

Courses numbered from 100 through 299 are lower-division courses, for freshmen and sophomores; those numbered from 300 through 499 are upper-division, for juniors and seniors.

Courses numbered 500 and above are intended for and restricted to graduate students. Some courses numbered in the 300's and 400's are open both to graduates and to upper-division undergraduates. Such courses, when acceptable to the major department and the Graduate School, may be part of the graduate program. The Graduate School accepts credit in approved 300-level courses for the minor or supporting fields only; approved 400-level courses are accepted as part of the major. For a listing of approved 300- and 400-numbered courses, consult the *Graduate School Bulletin*.

Undergraduate students of senior standing who wish to register for a 500-level course must obtain permission from both the instructor of the class and the Dean of the Graduate School.

The number in parentheses following the course title indicates the amount of credit each course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the

amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed.

Courses to which the letter J is appended are joint courses in two or more departments and as such grant credit in one of the departments.

Not all of these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## COURSES FOR BASIC DEGREE STUDENTS

- 101 Introduction to Professional Nursing (2)** **Gray**  
The history of modern nursing and its important trends, with special emphasis on the role of the professional nurse and her use of communication and observation skills.
- 102 Introduction to Professional Nursing (2)** **Nash**  
Orientation to the profession, emphasizing present day concepts of nursing and preparation required for modern nursing practice. A survey of fields of nursing and interrelationships with other health groups is included. Lectures, discussions, observations, and field visits.
- 227 The Nurse and Family Health (2)** **Stewart, Staff**  
The role of the nurse in family health. Concepts of health and family living, with emphasis on cultural factors, including variations in values and standards, as they affect health. Family visits for experience in using observation and communication skills.
- 228 Nursing Fundamentals (4)** **Frederickson, Staff**  
Introduction to effects of illness on individuals. Selected nursing measures to meet patient's needs, including technical, communication, observation skills. Natural and social science principles applied. Two hours lecture-discussion; six hours clinical laboratory weekly.
- 298 Introduction to Normal Growth and Development (2)** **Chinque**  
An introduction to basic concepts and principles of normal growth and development related to the nursing care of children from infancy through the preschool period. Classroom observation of children at different age levels, parent interviews, case studies, lecture, and discussion. To be taken concurrently with 368.
- 299 Introduction to Normal Growth and Development (2)** **Chinque**  
An introduction to basic concepts and principles of normal growth and development related to the nursing care of children from school age through adolescence. Schoolroom observations, child interviews, lecture, and discussion. To be taken concurrently with 370.
- 367 Nursing Principles in Mother and Child Care (3)** **McConnell**  
An introduction to major concepts important in family-centered care of mothers and children, including health promotion and disease and accident prevention. Relating scientific and nursing principles to the care of women during a normal pregnancy and post-partal period; and of well children from birth through adolescence. To be taken concurrently with 368. First time offered Summer Quarter, 1960.
- 368 Nursing Practice in Mother and Child Care (5)** **Staff**  
The application of scientific and nursing principles to situations commonly occurring in the care of women during pregnancy and post-partum, and in the health supervision of children from birth through adolescence. Fifteen hours experience per week in hospitals, clinics, or physicians' offices, and family settings. First time offered Summer Quarter, 1960.
- 369 Nursing Principles in Mother and Child Care (5)** **Staff**  
Continuation of 367, with emphasis on scientific and nursing principles important in meeting needs of women during labor and delivery; of women with obstetrical complications; and, of infants and children with common illnesses and disabilities. To be taken concurrently with 370. First time offered Autumn Quarter, 1960.
- 370 Nursing Practice in Mother and Child Care (5)** **Staff**  
Continuation of 368, with emphasis on application of scientific and nursing principles to situations encountered in the care of women during labor and delivery; of women with obstetrical complications; and, of infants and children during illness and disability. Fifteen hours experience per week in hospitals, clinics, and family settings. First time offered Autumn Quarter, 1960.
- 371 Principles of Medical-Surgical Nursing (5)** **Pedersen**  
Analysis of deviations in basic needs commonly occurring in any adult who is ill; nursing care given to assist in correcting or controlling deviations. Discussion of common medical-surgical conditions occurring from malfunction in gastro-intestinal, respiratory, and cardiovascular systems, and nursing care specifically related to each. Identification of principles from nursing and biological, physiological, and social sciences used in giving preventive and therapeutic nursing care. To be taken concurrently with 372. First time offered Spring Quarter, 1960.
- 372 Medical-Surgical Nursing Practice (5)** **Little, Staff**  
Application of scientific and nursing principles to the care of adult patients ill with selected medical and surgical conditions. Emphasis will be placed on development of skill in planning and giving general nursing care based on the individual needs of the patient. Fifteen hours experience per week in hospital wards and operating room. First time offered Spring Quarter, 1960.



- 373 Principles of Medical-Surgical Nursing (5)** **Pedersen**  
Study of relationships between pathological changes, symptom formation, medical therapy, and nursing care in adults ill with common medical-surgical conditions occurring from malfunction in special sense organs, endocrine, urinary, integumentary, nervous and musculo-skeletal systems. Scientific facts and principles which form the basis for nursing procedures and observation. To be taken concurrently with 374. First time offered Autumn Quarter, 1960.
- 374 Medical-Surgical Nursing Practice (5)** **Little, Staff**  
Supervised practice in nursing care of medical-surgical patients in hospital wards and in the operating room; observation in selected clinics or physicians' offices. Identification of common elements and significant differences in nursing care of patients with specialized nursing problems during illness, convalescence, and rehabilitation. Fifteen hours experience per week. First time offered Autumn Quarter, 1960.
- 400 Principles of Psychiatry and Psychiatric Nursing (5)** **Beckwith**  
Major concepts of psychiatric nursing and mental health used in planning the nursing care of mentally ill patients, including special therapies and rehabilitation measures. Lectures, demonstrations, and nursing conferences. To be taken concurrently with 401. Last time offered Winter Quarter, 1961.
- 401 Psychiatric Nursing Practice (5)** **Beckwith, Schultz**  
Practical development of basic principles of psychiatric nursing, with supervision in solving selected patient-care problems. One quarter of clinical practice, with rotation through departments of the mental hospital, including men's and women's active and continued treatment, patient services, and special medical and rehabilitative therapies departments. One-hour ward clinic, one-hour nursing conference included in 15 hours of hospital practice weekly with psychiatric staff conference and written projects. Last time offered Winter Quarter, 1961.
- 402 Principles of Tuberculosis Nursing Care (2)** **Sorenson, Staff**  
Principles and concepts of chronic and communicable disease nursing as exemplified in patients with tuberculosis, including those with alcoholism. An exploration of preventive programs, medical management, community facilities, and related family and community problems. Seven hours of lectures and discussions per week for three weeks. To be taken concurrently with 403.
- 403 Tuberculosis Nursing Practice (2)** **Sorenson, Staff**  
Application of chronic and communicable disease nursing concepts and principles to the care of patients with tuberculosis, including those with alcoholism. Utilization of paramedical services in complex nursing situations. Emphasis on the problem-solving approach and interpersonal relations in nursing. Twenty-two hours laboratory experience per week for three weeks.
- 404 Nursing in Surgical Specialties (4)** **Staff**  
Seven weeks of experience in urology, orthopedics, gynecology, eye, ear, nose, and throat. Neurosurgery and emergency surgical nursing. Diet therapy practice is integrated. Case assignment, two hours clinic, two hours conference included in 17 hours of hospital practice weekly. Last time offered Winter Quarter, 1961.
- 405 Public Health Nursing (3)** **Cobb**  
Presentation and analysis of family and community health problems and current programs related to special fields of public health nursing. Selected nursing techniques for solving family health problems and implementing community health programs, with emphasis on the dynamics of personality and utilization of the self in the development of a good working relationship with patients and co-workers. Case discussion and group and individual conference. To be taken concurrently with 406. Last time offered Summer Quarter, 1961.
- 406 Public Health Nursing Practice (5)** **Staff**  
Experience in generalized public health nursing with an opportunity to apply basic principles and skills as a family health consultant and health teacher. Includes morbidity; maternal, infant, and child care; mental hygiene; and nutrition. Experience in homes and clinics, health conferences in schools, and health classes, as well as conferences with professional workers in related community agencies; participation in community health planning. Family case assignment, two-hour weekly conferences. Last time offered Summer Quarter, 1961.
- 407 Principles of Ward Management and Bedside Teaching (3)** **Staff**  
Problems of ward administration. Emphasis is upon the supervisory and teaching functions of the team leader, with attention to the provision of patient teaching; human relations in the ward situation are stressed. To be taken concurrently with 408 through Summer Quarter, 1961 and 422 thereafter.
- 408 Senior Nursing Practice (5)** **Staff**  
One quarter of advanced nursing practice in medical-surgical nursing. Opportunity for advanced patient care; experience as a team leader. Two-hour weekly conference included in 15 hours experience per week. Last time offered Summer Quarter, 1961.
- 409 Professional Problems in Nursing (2)** **Staff**  
Responsibilities of the professional nurse to the community. Study of professional organizations, opportunities in various fields of nursing, legislation, accreditation, and professional literature. To be taken concurrently with 408 Summer Quarter, 1961 and with 422 thereafter.
- 412 Scientific Principles in Nursing Care (3)** **Staff**  
An undergraduate seminar devoted to a critical analysis of nursing situations, with emphasis on the identification and utilization of the inherent social and natural science principles. Student research project utilized as a learning experience.

- 413 Principles of Psychiatric Nursing (5)** **Beckwith**  
Concepts and principles of psychiatric-mental health nursing used in planning care of mentally ill patients. Psychiatric therapies and rehabilitation measures. To be taken concurrently with 414. First time offered Autumn Quarter, 1961.
- 414 Psychiatric Nursing Practice (5)** **Beckwith, Schultz**  
Application of psychiatric-mental health principles and skills in the care of selected psychiatric patients. Fifteen hours clinical experience in community psychiatric facilities. First time offered Autumn Quarter, 1961.
- 415 Community Health Nursing Principles (3)** **Cobb**  
Public Health nursing principles with analysis of family and community health situations and current nursing programs in community health. Emphasis on selected problem solving skills. To be taken concurrently with 416. First time offered Autumn Quarter, 1961.
- 416 Community Health Nursing Practice (5)** **Burke, Christian, Cobb**  
Selected nursing experiences in community health. Application of public health nursing principles and skills in family and community health situations. First time offered Autumn Quarter, 1961.
- 421 Selected Problems in Clinical Nursing (4)** **Staff**  
Presentation and analysis of selected complex nursing problems related to the care of adults or children with chronic or acute illness in ordinary and emergency situations. Includes the formulation of comprehensive nursing care plans for selected patients or groups of patients. Two, two-hour seminar periods per week. To be taken concurrently with 422. First time offered Autumn Quarter, 1961.
- 422 Senior Nursing Practice (6)** **Staff**  
Experience in dealing with complex nursing care problems including those associated with stress or emergency situations. Planning, directing, guiding, evaluating nursing care activities as an individual and as a team leader. Three consecutive weeks of total experience will be concentrated on the care of tuberculosis patients. Eighteen hours of supervised clinical experience. First time offered Autumn Quarter, 1961.
- 429 Principles of Geriatric Nursing (2)** **Staff**  
Nursing principles related to the physical, social, and emotional needs of the geriatric patient in individual, family, and group settings. Biological, social, and cultural influences upon the aging population included.
- 499 Undergraduate Research (1-5, maximum 5)** **Staff**  
Supervised individual research on a specific nursing problem. Open to qualified majors in the senior year. Prerequisite, permission of instructor. May substitute for 412. To be taken concurrently with 416. First time offered Autumn Quarter, 1961.

## COURSES FOR OTHER UNDERGRADUATE STUDENTS

The School of Nursing offers selected courses which are open to any University student, and courses in specific clinical fields which are available to undergraduate affiliate students enrolled in other approved schools of nursing.

## COURSES FOR OTHER UNIVERSITY STUDENTS

- 100 Care and Prevention of Illness in the Home (3)** **Olcott**  
Health and safety factors in the home and community; recognition of early symptoms of physical or mental illness as an important factor in the prevention of disease or disability. First aid in the home; conditions commonly treated at home; medications and supportive treatments; care before and after pregnancy; infant care; child growth and development; common psychological reactions to illness or disability; choosing a doctor and a hospital; consideration of community health resources. (Open to any student.)
- 101 Introduction to Professional Nursing (2)** **Gray**  
The history of modern nursing and its important trends, with special emphasis on the role of the professional nurse and her use of communication and observation skills.
- 102 Introduction to Professional Nursing (2)** **Nash**  
Orientation to the profession, emphasizing present day concepts of nursing and preparation required for modern nursing practice. A survey of fields of nursing and interrelationships with other health groups is included. Lectures, discussions, observations, and field visits.
- 315, 316 Nursing for Physical Therapists (2,2)** **Hay**  
Selected nursing activities and techniques used for students in the physical therapy program.
- 492J Problems in International Health (2)** **Leahy**  
Conference and discussion based on a survey of international health organizations and the services offered by regions and countries. Offered jointly with the Department of Public Health and Preventive Medicine. Open to any senior or graduate University student. Prerequisite, permission.

## COURSES FOR UNDERGRADUATE NURSING AFFILIATE STUDENTS

- 250 Introduction to Psychiatry and Psychiatric Nursing (5)** **Keim, Cashar, White**  
Introduction to concepts and principles of psychiatric-mental health nursing used in planning nursing care of mentally ill patients. Therapies and rehabilitation measures. To be taken concurrently with 251.

- 251 Selected Psychiatric Nursing Practice (5)** **Keim, Cashar, White**  
Application of fundamental principles of psychiatric nursing in planning and caring for the mentally ill patient. Fifteen hours clinical experience in community psychiatric facilities. To be taken concurrently with 250.
- 252 Introduction to Nursing Care and Treatment of Tuberculosis (2)** **Sorenson**  
Presentation of basic concepts regarding the etiology, control, and treatment of tuberculosis. Emphasis on identification of relevant natural and social science principles and the rehabilitation of the chronically ill, including the alcoholic. Lectures, discussions, and demonstrations. Seven hours per week for three weeks.
- 253 Selected Tuberculosis Nursing Practice (2)** **Sorenson**  
Basic principles of nursing care applied to selected patients with tuberculosis. Emphasis on planning comprehensive nursing care of the chronically ill, including the alcoholic, by utilization of paramedical services. Problem solving approach stressed. Hospital practice, ward discussions, clinic, and conferences. Twenty-two hours laboratory experience per week for three weeks.
- 402 Principles of Tuberculosis Nursing Care (2)** **Staff**  
Principles and concepts of chronic and communicable disease nursing as exemplified in patients with tuberculosis, including those with alcoholism. An exploration of preventive programs, medical management, community facilities, and related family and community problems. Seven hours of lectures and discussions per week for three weeks.
- 403 Tuberculosis Nursing Practice (2)** **Staff**  
Application of chronic and communicable disease nursing concepts and principles to the care of patients with tuberculosis, including those with alcoholism. Utilization of paramedical services in complex nursing situations. Emphasis on the problem solving approach and interpersonal relations in nursing. Twenty-two hours laboratory experience per week for three weeks.
- 405 Public Health Nursing (3)** **Cobb**  
Presentation and analysis of family and community health problems and current programs related to special fields of public health nursing. Selected nursing techniques for solving family health problems and implementing community health programs, with emphasis on the dynamics of personality and utilization of the self in the development of a good working relationship with patients and co-workers. Case discussion and group and individual conferences. To be taken concurrently with 406. Last time offered Summer Quarter, 1961.
- 406 Public Health Nursing Practice (5)** **Burke, Christian, Cobb**  
Experience in generalized public health nursing, with an opportunity to apply basic principles and skills as a family health consultant and health teacher. Includes morbidity; maternal, infant, and child care; mental hygiene; and nutrition. Experience in homes and clinics, health conferences in schools, and health classes, as well as conferences with professional workers in related community agencies; participation in community health planning. Family case assignment, two-hour weekly conferences. Last time offered Summer Quarter, 1961.
- 415 Community Health Nursing Principles (3)** **Cobb**  
Public Health nursing principles, with analysis of family and community health situations and current nursing programs in community health. Emphasis on selected problem solving skills. To be taken concurrently with 416. First time offered Autumn Quarter, 1961.
- 416 Community Health Nursing Practice (5)** **Burke, Christian, Cobb**  
Selected nursing experiences in community health. Application of public health nursing principles and skills in family and community health situations. First time offered Autumn Quarter, 1961.

## COURSES FOR GRADUATE NURSE STUDENTS

- 361 Survey of Trends in Contemporary Nursing (2)** **Leahy**  
Particular emphasis on current problems in nursing.
- 365 Therapeutics and Nursing Care (2)** **Gray**  
The nurse's responsibilities in the use of selected therapeutic agents, treatment, and diagnostic tests in the care of patients. Individual needs of the students determine the course content.
- 366 Special Problems in Nursing Care (2)** **Nehren**  
Two-hour weekly discussions of problems in nursing care encountered in hospitals and health services. Mental health aspects are emphasized.
- 415 Community Health Nursing Principles (3)** **Cobb**  
Public Health nursing principles, with analysis of family and community health situations and current nursing programs in community health. Emphasis on selected problem solving skills. To be taken concurrently with 416. First time offered Autumn Quarter, 1961.
- 416 Community Health Nursing Practice (5)** **Burke, Christian, Cobb**  
Selected nursing experiences in community health. Application of public health nursing principles and skills in family and community health situations. First time offered Autumn Quarter, 1961.
- 417 Principles of Teaching Nursing and Health (3)** **Burke**  
Application of learning principles to effective teaching methods and nursing techniques. Prerequisites, Psychology 100 and Education 209, or equivalent.

- 418 Supervision in Nursing (3)** **Little**  
Principles of supervision as they apply to nursing in hospitals and health services. Emphasis is placed upon the importance of interpersonal relations in supervision.
- 419 Contemporary Nursing in the Hospital (3)** **Shanahan**  
Two-hour weekly conferences, and four hours weekly clinical experience in nursing in hospitals. Conferences and experiences emphasize fundamental problems in nursing care.
- 425 Current Literature in Nursing (2)** **Staff**  
Reading and discussion of current literature in nursing, including a survey of background material. Emphasis is on generally accepted concepts, and on those which are developmental or experimental.

## COURSES FOR GRADUATE STUDENTS

- 430 Advanced Nursing Field Work (3)** **Staff**  
Identification and analysis of problems in advanced clinical nursing. Emphasis on principles pertinent to the development, application, and evaluation of plans for optimum nursing. Selected experience in the areas of medical-surgical, maternal-child, public health, psychiatric-mental health, school, or occupational health nursing. Weekly seminar.
- 431 Advanced Nursing Field Work (2)** **Staff**  
Continuation of Nursing 430. Experiences chosen in the area of major clinical interest. Prerequisite, 430.
- 435 Practice Supervision in Nursing (3)** **Smith, Staff**  
Planned experience in supervisory functions in nursing. Prerequisites, 454, experience in field, or permission.
- 436 Practice Teaching in Nursing (3)** **Staff**  
Planned experience in formal and clinical teaching. Prerequisites, 462 and experience in clinical field, or permission.
- 454 Administration in Nursing (2)** **Smith**  
Principles of administration related to nursing. Administrative behavior, personnel administration; coordinating functions of the nursing administrator. Prerequisite, 418, or permission.
- 455 Administration of Schools of Nursing (3)** **Hoffman**  
Application of principles of administration to the school of nursing. Includes consideration of over-all administrative functions as they relate to organization, student and faculty personnel, curriculum facilities, finance, records, and reports. Prerequisite, 454 or permission.
- 456 Nursing Service Administration (3)** **Smith**  
Application of fundamentals of administration and organization to nursing service in the hospital. Includes discussion of selection, assignment, supervision, and evaluation of hospital nursing personnel, techniques for control of equipment and supplies, methods of communication, and interdepartmental and interpersonal relations. Prerequisite, 454 or permission.
- 462 Teaching in Schools of Nursing (3)** **Enos**  
Principles and methods of teaching applied to clinical nursing; group development of objectives and course content; planning of courses and units of learning for selected clinical areas including selection of instructional aids and textbooks; the role of the instructor in classroom teaching and clinical practice. Prerequisites, 417 or equivalent, Education 209, or permission.
- 463 Personnel Guidance in Nursing (3)** **Batey**  
Development of concepts and principles of interpersonal relations as used in personnel guidance in nursing. Prerequisite, Education 447 or permission.
- 464 The Nurse in Mental Health (3)** **Batey**  
Concepts of nursing and of growth and development applied to nurse-patient interaction; emphasis on prevention and resolution of emotional problems experienced in nursing situations. Nursery school experience. Prerequisite, permission.
- 466 In-Service Education in Nursing (3)** **Smith**  
Programs for in-service education in nursing involving various groups of workers in different institutions and agencies.
- 467 Evaluation of Performance in Nursing (3)** **Olcott**  
Underlying philosophy and principles of performance evaluation for nurses with administrative and supervisory responsibility in various health agencies. The purposes of evaluation as they relate to guidance of the staff, to increased satisfaction in one's work, and to improved patient care are stressed.
- 481 The Nurse in School Vision Programs (2)** **Christian**  
Nurse's role and responsibilities in school vision programs, emphasizing the relationship of vision programs to community health services. Lectures, discussions, and demonstrations.
- 485J School Health Problems (3)** **Christian, Vavra**  
Analysis of and planning for school health programs based on developmental needs of the school-age child. Some field observation and participation in school health programs are required. For nonmedical students. Offered jointly with the School of Medicine. Prerequisite, permission.

- 486 Occupational Health Programs, Nursing Implications (3)** **Klutas**  
Study of the field of occupational health—philosophy, scope, types of programs; functions of health personnel; interpersonal and community relationships; environmental and preventive health aspects. Emphasis on role of the nurse. Prerequisite, permission. First time offered Summer Quarter, 1961.
- 492J Problems in International Health (2)** **Leahy**  
Conference and discussion based on a survey of international health organizations and the services offered by regions and countries. Offered jointly with the Department of Public Health and Preventive Medicine. Open to any senior or graduate university student. Prerequisite, permission.
- 498 Methods of Supervision in Public Health Nursing (3)** **Leahy**  
Principles and methods of supervision in public health nursing and their relationship to administration. Prerequisites, 454 or equivalent, preparation and experience in public health nursing and permission.
- 501 Development of Nursing Procedures (2)** **Giblin**  
Nursing procedures as a basis for nursing service planning and as a teaching tool. Procedures analyzed against selected criteria. Development of procedures according to clinical needs.
- 502J Applied Group Development Principles (3)** **Murray**  
A study of the factors that contribute to productive group effort with application of group development principles for professional health personnel. Offered jointly with the Department of Public Health and Preventive Medicine. Prerequisites, permission, Speech 332 or equivalent, and background in the health field.
- 504 Seminar in Occupational Health Nursing (2)** **Klutas**  
Intensive analysis of selected problems in occupational health nursing.
- 505 Seminar in Administration of Schools of Nursing (3)** **Hoffman**  
Discussion and analysis of situations in administration of schools of nursing. Prerequisite, 455 or equivalent.
- 506 Seminar in Nursing Service Administration (3)** **Smith**  
Discussion and analysis of situations in administration of nursing services. Prerequisite, 456 or equivalent.
- 507 Seminar in Nursing Problems in Mental Health (2)** **Nehren**  
Mental health problems in family relationships, with emphasis on psychiatric concepts in the nurse's therapeutic role in the family milieu. Prerequisites, 508 and permission.
- 508 Seminar in Advanced Psychiatric Nursing (2)** **Batey**  
Exploration of interpersonal relations; emphasis upon the nurse's therapeutic role with the psychiatric patient and in the total milieu. To be taken concurrently with 430.
- 509 Seminar in School Nursing (3)** **Christian**  
The application of public health nursing concepts, principles, and research findings in the analysis and solution of school nursing problems.
- 510 Curriculum Development in Nursing Education (5)** **Hoffman, Tschudin**  
Current curriculum patterns and trends in nursing education; the development of curriculum materials; problems in the study and implementation of nursing curricula. Prerequisite, 417 or equivalent.
- 511 Psychosomatic Nursing (3)** **Nehren**  
Seminar and clinical experiences centered on problems of interrelationships of physical and emotional aspects of illness. Prerequisite, basic psychiatric nursing or permission.
- 512 Advanced Fields in Psychiatric Nursing (3)** **Batey**  
Practicum devoted to the solution of nursing problems in psychiatric situations. Emphasis on specific interpersonal and interprofessional relationships in the care of mental patients. Prerequisite, permission.
- 513 Field Experience in Mental Health Nursing (3)** **Nehren**  
Selected experience in the identification and analysis of mental health problems in family relationships with emphasis on utilizing psychiatric concepts in developing therapeutic nursing relationships in the family milieu. Concurrent with 507.
- 515 Special Fields in Public Health Nursing (3)** **Leahy**  
Investigation of public health nursing responsibilities in special fields. Emphasis varies with interest and needs of the students. Prerequisite, permission.
- 521 Methods of Research in Nursing (2)** **Hoffman**  
Methods of research applied to the solution of problems in all fields of nursing.
- 530 Advanced Concepts in Maternal and Child Health and Implications for Nursing (3)** **Murray**  
Consideration of changing philosophy in maternal and child care; factors influencing health; ways of meeting health needs; role of the nurse in solution of related problems. Prerequisite, permission.
- 542 Seminar in Cardiovascular Nursing (3)** **Giblin**  
Analysis of nursing problems of patients with cardiovascular conditions from the standpoint of the potential pathophysiology and the physical and emotional factors involved. Prerequisites, 430 (medical-surgical), 464, or permission.

**570 Seminar in Clinical Research in Nursing (3)** **Hoffman**  
Philosophy, problems of design; use of criterion measures in terms of patient care. Prerequisite, permission.

**600 Research (\*)**

**700 Thesis (\*)**

## REQUIRED COURSES IN ALLIED FIELDS

### CHEMISTRY

**101 General Chemistry (5)** **Staff**  
For nonscience and nonengineering majors who plan to terminate their study of chemistry with 101 or 102. Molecular theory, quantitative relationships in chemical processes, solutions, ionic equilibria, acids, bases, and salts. Prerequisite, high school chemistry or 100.

**102 General and Organic Chemistry (5)** **Staff**  
A terminal course to follow 101. Chemistry of common metals and nonmetals. Organic compounds; hydrocarbons, alcohols, aldehydes, ketones, ethers, acids, aromatics, fats and oils, proteins and carbohydrates. Prerequisite, 101.

### CONJOINT

**317-318 Elementary Anatomy and Physiology (6-6)** **Staff**  
Human physiology with anatomical demonstrations. An elementary course integrating anatomy, histology, physiology and biochemistry of the human body. Offered jointly by the Departments of Anatomy and Physiology and Biophysics. For nursing and dental hygiene students only.

### ENGLISH

**101, 102, 103 Composition (3,3,3)** **Staff**  
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form.

### GENERAL EDUCATION

#### Humanities

**101 Literature (5)** **Adams, Brown, Hilen, Phillips, Winther, Woodcock**  
An introduction to literary forms and techniques through the analysis of representative examples of narrative and poetic art, with emphasis upon the relationship of content and expression.

**102 The Arts (5)** **Moseley, Verrall, Staff**  
Paintings, sculpture, music, architecture, the dance, and drama studied through example, discussion, and criticism.

**103 Philosophy (5)** **Miller, Rader, Smullyan, Staff**  
Methods of reflective thinking and the use of them in considering such essential questions as the existence and nature of God, the meaning of a good life and a good social order, the nature and limits of human knowledge, the relationship between mind and body, and the nature of the universe. This course may be offered in partial fulfillment of the requirements for a major in philosophy.

### HOME ECONOMICS

**119 Family Nutrition (4)** **Staff**  
Normal nutritional requirements of the family and simple dietary modifications. Food selection. Cultural effects on diet pattern. For student nurses.

### MICROBIOLOGY

**301 General Microbiology (5)** **Staff**  
Microorganisms and their activities. A survey course for students of pharmacy, nursing, home economics, education, and others with minimal training in chemistry. Prerequisites, two quarters of general chemistry.

### PHARMACY

**261 Elementary Pharmacy and Pharmacology (3)** **Staff**  
A survey of drug standards, laws, dosage forms, calculations of dosages and solutions, and general study of the action of drugs. For students in the School of Nursing.

### PHYSICAL EDUCATION

**110 Health Education (Women) (2)** **Staff**  
Health problems of freshman women. Required of all freshman women; exemption without credit by examination. See page 38.

**111 through 162; 215 through 267 Physical Education Activities (Women) 1 each** **Staff**  
111, adapted activities; 112, basic activities (general); 113-114, basic activities (applied); 115, archery; 118, badminton; 119, body conditioning; 121, bowling (fee); 124, fencing; 126, golf (fee \$1.50 per quarter); 128, riding (fee); 129, sailing; 131, ski conditioning; 132, elementary skiing (fee); 133, tumbling and apparatus; 134, rebound tumbling; 135,

tennis; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, folk and square dance; 149, international folk dance; 151, contemporary dance; 154, social dance; 155, tap dance; 157, canoeing (fee, \$2.50 per quarter); 160, adapted swimming; 161, beginning swimming; 162, elementary swimming; 215, intermediate archery; 218, intermediate badminton; 221, intermediate bowling (fee); 222, advanced bowling (fee); 224, intermediate fencing; 228, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dance; 251, intermediate contemporary dance; 252, advanced contemporary dance; 257, intermediate canoeing (fee, \$2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, aquatic art; 266, diving; 267, lifesaving.

## PHYSICS

- 170 Introduction to Health Sciences Physics (5)** **Sanderman**  
Selected physical theories and principles and their application to home and hospital situations.

## PSYCHOLOGY

- 100 General Psychology (5)**  
Introduction to the principles of human behavior.

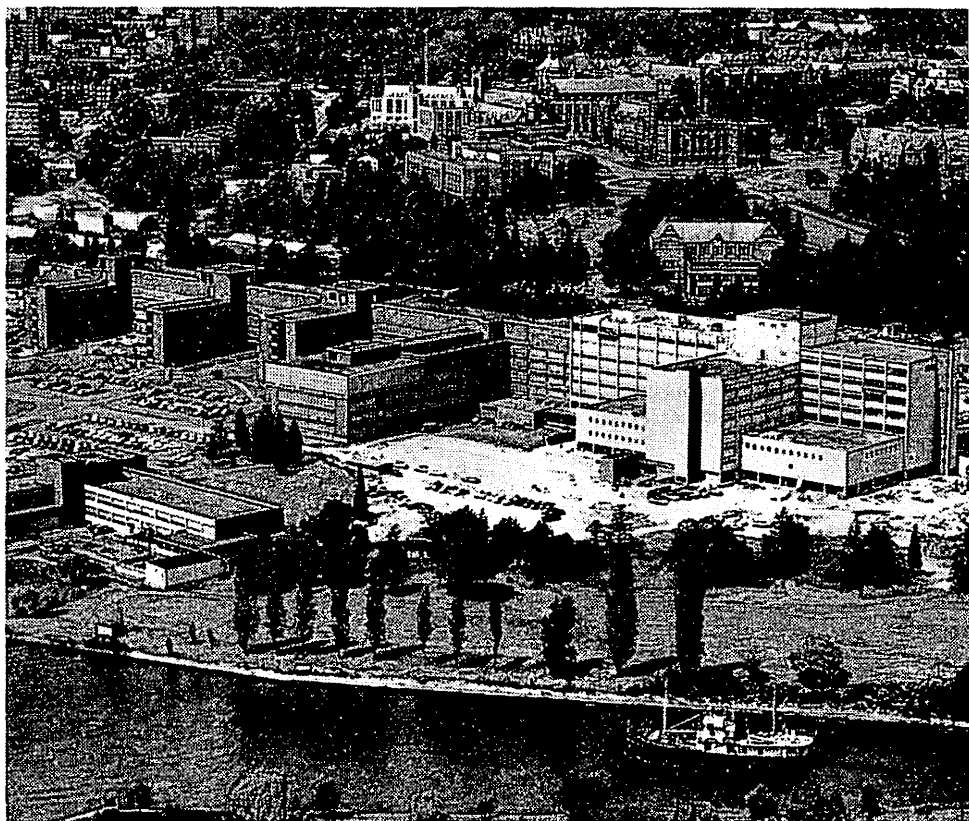
## PUBLIC HEALTH

- 423 Public Health Organizations and Services (3)** **Wilkey**  
A study of the organizations and services of both governmental and voluntary health agencies on national, state, and local levels.
- 470 Introduction to Biometry (3)**  
Statistical methods used in the compilation, interpretation, and presentation of vital data. Prerequisite, permission.

## SOCIOLOGY

- 110 Survey of Sociology (5)** **Larsen, Staff**  
Basic principles of social relationships. Primarily for freshmen and sophomores. Not open to students who have taken 310.

**BULLETIN • UNIVERSITY OF WASHINGTON**



**COLLEGE OF PHARMACY**  
**1959-1961**



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BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Department of Correspondence Study and the Department of Extension Classes, the correspondence study and evening classes announcements.

INTRODUCTION TO THE UNIVERSITY, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. UNIVERSITY RULES AND REGULATIONS, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. HANDBOOK OF SCHOLARSHIPS, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Registrar.

### *General Bulletins*

HANDBOOK OF SCHOLARSHIPS

INTRODUCTION TO THE UNIVERSITY

UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)

### *Bulletins of the Colleges and Schools*

COLLEGE OF ARCHITECTURE AND URBAN PLANNING

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF DENTISTRY

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FISHERIES

COLLEGE OF FORESTRY

GRADUATE SCHOOL

SCHOOL OF LAW

SCHOOL OF MEDICINE

SCHOOL OF NURSING

COLLEGE OF PHARMACY

SCHOOL OF SOCIAL WORK

### *Other Bulletins*

PRELIMINARY SUMMER ANNOUNCEMENT

SUMMER QUARTER ANNOUNCEMENT

CENTER FOR GRADUATE STUDY AT HANFORD

CORRESPONDENCE STUDY

EVENING CLASSES

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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	11
Board of Regents	
Officers of Administration	
Board of Health Sciences	
College of Pharmacy Faculty and Staff	
GENERAL INFORMATION . . . . .	15
Division of Health Sciences	
College Facilities	
Admission Requirements Effective Autumn Quarter, 1961	
Current Admission Requirements	
Korean Veterans	
Disabled Veterans	
Children of Deceased Veterans	
World War I or II Veterans	
Required Tests and Examinations	
Registration	
Scholarship and Minimum Credits	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE PROGRAMS IN PHARMACY . . . . .	37
Licensure	
Bachelor of Science in Pharmacy	
Advanced Degrees	
Curriculum	
Course-Numbering System	
Courses	

# CALENDAR

**AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS**  
(Spring Quarter, 1959, through Winter Quarter, 1961)

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

## SPRING QUARTER, 1959

### REGISTRATION PERIOD

JAN. 26-FEB. 20

Advance Registration only for students in residence Winter Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

MAR. 24-26

In-Person Registration for former students not in residence Winter Quarter, 1959, and those attending Winter Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office *no later than March 13*. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply *in person* at the Registrar's Office for a Registration Appointment or Permit to register between February 24 and March 13. Deadline for applying for Registration Appointment or Permit is *March 13*.

FEB. 27

Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

MAR. 24-26

In-Person Registration for ALL new students.

MAR. 26

Last day to register for Spring Quarter, 1959.

MAR. 31-APR. 3

Change of registration by appointment only.

### ACADEMIC PERIOD

MAR. 30-MONDAY

Instruction begins

APR. 3-FRIDAY

Last day to add a course

MAY 8-FRIDAY

Last day to submit applications for advanced credit examinations

MAY 22-FRIDAY

Governor's Day

MAY 23-SATURDAY

Advanced credit examinations

MAY 30-SATURDAY

Memorial Day holiday

JUNE 7-SUNDAY

Baccalaureate Sunday

JUNE 8-12

Final examinations

JUNE 12-FRIDAY

Quarter ends

JUNE 13-SATURDAY

Commencement

## SUMMER QUARTER, 1959

### REGISTRATION PERIOD

General In-Person Registration for ALL students (*by appointment only*):

June 3-5

June 15-19

*Registration may be delayed if new student Applications for Admission or former*

*student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1959:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates .....	Monday, April 20, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 21, 8 a.m. to 5 p.m.
Sophomores .....	Wednesday, April 22, 8 a.m. to 5 p.m.
Freshmen .....	Thursday, April 23, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1959*, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 20 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.

*New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 22—MONDAY	Instruction begins
JUNE 23—TUESDAY	Last day to add a course for the first term
JUNE 26—FRIDAY	Last day to add a course for the full quarter
JULY 3—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—SATURDAY	Independence Day holiday
JULY 18—SATURDAY	Advanced credit examinations
JULY 22—WEDNESDAY	Final examinations and first term end
JULY 23—THURSDAY	Second term begins
JULY 24—FRIDAY	Last day to add a course for the second term
JULY 31—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 15—SATURDAY	Advanced credit examinations
AUG. 21—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1959**

**REGISTRATION PERIOD**

MAY 4-29	Advance Registration only for students in residence Spring Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-29	In-Person Registration for former students not in residence Spring Quarter, 1959, and those attending Spring Quarter, 1959, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 8. Deadline for applying for Registration Appointment or Permit is <i>September 15</i> .

AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 14-25	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 14-29	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 29	Last day to register for Autumn Quarter, 1959.
OCT. 1-6	Change of registration by appointment only.

#### ACADEMIC PERIOD

SEPT. 28—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 30—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 6—TUESDAY	Last day to add a course
NOV. 2—MONDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1960, due at Registrar's Office
NOV. 11—WEDNESDAY	State Admission Day holiday
NOV. 25—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 25-30	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 12—SATURDAY	Advanced credit examinations
DEC. 14-18	Final examinations
DEC. 18—FRIDAY	Quarter ends

#### WINTER QUARTER, 1960

##### REGISTRATION PERIOD

OCT. 26-Nov. 20	Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 28-30	In-Person Registration for former students not in residence Autumn Quarter, 1959, and those attending Autumn Quarter, 1959, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than December 11</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between November 23 and December 11. Deadline for applying for Registration Appointment or Permit is <i>December 11</i> .
DEC. 4	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

DEC. 28-30	In-Person Registration for ALL new students.
DEC. 30	Last day to register for Winter Quarter, 1960.
JAN. 5-8	Change of registration by appointment only.

**ACADEMIC PERIOD**

JAN. 4—MONDAY	Instruction begins
JAN. 8—FRIDAY	Last day to add a course
FEB. 22—MONDAY	Washington's Birthday and Founder's Day holiday
FEB. 26—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 12—SATURDAY	Advanced credit examinations
MAR. 14-18	Final examinations
MAR. 18—FRIDAY	Quarter ends

**SPRING QUARTER, 1960****REGISTRATION PERIOD**

JAN. 25-FEB. 19	Advance Registration only for students in residence Winter Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 22-24	In-Person Registration for former students not in residence Winter Quarter, 1960, and those attending Winter Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing to or calling at the Registrar's Office <i>no later than March 11</i> . Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between February 23 and March 11. Deadline for applying for Registration Appointment or Permit is <i>March 11</i> .
FEB. 26	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 22-24	In-Person Registration for ALL new students.
MAR. 24	Last day to register for Spring Quarter, 1960.
MAR. 29-APR. 1	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 28—MONDAY	Instruction begins
APR. 1—FRIDAY	Last day to add a course
MAY 6—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 20—FRIDAY	Governor's Day
MAY 21—SATURDAY	Advanced credit examinations
MAY 30—MONDAY	Memorial Day holiday
JUNE 5—SUNDAY	Baccalaureate Sunday
JUNE 6-10	Final examinations
JUNE 10—FRIDAY	Quarter ends
JUNE 11—SATURDAY	Commencement

**SUMMER QUARTER, 1960****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

June 1-3

June 13-17

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Registration Appointments or Permits will be issued as follows:

**Students in residence Spring Quarter, 1960:**

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....Monday, April 18, 8 a.m. to 5 p.m.

Juniors .....Tuesday, April 19, 8 a.m. to 5 p.m.

Sophomores .....Wednesday, April 20, 8 a.m. to 5 p.m.

Freshmen .....Thursday, April 21, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1960, may obtain an Application for Appointment or Permit either by calling at 109 Administration or by writing to the Registrar's Office, beginning April 19 and preferably no later than May 15. Application for Registration Appointment must be received before registration materials can be processed.*

*New (entering) Students will be mailed Registration Appointments with their Official Notice of Admission.*

**ACADEMIC PERIOD**

JUNE 20—MONDAY	Instruction begins
JUNE 21—TUESDAY	Last day to add a course for the first term
JUNE 24—FRIDAY	Last day to add a course for the full quarter
JULY 1—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—MONDAY	Independence Day holiday
JULY 16—SATURDAY	Advanced credit examinations
JULY 20—WEDNESDAY	Final examinations and first term end
JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
JULY 29—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 13—SATURDAY	Advanced credit examinations
AUG. 19—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1960****REGISTRATION PERIOD**

MAY 2-27

Advance Registration only for students in residence Spring Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

SEPT. 8-27	In-Person Registration for former students not in residence Spring Quarter, 1960, and those attending Spring Quarter, 1960, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning <i>June 6</i> . Dealline for applying for Registration Appointment or Permit is <i>September 13</i> .
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
SEPT. 12-23	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 12-27	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 27	Last day to register for Autumn Quarter, 1960.
SEPT. 29-OCT. 4	Change of registration by appointment only.

**ACADEMIC PERIOD**

SEPT. 26—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 4—TUESDAY	Last day to add a course
NOV. 1—TUESDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office
NOV. 11—FRIDAY	State Admission Day holiday
NOV. 18—FRIDAY	Last day to submit applications for advanced credit examinations
NOV 23-28	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 10—SATURDAY	Advanced credit examinations
DEC. 12-16	Final examinations
DEC. 16—FRIDAY	Quarter ends

**WINTER QUARTER, 1961****REGISTRATION PERIOD**

OCT. 24-Nov. 18	Advance Registration only for students in residence Autumn Quarter, 1960. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
DEC. 27-29	In-Person Registration for former students not in residence Autumn Quarter, 1960, and those attending Autumn Quarter, 1960, who failed to complete Advance Registration. Former students must apply for a Registration Appointment or Permit to register by writing or calling at the Registrar's Office <i>no later than December 9</i> . Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply <i>in person</i> at the Registrar's Office for a Registration Appointment or Permit to register between November 22



	and December 9. Deadline for applying for Registration Appointment or Permit is <i>December 9</i> .
DEC. 2	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 27-29	In-Person Registration for ALL new students.
DEC. 29	Last day to register for Winter Quarter, 1961.
JAN. 4-9	Change of registration by appointment only.

#### ACADEMIC PERIOD

JAN. 3—TUESDAY	Instruction begins
JAN. 9—MONDAY	Last day to add a course
FEB. 22—WEDNESDAY	Washington's Birthday and Founder's Day holiday
FEB. 24—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 11—SATURDAY	Advanced credit examinations
MAR. 13-17	Final examinations
MAR. 17—FRIDAY	Quarter ends

*For further information concerning subsequent quarters inquire at the Registrar's Office.*

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#### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the rules regulating admission to, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*

## ADMINISTRATION

### BOARD OF REGENTS

HAROLD S. SHEFELMAN, <i>President</i>	Seattle
JOHN L. KING, <i>Vice-President</i>	Seattle
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HELEN E. HOAGLAND, <i>Secretary</i>	
NELSON A. WAHLSTROM, <i>Treasurer</i>	

### OFFICERS OF ADMINISTRATION

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Provost of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Treasurer</i>
ERNEST M. CONRAD, B.B.A.	<i>Business Manager</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
JACK E. ORR, Ph.D.	<i>Dean of the College of Pharmacy</i>
FOREST J. GOODRICH, Ph.D.	<i>Dean Emeritus of the College of Pharmacy</i>

### BOARD OF HEALTH SCIENCES

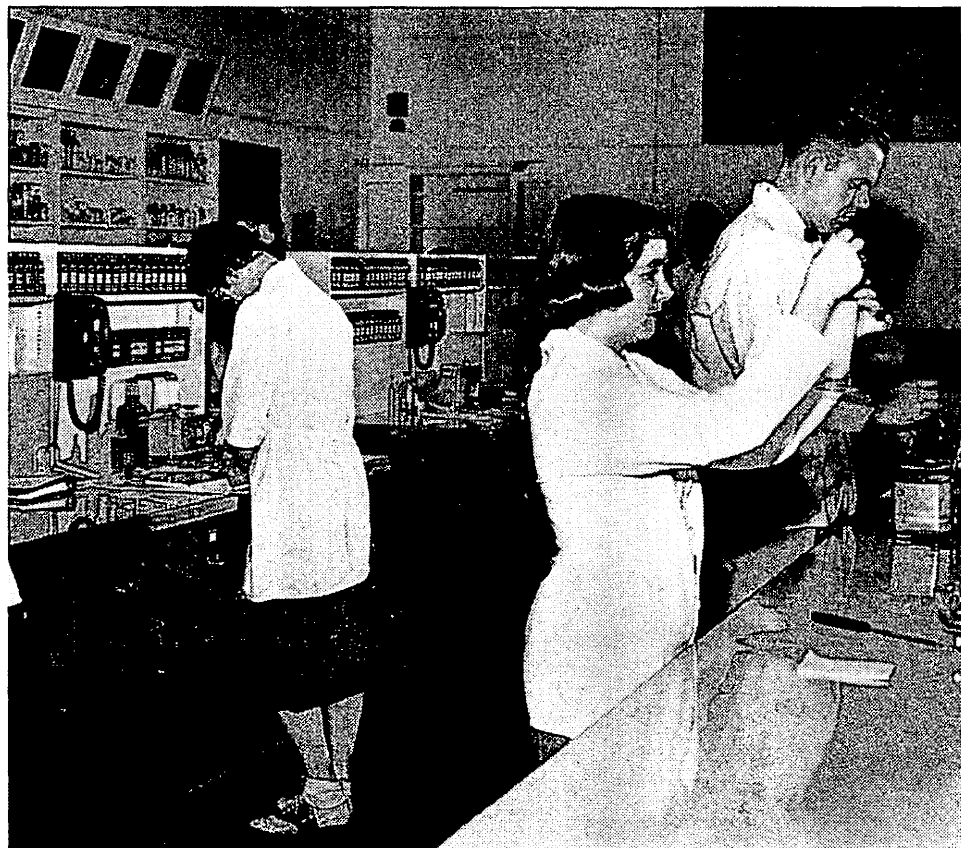
CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
GEORGE N. AAGAARD, M.D.	<i>Dean of the School of Medicine;</i> <i>Chairman of the Board</i>
HENRY A. BURD, Ph.D.	<i>Acting Dean of the Graduate School</i>
PAUL C. CROSS, Ph.D.	<i>Professor of Chemistry; Executive Officer</i>
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JACK E. ORR, Ph.D.	<i>Dean of the College of Pharmacy</i>
WILLIAM E. REYNOLDS, M.D.	<i>University Health Officer</i>
MARY S. TSCHUDIN, R.N., M.S.	<i>Dean of the School of Nursing</i>
LYOYD S. WOODBURN, Ph.D.,	<i>Dean of the College of Arts and Sciences</i>
MARY ADAMS, <i>Secretary</i>	

### COLLEGE OF PHARMACY FACULTY AND STAFF

The first date following a name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of promotion to present academic rank.

- FAGG, B. GRANT, 1958, *Instructor in Pharmacy* (1958-1959)  
B.S., 1950, Utah
- FISCHER, LOUIS, 1929 (1945), *Professor of Pharmaceutical Chemistry; Assistant to the Dean; Chairman of the Department of Pharmaceutical Chemistry*  
B.S., 1926, Ph.C., 1926, M.S., 1928, Ph.D., 1933, Washington
- GOODRICH, FOREST J., 1914 (1959), *Professor Emeritus of Pharmacognosy; Dean Emeritus, College of Pharmacy*  
Ph.C., 1913, B.S., 1914, M.S., 1917, Ph.D., 1927, Washington

- HALL, NATHAN A., 1952 (1956), *Associate Professor of Pharmacy*  
B.S., 1939, Ph.D., 1948, Washington
- HUITRIC, ALAIN C., 1955, *Assistant Professor of Pharmaceutical Chemistry*  
B.S., 1950, Loyola; M.S., 1952, Ph.D., 1954, California
- KRUPSKI, EDWARD, 1944 (1955), *Associate Professor of Pharmaceutical Chemistry*  
B.S., 1939, M.S., 1941, Ph.D., 1949, Washington
- MCCARTHY, WALTER C., 1949 (1957), *Associate Professor of Pharmaceutical Chemistry*  
B.S., 1943, Massachusetts Institute of Technology; Ph.D., 1949, Indiana
- ORR, JACK E., 1956, *Professor of Pharmacy; Dean of the College of Pharmacy; State Chemist*  
B.S., 1940, Purdue; Ph.D., 1943, Wisconsin
- PLEIN, ELMER M., 1938 (1951), *Professor of Pharmacy; Coordinator of Pharmaceutical Services*  
Ph.C., 1929, B.S., 1929, M.S., 1931, Ph.D., 1936, Colorado
- RISING, L. WAIT, 1934 (1936), *Professor of Pharmacy; Chairman of the Department of Pharmacy and Pharmacy Administration*  
Ph.G., 1924, B.S., 1924, Oregon State; M.S., 1926, Ph.C., 1928, Ph.D., 1929, Washington
- TANIGUCHI, THEODORE, 1958, *Clinical Instructor in Pharmacy; Director of Hospital Pharmacy Service, University Hospital*  
B.S., 1949, Washington; M.S., 1951, Michigan
- TYLER, VARRO E., JR., 1957, *Associate Professor of Pharmacognosy; Chairman of the Department of Pharmacognosy; Director of the Drug Plant Gardens*  
B.S., 1949, Nebraska; M.S., 1951, Ph.D., 1953, Connecticut
- 
- HAMMOND, MABEL, *Administrative Secretary*
- JUE, WILLARD G., *Stockroom Manager*
- MCCLURE, MARGARET A., B.A., *Pharmacy Library Clerk*
- NAUMANN, WALTER, D.D.S., *Supervisor, Drug Plant Gardens*
- ROTH, WILLIAM, Ph.D., *Assistant State Chemist*



## GENERAL INFORMATION

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# GENERAL INFORMATION

**I**N JULY, 1894, the Board of Regents of the University of Washington established a College of Pharmacy and directed that instruction begin in the school year 1894-95. The first year of instruction was given on the old campus in what was known as the "metropolitan section" of Seattle, before the University was moved, during the summer of 1895, to its present campus between Lake Washington and Lake Union. A four-year curriculum was established in 1904 and the present five-year curriculum was adopted in 1957. Graduate work was begun in 1912, with advanced study in preparation for the master's degree. Since 1925 the College has accepted candidates for the degree of Doctor of Philosophy with specialization in pharmaceutical chemistry, pharmacognosy, and pharmacy.

The College of Pharmacy is accredited by the American Council on Pharmaceutical Education. It is a member of the American Association of Colleges of Pharmacy.

## **DIVISION OF HEALTH SCIENCES**

The College of Pharmacy is a member of the Division of Health Sciences which was established in 1945. Included are the Schools of Dentistry, Medicine, and Nursing, the Student Health Service, and the University Hospital.

Each part of the Division of Health Sciences functions as an autonomous unit. The Division coordinates development, research, and teaching activities to strengthen and reinforce the work of each unit. For example, the Basic Sciences departments meet the needs of the whole Division and of other departments of the University which are concerned with work in anatomy, biochemistry, microbiology, pathology, pharmacology, physiology and biophysics, and public health and preventive medicine.

The Health Sciences Building overlooks the Portage Bay Yacht Basin between Lake Washington and Lake Union. It houses the Schools of Dentistry, Medicine, and Nursing and the 300-bed University Hospital. Future plans include a west wing to house the College of Pharmacy and the Samuels Research Wing. When these units are completed, the University will have one of the finest plants in the United States.

## COLLEGE FACILITIES

Instruction in pharmacy is centered in Bagley Hall, which houses pharmacy, chemistry, and chemical engineering. This building was completed in 1937 and was named for one of the founders of the University, Rev. Daniel Bagley.

Among the College of Pharmacy facilities in Bagley Hall are laboratories for prescription practice, pharmaceutical chemistry, pharmacognosy, drug assaying, toxicology, and research; a branch library; a drug service department; and a stockroom.

### CLINICAL TRAINING PHARMACIES

The University Hospital Pharmacy and the Student Health Center Pharmacy serve as clinical training facilities for the College. Senior students are assigned on a regular schedule to these pharmacies where they gain practical experience in compounding and dispensing prescriptions under the direction of staff pharmacists. The University Hospital Pharmacy will serve as a laboratory for undergraduate and graduate programs in hospital pharmacy.

### DRUG PLANT GARDENS AND LABORATORY

The Drug Plant Gardens of the College comprise approximately three acres of garden area, including a laboratory building that contains five greenhouses; three research laboratories; a classroom; drug drying, milling, and extraction equipment; a darkroom, and a preparation room. Several hundred species of pharmaceutically important plants are maintained in the gardens and greenhouses. One greenhouse is devoted to plants of tropical habitat; others are used for student instruction in methods of drug plant culture and for research in plant-growth regulators and the biosynthesis of plant constituents. An extensive seed exchange program is conducted with medicinal plant gardens throughout the entire world.

### DRUG SERVICE DEPARTMENT

The drug service department manufactures pharmaceutical preparations for the Health Center, the Schools of Medicine and Dentistry, and other sections of the University. When a pharmacy wing is added to the Health Sciences Building, it is expected that the drug service will be housed there and will expand its services to include the manufacture of many of the drugs and preparations that will be used in the dispensary of the new teaching hospital.

### STATE LABORATORY

The College maintains a laboratory for the analysis of food products submitted by the Office of the Director of the State Department of Agriculture, drugs submitted by the State Pharmacy Board, and alcoholic products for the State Liquor Control Board. The laboratory is under the direction of the Dean of the College.

## ADMISSION REQUIREMENTS EFFECTIVE AUTUMN QUARTER, 1961

Effective Autumn Quarter, 1961, and thereafter the College admission requirements will be as follows:

16 high school units with a 2.00 (C) or better over-all grade-point average. The 16 units must include:

1. At least 11 units with 2.00 (C) or better grade-point average from the fields of English, mathematics, social science, laboratory science, or foreign language. The 11 units must include at least:
  - a) 3 units of English composition and literature.
  - b) 2½ units of mathematics (elementary algebra, plane geometry, and advanced algebra).
  - c) 1 unit of social science.
  - d) 1 unit of laboratory science.

e)  $3\frac{1}{2}$  additional units as follows:

(1) 2½ units to be chosen from English composition, literature, drama, journalism, speech, social science, or foreign language.

(2) 1 unit of a second laboratory science or mathematics (solid geometry, trigonometry, mathematical analysis).

2. 5 units of free electives to be chosen from the above subjects or other subjects accepted by an accredited high school toward its diploma of graduation. Typing is strongly recommended.

## CURRENT ADMISSION REQUIREMENTS

The College of Pharmacy offers a five-year course consisting of one prepharmacy year and a four-year professional program. Candidates admitted directly from high school or with less than 45 college credits will be enrolled in the College of Pharmacy as prepharmacy students; candidates admitted with 45 or more college credits who have fulfilled the prepharmacy requirements will be enrolled in the professional program.

The general rules for admission to the College of Pharmacy are outlined in brief below. Those who do not meet these requirements are requested to read the more detailed pertinent information in subsequent paragraphs.

1. No later than July 15, new students must have all secondary school and college credentials forwarded direct to the Registrar of the University by the principal or registrar of the last school attended.
2. A grade-point average of 2.00 (C) is required of legal residents of the state of Washington and all sons and daughters of University of Washington alumni (see page 19).
3. The grade-point requirements for applicants who are not legal residents of the state of Washington, and who are not sons or daughters of University of Washington alumni, are as follows (see also page 19):
  - a) 3.00 (B) average or placement in the upper 25 per cent of the graduating class for applicants direct from high school.
  - b) 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also a 3.00 (B) average in their standard college courses for applicants with fewer than 45 acceptable college credits.
  - c) 2.70 (B-) average for applicants who have completed 45 or more standard college credits.
4. Upon acceptance by the University, the applicant will be assigned a registration date at which time he will report to the College of Pharmacy office for counseling and arrangement of program.

## ADMISSION TO THE PROFESSIONAL PROGRAM OF THE COLLEGE OF PHARMACY

All candidates for admission to the professional program of the College of Pharmacy must have completed at least one year of prepharmacy education (see page 39 for an outline of the prepharmacy program). A minimum of 45 quarter credits, exclusive of physical education activity and ROTC courses, with a grade-point average of 2.00 or better is required. (Nonresidents, see page 21.)

Admission is selective and is based upon the recommendations of the Admissions Committee of the College. Each applicant must fulfill the following requirements in order to be considered:

1. Complete an application blank which is obtainable from the Dean of the College of Pharmacy. Students from institutions other than the University of Washington must also complete the University's Application for Admission form supplied by the Registrar's Office.

2. Submit an official transcript of his college record. Students enrolled in the University of Washington must present their latest University transcripts to the Admissions Committee. Students from other institutions must request the registrar of their previous institution to send an official transcript to the Registrar, University of Washington.

To be assured of admission, requirements must be completed by July 15. Applicants will be notified by letter of the action of the Admissions Committee.

#### GENERAL ADMISSION REGULATIONS

Regulations pertaining to admission to the University are administered by the Board of Admissions, an administrative board appointed by the President. First preference is given to qualified residents of Washington and all sons and daughters of University of Washington alumni. The College of Pharmacy, like most colleges in the University, admits qualified out-of-state students and encourages those who meet the nonresident scholarship requirements to apply. See scholarship requirements, page 18-24.

Applications for Admission must be submitted by prescribed deadlines and must be substantiated by certain credentials and reports submitted in accordance with University rules and practices. It is important that the student's application be submitted by the proper time, for the University *will assume no responsibility for applicants who come to the campus before their credentials have been forwarded or before they have been notified of acceptance.*

Correspondence regarding requirements for admission to and graduation from any college or school of the University should be addressed to the Registrar.

It is the student's responsibility to make sure that complete credentials covering all his previous secondary and college education are submitted to the University. To be official they must be forwarded by the principal or registrar of the last school attended, direct to the Registrar of the University. These records become part of the official file and cannot be returned to the student nor duplicated for any purpose whatsoever, as the University does not issue or certify copies of transcripts from other institutions. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University.

To be assured of admission in Autumn Quarter, it is imperative that complete required credentials are forwarded after high school graduation and no later than July 15. The July 15 deadline also applies to applicants desiring to transfer from other colleges and universities. Applications, with complete credentials, postmarked between July 15 and August 31 will be accepted in order of receipt only as long as additional new students can be accommodated. No applications postmarked after August 31 will be considered. For admission in the other quarters, applications and credentials must be submitted by published deadlines. (For specific dates see Calendar, pages 4-10.) This applies to *all* new students seeking admission as graduates or undergraduates. *It is imperative that students observe this deadline in order to insure prompt attention to credentials and replies to correspondence.* Telegraphed or airmailed messages or requests will *not* be given precedence over other material already received by regular mail.

Before notice of admission is given, a medical questionnaire, on a form supplied by the Registrar, is issued to new out-of-state students. This should be completed by a doctor of medicine and returned by him to the Registrar's Office.

#### ADMISSION FROM ACCREDITED HIGH SCHOOLS

Graduates who earn diplomas of graduation from accredited high schools and who meet the University unit and scholarship requirements for entrance are eligible for admission as freshmen with regular standing.

No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

Each entering freshman is required to submit from an accredited high school an official Application for Admission blank (obtainable from any high school prin-



cial or from the Registrar of the University), which includes all credits and grades and a statement that the student has completed his high school course with a diploma of graduation. A high school diploma cannot be substituted for the official blank. Accredited high schools in Washington are those accredited by the State Department of Public Instruction; in Alaska, by the Northwest Association of Secondary and Higher Schools; in other states, by the state university of the state or a regional accrediting association.

A high school senior may submit, after the end of the seventh semester, an official Application for Admission blank which includes all credits and grades through the seventh semester, a list of eighth-semester courses, and the expected date of graduation. Those who are found qualified will be notified they have been granted conditional admission; final admission will be contingent upon submission of a supplementary transcript after high school graduation, which includes the eighth-semester subjects with satisfactory grades and a statement that the high school course has been completed with a diploma of graduation. *Final admission to the University will continue to be based on complete records through the eighth semester and a statement that a diploma of high school graduation has been awarded.*

#### **SCHOLARSHIP REQUIREMENT FOR APPLICANTS ENTERING DIRECTLY FROM HIGH SCHOOL**

See page 21 for applicants who have had college work.

#### **Legal Residents of the State of Washington and All Sons and Daughters of University of Washington Alumni**

The University scholarship requirement is a high school grade-point average of 2.00 (equivalent to a C average on the state of Washington grading system).

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his high school records.

The student who is admitted on probation may continue his attendance at the University at the discretion of the dean of his college but may not (1) be pledged to or initiated into a fraternity or sorority, or engage in those other student activities in which his right to participate is restricted by the regulations of the Committee on Student Welfare; (2) engage in those athletic activities in which his right to participate is restricted by the regulations of the Intercollegiate Athletics Committee. He will be removed from probation when he has earned a minimum of 12 credits, exclusive of those in lower-division physical education activity and Army, Air Force, and Navy ROTC courses, with a 2.00 grade average; however, if he carries less than 12 credits in one quarter, he may not be removed from probation unless he has earned at least a 2.00 average for the current quarter, as well as a minimum cumulative average of 2.00 for his total quarters in attendance. A student removed from probation under these provisions is then subject to the regular scholarship rules.

#### **Nonresidents or Students Residing in States and Countries Other Than the State of Washington**

The University scholarship requirement for nonresidents\* or students residing outside the state of Washington who apply for admission directly from high school is a grade-point average of 3.00 (equivalent to a B average on the state of Washington grading system) or placement in the upper 25 per cent of their graduating class. No out-of-state student will be accepted for admission who would not be acceptable to the university of his own state.

\*Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in the preceding section.

Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students from high schools in other states which use different grading systems will find their scholarship averages adjusted to the state of Washington four-point system.

A nonresident applicant who cannot meet the 3.00 (B) scholarship requirement, if he believes that there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the college of his choice, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### UNIT REQUIREMENT FOR ALL APPLICANTS

The minimum requirement of the University is 16 high school units<sup>1</sup> (or 15 units exclusive of activity credit in physical education, debate, etc.) with grades certifiable for university entrance. The 16 units should include at least 9 units in academic subjects (a unit equals 2 semester credits, or one full year of high school study). No unit which received lower than the lowest passing grade as defined by the high school itself may be included in the required total. The College of Pharmacy requires that the 16 units include 3 units of English, 1½ units of algebra, and 1 unit of plane geometry. One unit each of biology, chemistry, physics, and typing are strongly recommended.

#### SUBJECT MATTER DEFICIENCIES FOR ALL APPLICANTS

Applicants with diplomas of graduation from accredited high schools who meet the scholarship requirement and have at least 3 units in English and 6 in other academic subjects, including either 1 unit of algebra or 1 unit of plane geometry, may petition the Dean of the College for permission to enter. (Typical academic subjects are English, foreign languages, mathematics, science, history, and economics. Some nonacademic courses are those in commerce, industrial arts, home economics, and band.) Students who are permitted to enter with provisional standing must register each quarter for make-up courses in the one or more subjects they lack until the entrance deficiency is removed. *Those deficient in first-year algebra or plane geometry and who have a grade-point average of below 2.30 (nonresidents, 2.70 or 3.00) will be expected to remove their deficiencies prior to entering the University.* Provisional standing continues until the student has satisfied the entrance requirements of the college in which he is enrolled. A student may not apply for transfer from the pre-professional program of Pharmacy to the professional curriculum beginning with the sophomore year until all entrance deficiencies have been removed, *nor can an application for a degree be accepted until all these deficiencies have been removed.* Deficiencies may be made up with university credit if college courses covering the high school material are available; 10 college credits are considered the equivalent of 1 high school unit, except that for foreign languages 15 quarter credits of college work are considered the equivalent of 2 units (4 semesters) of high school credit. No student may receive credit for repetition of work at the same or at a more elementary level, if credit has been granted in the earlier course. This rule applies whether the earlier course was taken in high school or in college, and whether, in the latter case, course numbers are duplicated or not. First-year algebra and plane geometry are offered by the Department of Extension Classes (fee \$24.00 per course) and do not carry University credit.

#### GRADUATES FROM UNACCREDITED HIGH SCHOOLS

A graduate of an *unaccredited* high school in Washington or Alaska, if he has the recommendation of his principal, may petition the Board of Admissions for per-

<sup>1</sup> To count as a unit, a subject must be taught five times a week, in periods of not less than forty-five minutes, for a high school year of thirty-six weeks. The maximum allowance toward University entrance for junior high school study is 4 units.

mission to enter if he meets other entrance requirements. Before granting such permission, the Board may require these students to pass certain examinations.

#### NON-HIGH SCHOOL GRADUATES

In general, the Board of Admissions considers that College Entrance Board Examinations may be used to supplement unaccredited or incomplete preparatory study but may not be used as the sole basis to supply entrance credits. Applications of this kind must be reviewed by the Board of Admissions.

Information regarding College Entrance Board Examinations may be obtained by writing to the Educational Testing Service, P. O. Box 592, Princeton, New Jersey, or Box 27896, Los Feliz Station, Los Angeles 27, California.

#### ADMISSION WITH ADVANCED UNDERGRADUATE STANDING

Students in other institutions who plan to transfer to the College of Pharmacy are urged to pattern their schedules after the curricula of this College, so that they may transfer as many credits as possible.

Applicants are admitted to the University and to the College of Pharmacy by transfer from accredited colleges, universities, and junior colleges under these conditions:

1. The College of Pharmacy requires that each candidate for a degree in Pharmacy shall complete not less than five full academic years of training, including both prepharmacy instruction and a minimum of three years of residence in a college of pharmacy.

2. Complete transcripts and letters of honorable dismissal must be sent directly to the University Registrar by the registrar of the former school. In general, the University will not accept a student who is in scholastic or disciplinary difficulty at his former school. Failure to supply full transcripts will be considered a serious breach of honor and may result in permanent dismissal from the University.

3. *Applicants who are legal residents of the state of Washington and all those who are sons or daughters of University of Washington alumni* and who have less than a year of college work must have a 2.00 (C) grade-point average in both their college and high school records. Those who have completed a year or more of college work must have a 2.00 (C) average in both their college records and in the last term of attendance. The applicant must present an admission and scholastic record equivalent to that required of resident students of the University.

A student who cannot meet the 2.00 (C) grade-point scholarship standard, if he believes there are extenuating circumstances meriting consideration, may petition the Board of Admissions for permission to enter on probation. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made. A petition should be accompanied by evidence that the student is able to do better work than is indicated by his school records.

4. *Applicants who are not legal residents\* of the state of Washington, applying with fewer than 45 acceptable college credits*, must have a 3.00 (B) average in high school or placement in the upper 25 per cent of their graduating class and also have a 3.00 (B) average in their standard college courses.

5. *Applicants who are not legal residents\* of the state of Washington and who have completed 45 or more standard college credits* must have a 2.70 (B-) average in their standard college courses.

\* Sons and daughters of University of Washington alumni residing outside the state of Washington may apply for consideration if they meet the scholarship standing required of resident students, outlined in paragraph 3 above. Applicants for admission to curricula in which the University serves on a regional basis will also be accorded consideration if they meet the scholarship standing required of resident students. In either case, students transferring from colleges or universities that employ a three-point or five-point system of passing grades will find their admission grade points adjusted to the four-point system of the University of Washington.

A nonresident applicant who cannot meet the 3.00 (B) or 2.70 (B-) scholarship requirement, whichever applies in his case, if he believes that there are extenuating circumstances meriting consideration, and if he meets the subject requirements for admission to the College of Pharmacy, may petition the Board of Admissions for a review of his case. The Board, which has final authority, will determine whether or not, in its estimation, an exception should be made.

#### TRANSFER OF ADVANCED CREDIT FROM OTHER INSTITUTIONS

This section includes general information relative to the acceptance of credit from other accredited colleges and universities. General credit is applied as far as possible on requirements of the College of Pharmacy. It does not substitute for professional pharmacy courses. A student might therefore be admitted to the University with senior standing but be able to apply only a part of his credit in the College of Pharmacy.

1. The Board of Admissions reserves the right to determine the exact amount of transfer credit to be accepted. The advanced standing for which an applicant's training appears to fit him is granted tentatively on admission. Definite advanced standing is not determined until the end of the student's first quarter in the University. The maximum that may be accepted from other colleges and universities is 135 quarter credits or senior standing. Transfer credit will not be allowed in the senior year.

2. Transfer credits will be accepted for upper-division credit *only* when earned at an accredited four-year degree-granting institution. This rule shall apply to students who enter the University of Washington in the Autumn Quarter, 1958, and thereafter.

3. Transfer credits from institutions accredited for less than four years will not be accepted in excess of the accreditation of the school concerned.

4. Transfer of junior college credit shall apply on the University freshman and sophomore years only. A student who has completed a portion of his freshman and/or sophomore years in a four-year college may not transfer junior college credit in excess of that necessary to completion of the first two years in the University. In no case shall the transfer of junior college credit to the University exceed 90 quarter credits, exclusive of physical education activity credits.

5. The maximum number of credits obtainable by acceptance of Armed Forces training schools credits will be 30. All such credits will be counted as extension credits and will be included in the 90-credit maximum allowed toward the bachelor's degree, but none will apply toward the work of the senior year.

6. A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of the credits can apply in the senior year. Extension and correspondence credits from schools that are not members of the National University Extension Association are accepted only after examination.

7. Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes.) A maximum of 90 extension and correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's Department of Extension Classes and Department of Correspondence Study. All credits earned by advanced-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum. Up to 10 extension or correspondence credits from this University can apply toward the work of the senior year.

8. For work done in institutions whose standing is unknown, and for work with private teachers, University credit is granted only after examination. Applications for advanced-credit examinations must be filed during the first quarter in residence.

9. No credit will be granted for courses taken in another college while the student is in residence at the University, unless written permission to register for such courses is obtained by the student from the University department giving such instruction in the subject, from his major department, and from the dean of his college. The prescribed written permission is effective only if obtained before registration. Nothing in this rule makes mandatory the granting of any credit by the University.

10. In some background subjects, a student, with formal training below the university level but more than is usually given in American high schools, may be registered for a more advanced course.

#### **ADMISSION OF FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD**

Students educated entirely or partially in foreign countries must meet the same general requirements as those educated in American schools and must demonstrate a satisfactory command of the English language. A student who has graduated from a high school system that provides less than twelve years of instruction may be required to take additional school work.

The official record of the Canadian student is the matriculation certificate or university admission certificate of his province. Canadian and foreign students who have been in university attendance must have official transcripts forwarded as required of all students. High school graduates and university transfer students must meet the scholarship requirement for nonresident students. See pages 19 and 21.

Where there is reasonable doubt concerning equivalent pharmacy training or course work, an examination, either oral or written, shall be given by an instructor of the subject in question to determine whether the student meets minimum standards. If the number of transfer credits in a particular course equals at least three-fourths the number of credits required, exemption from that course may be granted at the discretion of the student's adviser and the instructor in that field, provided that such allowances occur in not more than three courses. However, general deficiency, especially in the major field, shall not be condoned.

The Washington State Board of Pharmacy has ruled that graduates of foreign pharmacy schools who wish to register as pharmacists in the state of Washington shall complete not less than two years of additional work and receive the B.S. degree from an accredited American college of pharmacy. Canadian pharmacy school graduates shall complete one year of additional work and receive the B.S. degree in Pharmacy from an accredited college of pharmacy. United States citizenship is a prerequisite to licensure.

#### **ADMISSION OF SPECIAL STUDENTS AND AUDITORS**

Persons twenty-one or older who are legal residents of Washington and are not eligible for admission as regular students may apply to the Board of Admissions for admission with special standing. With their applications they must submit all available records of secondary school and college study. Special students may register in and take for credit whatever courses the Dean of the College permits but may not participate in student activities or receive degrees. By fulfilling requirements for admission to the College, special students may change their status to that of regular students and may receive degrees.

Persons twenty-one or older may register as auditors in nonlaboratory courses or the lecture parts of laboratory courses by obtaining the consent of the Dean of the College and the instructors of the courses. Auditors do not participate in class discussion or laboratory work. They may receive credit for audited courses only by enrolling in them as regular students in a subsequent quarter. Students who have been dropped for low scholarship or new applicants who do not qualify for admission may not register as auditors until they have been reinstated or accepted in some college of the University.

### ADMISSION TO THE GRADUATE SCHOOL

Prospective graduate students must apply for admission to the Graduate School. Entrance requirements are described in the *Graduate School Bulletin*, which may be obtained from the Registrar. For further information write to the College of Pharmacy.

### KOREAN VETERANS

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. Veterans Administration regulations specify that the veteran's ultimate goal must be stated on his application for a certificate. Only one change of course is allowed on the Korean Bill. If the veteran has any questions regarding application for a certificate, he should contact the Veterans Division, 1B Administration Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

All graduate students not familiar with the number of credits necessary to receive full G.I. benefits should check with the Veterans Division, 1B Administration Building.

### KOREAN CERTIFICATE

Application for this certificate should be made at least four weeks prior to registration for the quarter the veteran wishes to enter the University. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be filed in the Veterans Division, 1B Administration Building, during registration or the first week of instruction. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

### INITIATION OF TRAINING

An *eligible* Korean veteran who entered and/or served in the Armed Forces between June 27, 1950, and January 31, 1955, must initiate his training under the Korean Bill, Public Law 550, prior to August 20, 1954, or the date *three* years after his release from active service, whichever is later.

Veterans Administration regulations provide that after initiating his training a Korean veteran may discontinue training at any time as long as his interruption is not in excess of twelve consecutive calendar months.

### TERMINATION OF TRAINING

A veteran *eligible* under Public Law 550 must complete his training by *eight* years after his release from active service, or by January 31, 1965, whichever is earlier.

### DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

### CHILDREN OF DECEASED VETERANS

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, 1B Administration Building, on the date of registration.

## WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World War I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 29).

## REQUIRED TESTS AND EXAMINATIONS

### WASHINGTON PRE-COLLEGE DIFFERENTIAL GUIDANCE TEST

New students of freshman standing (including transfer students with less than 45 quarter college credits, exclusive of credits in physical education activity and Army, Air Force, and Navy ROTC subjects) are required to take college aptitude tests at a time to be announced each quarter.

These tests have been selected on the basis of their proven value for the prediction of grades most likely to be earned by each student. The achieved scores are often used by members of staff in counseling students. In addition, a student's score on three parts of the battery (spelling, usage, and vocabulary) is used to assign him to the appropriate section in freshman English; a student who scores in the lower fifth on these three tests must take the remedial, noncredit course, English N50 (Basic Grammar), offered in Evening Classes, for which an additional fee is charged. Little can be gained by preliminary study for these tests. Sample copies are not available. Special, foreign, and blind students and auditors are exempted.

Foreign students who have markedly inadequate previous training in the use of English are required to take a special examination under the supervision of the English department. *Since the aptitude tests are a prerequisite to English 101 (Composition) any student otherwise exempted must take these tests if he wishes to register for English 101.*

### MATHEMATICS QUALIFYING AND EXEMPTION TESTS

Students who have taken third-semester algebra in high school, or the equivalent course in any other college, and who plan to take Mathematics 104 (Plane Trigonometry) and/or 105 (College Algebra) are required to take a qualifying test before they are permitted to register for these University courses. Those who fail the qualifying test and who wish to study trigonometry at the University must choose one of the following alternative plans:

1. Pass Mathematics 101 (without credit for such students) and then take 104.
2. Take Mathematics 103 which meets five hours per week, but carries only 3 credits.

Those who fail the qualifying test and who wish to study college algebra must first pass either Mathematics 101 or 103.

Students who have taken trigonometry and/or college algebra in high school and whose University courses of study require these subjects may obtain exemption from Mathematics 104 and/or 105 by taking an exemption test. Particularly high scores on both of these tests will qualify students to be placed in special sections of Mathematics 153. Directions for taking these tests are included in *Registration Information for New Students* which is enclosed with the Official Notice of Admission blank. Students are advised to review their high school work before taking these tests.

### MEDICAL EXAMINATION

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, is required to pass a medical

examination as a condition of registration. A definite appointment is made for the examination. This appointment takes precedence over all others scheduled for that hour. Students who fail to appear for the medical examination at the appointed time will be excluded from classes on notice to the Registrar. For a second appointment, a special fee of \$5.00 is assessed.

## REGISTRATION

### REGULAR STUDENTS

A regular student is a student who fulfills the following requirements: (1) he has been granted regular admission to a school or college of the University; (2) his current schedule for credit is satisfactory to the dean of his school or college; (3) he has completed registration, including paying tuition and fees.

### PROCEDURE

ALL students, currently in school, who plan to register for a succeeding quarter (Summer Quarter excepted) must register by Advance Registration and pay fees by the stated deadline. Students are held responsible for knowing and observing registration procedures, dates, and deadlines which appear in the bulletins, in "Official Notices" in the *Daily*, and on campus bulletin boards.

New students are given appointments when they are notified of admission, and they receive complete directions for registering at the time of registration.

Students expecting to return to the University after an absence of a quarter or more (excluding Summer Quarter) must register by In-Person Registration. The required registration appointment may be obtained by writing to or telephoning the Registrar's Office at the time specified in the Calendar (see pages 4-10).

### ADVISING

After notification of admission, and before registration, new students should visit or write to the College for assistance in planning their course program. Academic and other counseling of pharmacy students is done by the College of Pharmacy staff.

### REGISTERED CREDITS ALLOWED EACH QUARTER

Except with the consent of his dean, no student may be registered for less than 12 credits (or the equivalent) or more than 16 credits (or the equivalent) or the number called for in the prescribed curricula, exclusive of physical education activity courses and lower-division military, naval, or air science courses. In no case may a student be registered for, or receive credit for more than 20 credits (or the equivalent) of work, exclusive of physical education activity courses and lower-division military, naval, or air science courses. Work taken in noncredit courses or to remove entrance deficiencies, or concurrently in extension classes, by correspondence study, or in another collegiate institution, must be included in the computation of the total registered credits allowed.

### CHANGES OF REGISTRATION

After students have registered, they cannot change their schedules except with permission of the Dean of the College. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean and the instructor whose class the student wishes to enter.

### WITHDRAWAL FROM A COURSE

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval both of the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only



upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of a student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

#### **WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the dean of his school or college the Request for Withdrawal From the University form. The same system of grading applies as that prescribed under Withdrawal From a Course.

#### **SCHOLARSHIP AND MINIMUM CREDITS**

Students must maintain a grade-point average of at least 2.00 (C) in all course work. Grade points per credit are awarded on the following basis: a grade of A earns 4 points; B, 3 points; C, 2 points; and D, 1 point. A grade of E signifies failure and the grade point is 0. The grade-point average is computed by multiplying the grade point received in a course by the number of credits the course carries, totaling these values for all courses, and dividing by the total number of credits for which the student registered.

For graduation, students must have a cumulative average of 2.00 (C) in the professional pharmacy courses and an over-all average of 2.00 (C) in all courses. To register in any professional course numbered 499, students must have a cumulative average of not less than 2.50 (C+).

The College of Pharmacy requirement for graduation is completion of the prescribed pharmacy curriculum. No more than 18 quarter credits in advanced ROTC courses and no more than 6 credits in professional courses numbered 499 may be applied toward graduation.

A student whose average falls below 2.00 (C) during any quarter is placed on probation and is allowed two additional quarters to attain a cumulative 2.00 (C). Failure to earn the required average in this time will be cause for the student to be dropped from the College. A student who has been dropped and who wishes to be readmitted must apply to the College of Pharmacy Admissions Committee. Grades earned at other institutions may not be used to raise the grade-point average at this College.

Only students enrolled in the College may register for professional pharmacy courses unless written permission is obtained from the Dean and the instructor.

#### **SENIOR-YEAR RESIDENCE**

Senior standing is attained when 135 credits and the required credits in ROTC and physical education have been earned. Of the work of the senior year (45 credits), at least 35 credits must be earned in a minimum of three quarters in residence. The remaining 10 credits may be earned either in residence or in this University's extension or correspondence courses. Fifth year or senior standing in the College of Pharmacy is attained when 186 credits plus the required ROTC and physical education activity credits have been earned.

#### **MILITARY TRAINING**

Male students who enter the University as freshmen or sophomores are required to complete six quarters of military training. Students should meet this requirement during the first two years they are in residence (registered in regular University classes).

The requirement may be met with courses in one of three University departments: Air Science, Military Science and Tactics, or Naval Science. The Departments of Air Science and Military Science offer six-quarter (two-year) basic programs of classwork and drill which fulfill University requirements, and two years of advanced ROTC training which selected students may enter after completing the basic program. Information about these programs may be obtained from the Professor of Air Science and the Professor of Military Science and Tactics at the University. The Department of Naval Science offers four-year programs only, and prospective students who are interested in Naval ROTC should write to the Professor of Naval Science.

Students with junior or senior standing in the Naval ROTC, and those who enter advanced Air Force or Army ROTC, must complete the program as a condition of graduation unless excused or dismissed by authority of the Secretary of the service concerned.

Exemptions from the requirement are granted to:

1. Students who are twenty-three years of age or over at the time of original entry into the University.
2. Students who enter as juniors or seniors.
3. Special students.
4. Students registered for 6 credits or less.
5. Students who are not citizens of the United States.
6. Students who, because of physical condition, are exempted by the University Health Officer.
7. Students who have equivalent military service. Complete or partial exemptions, depending on length of service, are granted for previous active service in the Armed Forces or Coast Guard.
8. Students who are active members or reserve officers of the Armed Forces or Coast Guard, or commissioned officers of the National Guard.
9. Students who are active enlisted members of the National Guard or of the Organized Reserve of the Armed Forces or Coast Guard.
10. Transfer students who present acceptable credit for military training taken in other colleges. The amount of exemption depends on the amount of previous training. Transfer students are required to take military training only for the number of quarters they need to achieve junior standing by a normal schedule.
11. Students who seek exemption on grounds other than specified above, and whose petitions for exemption are first processed by the Office of the Dean of Students, and then approved by the Dean of the College after consultation with the appropriate ROTC commander.

Those who are exempted under paragraph 5 or 11 must arrange at the time of initial entrance to substitute equivalent extra credits in other University courses to equal the number of credits they would have been required to earn in military training courses.

#### PHYSICAL AND HEALTH EDUCATION

**Activity Courses.** Students who enter the University as freshmen are required to complete one physical education activity course each quarter for the first three quarters of residence. In fulfilling the foregoing requirement, *all* students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, no activity course may be repeated for credit.

*Men* students may use credits earned in freshman or varsity sports to satisfy the activity course requirement.

*Women* students, in fulfilling the three-quarter requirement, may take a maximum of two credits in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

The following students are exempt from the requirement of activity courses:

1. Students who have attained the age of twenty-five. A student who attains the age of twenty-five during a quarter in which he is registered for a required physical education activity course shall be held for the completion of that course. This rule shall not be retroactive in its application to students who entered prior to Spring Quarter, 1951, and were exempted from required physical education courses under previous rules.

2. Students who enter as sophomores, juniors, or seniors.

3. Special students.

4. Students registered for 6 credits or less.

5. Students who, because of physical condition, are exempted by the Graduation Committee upon the recommendation of the Dean of the College. Such action will be taken only when the Dean has received a joint recommendation for exemption from the University Health Officer and the Executive Officer of the Department of Physical Education for Men or for Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfit to join regular classes will be assigned by the Executive Officer of the Department of Physical Education for Men or for Women to special programs adapted to their needs.

6. Students who are veterans of military service. Complete exemption is granted for one year or more of active duty. This exemption does not grant credit. Veterans with less than one year of service receive no exemption.

7. Transfer students who present acceptable credit for physical education activity courses taken in other colleges. The amount of exemption depends on the number of quarters for which credit is transferred.

**Health Courses.** All men students who enter the University as freshmen are required to take Health Education 175, a course in personal health, within the first three quarters of residence. The health education course requirement may be satisfied by passing a health-knowledge examination. Successfully passing this test exempts the student from the requirement but does not grant credit for Health Education 175. Veterans with one year or more of active service are exempt from this requirement. This exemption does not grant credit.

Women students who enter the University as freshmen are required to take Health Education 110 within the first three quarters of residence. Women entering the University for the first time may satisfy this requirement by passing a health-knowledge examination given during the Autumn Quarter registration period. Successfully passing this test exempts the student from the requirement, but does not grant credit for Health Education 110.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Announcement*.

### Tuition

Resident students, per quarter	\$25.00
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A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter	75.00
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Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Nonresident Office, 205A Administration Building, for a change of classification.

Auditors, per quarter	12.00
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Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable dis-

charges, or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits, or (3) are United States citizens who served in the armed forces of governments associated with the United States during World War I or II and received honorable discharges. Proof of eligibility for this exemption should be presented to the Veterans Division, University Comptroller's Office. Nonresident students who meet one of these requirements pay one half of the nonresident tuition.

This exemption is not granted to Summer Quarter students.

#### *Incidental Fee, per quarter*

Full-time resident students	37.50
Part-time resident students (registered for 6 credits or less, exclusive of ROTC)	15.00
Full-time nonresident students	82.50
Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC)	50.00
Auditors do not pay an incidental fee; there are no other exemptions.	

#### *ASUW Fees*

Membership, per quarter	8.50
Optional for auditors and part-time students.	
Athletic admission ticket (optional for ASUW members)	3.00-5.00
Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00; Spring Quarter only, \$3.00.	

#### *Military Uniform Deposit*

	25.00
Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund will be explained during registration.	

#### *Breakage Ticket Deposit*

	3.00
Required in some laboratory courses; ticket returnable for full or partial refund.	

#### *Locker Fee, per quarter*

	1.50
Required for men students taking physical education activities.	

#### *Grade Sheet Fee*

	.25
One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.	

#### *Transcript Fee*

	.50
One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.	

#### *Graduation Fee*

	10.00
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#### **SPECIAL FEES**

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Permits to register by In-Person Registration. A late registration fee of \$15.00 is charged students eligible for In-Person Registration who fail to register before the first day of instruction Autumn, Winter, and Spring Quarters. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. A fee of \$5.00 is charged for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00 and for removal of an Incomplete, \$2.00.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter, are: bowling, \$5.00; canoeing, \$2.50; golf instruction, \$3.00 per quarter, season ticket, \$5.00 per quarter. A season ticket is good on the golf course for play and may be purchased alone or in addition to golf instruction fee.

**REFUND OF FEES**

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

**ESTIMATE OF YEARLY EXPENSES**

The figures given below are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

*Tuition, Incidental, and ASUW Membership Fees*

Full-time resident student	\$213.00
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Full-time nonresident student	498.00
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<i>Athletic Admission Ticket</i> (optional)	3.00-5.00
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<i>Accident Insurance</i> (optional)	3.60
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<i>Special Fees and Deposits</i>	38.50
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Military uniform deposit, breakage ticket, and locker fees.

<i>Books and Supplies</i>	75.00
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*Board and Room*

Room and meals in Men's Residence Halls	630.00
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Room and meals in Women's Residence Halls	630.00-660.00
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Room and meals in fraternity or sorority house	660.00-700.00
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Initial cost of joining is not included; this information may be obtained from the Interfraternity or Panhellenic Council.

<i>Personal Expenses</i>	200.00
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**STUDENT ACTIVITIES AND SERVICES****ASSOCIATED STUDENTS**

Membership in the Associated Students of the University of Washington, the central organization which conducts all student activities, is required of all regularly enrolled students. Through the ASUW Board of Control and its various committees and boards, students assume major responsibility in the government of student life. The ASUW helps to finance the programs of athletics, debates, concerts, lectures, and many other activities and facilities, including the University of Washington *Daily* and the Student Union Building.

**AMERICAN PHARMACEUTICAL ASSOCIATION**

The American Pharmaceutical Association, which was established in 1852, maintains student branches so that students in the various colleges of pharmacy may join the national organization. The campus branch meets monthly during the academic year and sponsors lectures, social functions, and field trips. All students in the College are eligible for membership.

Upon graduation, affiliation with the organization may be continued on a full-membership basis. There are many active chapters, located in various parts of the country, in which the member may continue his association. One of these, the Puget Sound Branch of the American Pharmaceutical Association, has its headquarters in Seattle.

### HONORARY AND FRATERNAL SOCIETIES

Election to membership in Rho Chi, the pharmaceutical honor society, is on the basis of high scholarship and professional promise. Rho Chi was founded in 1908 at the University of Michigan as the Aristolochite Society, and in 1922 the name was changed and a charter granted giving permission to expand to other colleges. There are now sixty collegiate chapters. Rho Chapter, at the University of Washington, was established in 1932. Members are selected from among juniors and seniors with a grade-point average of at least 3.00. The purpose of Rho Chi is to promote the scientific advancement of pharmacy and to encourage high academic attainments.

Kappa Psi is a national professional pharmaceutical fraternity dedicated to the promotion of industry, mutual fellowship, high ideals, and high scholarship among its members, and to fostering pharmaceutical research. The University of Washington chapter, Beta Omicron, is one of forty-nine collegiate chapters and sends delegates to the Grand Council, which meets biennially. The campus chapter meets twice a month in alternate business and social meetings.

Lambda Kappa Sigma, the oldest and largest pharmaceutical sorority in the world, promotes the profession of pharmacy among women. There are now thirty-six collegiate and sixteen alumnae chapters. Chi Chapter, at the University of Washington, participates in many activities. New members are selected during the first professional year on the basis of character, scholarship, and personality.

### VISITS TO PHARMACEUTICAL PLANTS

Various pharmaceutical manufacturing companies encourage pharmacy students to visit their plants and to become acquainted with their facilities. To induce students to take advantage of these tours, the companies provide hotel facilities and meals during the visits. Every other year a group of students from the College of Pharmacy, with a faculty adviser, makes a trip of about ten days, spending a day or two with each company. These tours enable students to observe pharmaceutical manufacturing in some of the world's largest and most modern plants.

### AWARDS AND LOANS

The University offers a number of awards for outstanding academic achievement. Some are given by the University and others are supported through the generosity of friends and alumni. A handbook listing current awards and loans may be obtained from the Office of the Dean of Students.

Awards established especially for pharmacy students include scholastic recognition awards sponsored by the Rho Chi Honorary Society, Kappa Psi Fraternity (Grand Council Scholarship Key, H. A. Langenhan Memorial), Lambda Kappa Sigma Sorority (Heath Memorial), Linton Memorial, Merck-Sharp and Dohme, Rexall Drug Company, and Bristol Laboratories. Other scholarships, fellowships, and grants are:

**L. D. BRACKEN GENERAL SCHOLARSHIP AWARD, \$300.** Awarded to an undergraduate student on the basis of professional scholarship, professional attitude, and need. Funds are derived from a \$10,000 gift to the College of Pharmacy which was made in 1956 by Mrs. L. D. Bracken and Mr. Jim L. Bracken in memory of L. D. Bracken, prominent Seattle pharmacist.

**JOHN B. QUICK ENDOWMENT SCHOLARSHIP,** amount varies. A bequest of \$25,000 was made to the College of Pharmacy in the will of the late Mrs. Edna J. Quick in memory of her husband, one of the early pharmacists of Seattle. Income from this endowment is to be awarded to worthy and deserving students in pharmacy. Several \$100 scholarships are awarded each spring to high school seniors for pre-pharmacy study at the University.

**LOUIS AND GERTRUDE RUBENSTEIN MEMORIAL FUND.** A \$400,000 estate bequest to the College of Pharmacy was announced upon the death, in October, 1952, of Mrs. Louis Rubenstein, the widow of a pioneer Seattle pharmacist. Under the

terms of this fund, undergraduate scholarships and graduate fellowships will be established for worthy and deserving students.

**WASHINGTON STATE PHARMACEUTICAL ASSOCIATION SCHOLARSHIPS, \$90.** Three awarded to deserving upper-division students showing unusual interest in retail pharmacy as a career.

**AMERICAN FOUNDATION FOR PHARMACEUTICAL EDUCATION SCHOLARSHIPS, \$200.** Two available, awarded to upper-division students who have a 3.00 grade-point average, are in the upper 25 per cent of their class, and who need financial assistance.

**McKESSON AND ROBBINS SCHOLARSHIP, \$100.** Awarded to the junior student with the highest grade-point average.

**WOMEN'S AUXILIARY OF THE WASHINGTON STATE PHARMACEUTICAL ASSOCIATION SCHOLARSHIPS,** amount varies. Several awarded by the state auxiliary and its Seattle, Spokane, Pierce County, and Whatcom County units to students showing excellent scholarship and needing assistance.

**LAMBDA KAPPA SIGMA INSPIRATIONAL AWARD, (Charles Willis Johnson Memorial), \$25.** Awarded to a student who shows unusual leadership and helpful student influence.

**COLLEGE OF PHARMACY UNIVERSITY TEACHING ASSISTANTSHIPS.** Several of these assistantships are awarded each year to graduate students interested in teaching. The assistantships amount to \$175 a month for nine months, with tuition exemption. Recipients may carry a maximum of 12 credits each quarter in addition to their work as teaching assistants.

**AMERICAN FOUNDATION FOR PHARMACEUTICAL EDUCATION FELLOWSHIPS.** Up to \$2,400 a year is available upon approval of the Foundation to graduate students who are preparing for careers in pharmaceutical education or industry.

**WOMEN'S AUXILIARY OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.** The Women's Auxiliary of the American Pharmaceutical Association maintains a student loan fund for junior and senior women pharmacy students. The amount of the loan varies according to need of the student and is repayable after graduation. Students interested should consult the dean.

In addition to the scholarships, assistantships, fellowships, and awards listed above various loan funds are available to students in need of financial assistance.

Application forms and further information about undergraduate and graduate awards in pharmacy may be obtained by writing to the Dean of the College.

#### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. This Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons or agencies offering information and assistance with personal and social problems. The Dean of Students Office also has current information on Selective Service regulations.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, employment, and home hospitality should be referred to this Adviser. Students who are interested in study abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

#### COUNSELING CENTER

The Counseling Center offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which in-

cludes vocational counselors, and psychologists, works closely with other student services and supplements the academic advisory program.

### HOUSING

Accommodations are available to men in the Men's Residence Halls, 1201 Campus Parkway, Seattle 5, Washington. Interested students should write to the Manager, Men's Residence Halls. Preference in assignment to the Women's Residence Halls is given to younger girls. Interested women should write to the Manager, Women's Residence Halls, University of Washington, Seattle 5, Washington. Information about fraternities may be obtained from the Interfraternity Council, Student Union Building, University of Washington, and about sororities from the Panhellenic Council, Student Union Building, University of Washington.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be approved by the Office of the Dean of Students.

Married students who have children are eligible to apply to the Office of Student Residences for accommodations in Union Bay Village and Sand Point Homes, the University's family housing projects. Because there is a long waiting list, new students should not rely on the possibility of immediate housing.

The Office of Student Residences, 23 Administration Building, keeps listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must be consulted in person.

### HEALTH CENTER

The University maintains a health center and infirmary to help guard against infectious diseases and incipient ill health.

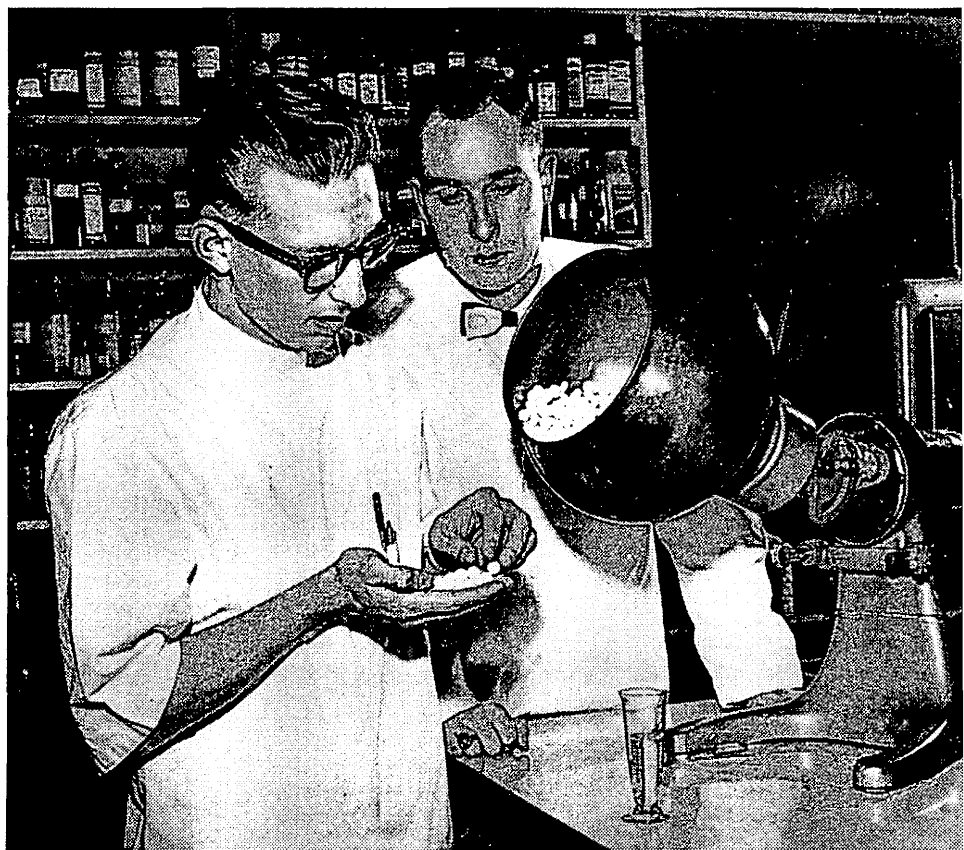
The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

### WORK PLACEMENT

Part- and full-time work off campus may be obtained at the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Applications must be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Department and the ASUW Personnel Office.

The College of Pharmacy faculty helps pharmacy students to obtain part-time work while at the University and permanent employment upon graduation.





THE PROGRAMS IN PHARMACY

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## THE PROGRAMS IN PHARMACY

**T**HE COLLEGE OF PHARMACY offers courses leading to the degrees of Bachelor of Science in Pharmacy, Master of Science, and Doctor of Philosophy. The programs in pharmacy are designed to give both the scientific training and the professional ability necessary to qualify graduates to meet the various needs of their chosen profession. Of the numerous specializations possible in this field, retail pharmacy attracts the greatest number of graduates. Other opportunities are available for pharmacists in hospital and clinic dispensaries; as personnel in wholesale drug distribution; as medical representatives for pharmaceutical concerns; as production, control, and research pharmacists in the manufacture of medicinal and pharmaceutical products; as food- and drug-control chemists or laboratory personnel in local, state, and federal health laboratories; and as pharmacists in the United States Public Health Service, the Veterans Administration, the Armed Forces, and other government departments. Teaching and research careers in colleges of pharmacy and in industry are available after the completion of graduate study.

### LICENSURE

In order to be admitted to the practice of pharmacy as a registered pharmacist in the state of Washington, the candidate must graduate from a recognized college of pharmacy, complete one year of practical experience, and pass the licensing examinations.

The one year of experience (2,080 hours) leading to registration in the state of Washington must be gained in a Class A pharmacy which fills a minimum of twenty-five prescriptions a day. Part-time work during the school term may not be counted as experience. Experience obtained in another state must be accompanied by a letter from the Board of Pharmacy of that state showing that the experience gained was in a pharmacy accepted by that state as one entitled to train interneers. The applicant must be registered in an accredited school or college of pharmacy or in a college whose credits are transferable to an accredited school or college of pharmacy before being eligible to begin counting experience hours.

Further information about licensure requirements may be obtained from the State Board of Pharmacy, 417 General Administration Building, Olympia.

## BACHELOR OF SCIENCE IN PHARMACY

Students working toward the bachelor's degree in pharmacy must meet certain general requirements of the University and the College as well as the particular course requirements of the pharmacy curriculum. These general requirements include military training, physical education, scholarship and minimum credits, and senior-year residence.

Students should apply for bachelor's degrees during the first quarter of the final year. A student may choose to graduate under the graduation requirements of the appropriate school or college bulletin published most recently before the date of his entry into the college in which he is to graduate, provided that not more than ten years have elapsed since that date. As an alternative he may choose to fulfill the graduation requirements as outlined in the appropriate school or college bulletin published most recently before the date of his graduation. As outlined in this bulletin, a student must complete 233 credits plus the ROTC and physical education activity requirements for graduation. All responsibility for fulfilling graduation requirements shall rest with the student concerned.

## ADVANCED DEGREES

Students who intend to work toward a Master of Science or Doctor of Philosophy degree must apply for admission to the Graduate School and meet the requirements outlined in the *Graduate School Bulletin*. *Graduate students must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.* For graduate study, the approval of both the College of Pharmacy and the Graduate School is necessary.

The basic requirements for admission to graduate study in the pharmaceutical sciences are met by an undergraduate degree in pharmacy. Students with undergraduate majors in the biological or physical sciences may also be admitted, but they will be required to complete courses basic to their chosen field of study during their graduate careers. Applicants must demonstrate above average scholastic ability and promise.

Undergraduates who have decided to pursue graduate work may expedite their programs by selection of pertinent electives. Although the choice of electives will vary with the identity of the student's selected field in the pharmaceutical sciences, it should be emphasized that graduate studies in the College of Pharmacy require adequate preparation in the physical and biological sciences, mathematics, and foreign language. Students who have not completed certain desired courses during their undergraduate work may be permitted to during their graduate programs.

Specialization is offered in pharmaceutical chemistry, pharmacognosy, and pharmacy. Graduate study and work toward an advanced degree in pharmacology is directed by the Department of Pharmacology of the Division of Health Sciences.

Graduate programs of study vary with the specialization selected and although they are flexible and are adapted to the needs of the individual student, certain general recommendations may be made. For majors in pharmacy and pharmaceutical chemistry, courses in physical chemistry (calculus is a prerequisite), biochemistry, qualitative organic chemistry, and statistical methods are basic to all programs in addition to courses in the major fields. These may be supplemented by advanced courses in the physical or biological sciences.

For pharmacognosy majors, courses in organic chemistry, biochemistry, and plant physiology are basic to most programs. These are generally best supplemented in the biological areas by courses in plant anatomy, taxonomy, microbiology, and mycology. In the physical area, specialized courses in organic chemistry, analytical chemistry, and physical chemistry are utilized.

All graduate students are encouraged to pursue additional courses in the pharmaceutical sciences other than their fields of specialization. Specific recommendations based upon individual interests may be obtained from the chairman of the department concerned or from the Dean, College of Pharmacy.

**MASTER OF SCIENCE.** The candidate must present at least 27 credits of course work, exclusive of thesis and nonthesis research. He must complete a research project, prepare an acceptable thesis, and pass a final examination. He must present a certificate of proficiency in one foreign language.

**DOCTOR OF PHILOSOPHY.** The candidate must present a minimum total of 56 credits of course work, exclusive of thesis and nonthesis research. The credits earned for the master's may be applied toward the doctor's degree. The candidate must pass a general examination for admission to candidacy for the doctor's degree, complete a research project, prepare an acceptable thesis, and pass a final examination. The research for the doctor's degree must be done at the University of Washington (applicable to candidates beginning their graduate studies after September, 1958). The candidate must present a certificate of proficiency in two foreign languages (one in addition to the Master of Science requirement).

For more detailed information concerning graduate studies, see the *Graduate School Bulletin*.

## CURRICULUM

### First Year (Propharmacy)

AUTUMN QUARTER	CREDITS
Chem. 100 or 110	
General	4 or 3
Engl. 101 Composition	3
Math. 104 Plane Trig.	3
Approved electives	5
Phys. Educ. activity	1
ROTC	2
	<hr/> 15-18

WINTER QUARTER	CREDITS
Chem. 150 General	4
Engl. 102 Composition	3
Math. 105 College Algebra	5
Approved electives	3
Phys. Educ. activity	1
ROTC	2
	<hr/> 16-18

SPRING QUARTER	CREDITS
Chem. 160 General	3
Chem. 170 Qual. Analysis	3
Engl. 103 Composition	3
Health Educ. 110 or 175	
Health	2
Approved electives	5
Phys. Educ. activity	1
ROTC	2
	<hr/> 17-19

### Second Year

AUTUMN QUARTER	CREDITS
Pharm. Chem. 237 Organic	5
Bot. 111 Elementary	5
Physics 101 and 107	
General	5
ROTC	2
	<hr/> 15-17

WINTER QUARTER	CREDITS
Pharm. Chem. 238 Organic	5
Zool. 111 General	5
Physics 102 and 108	
General	5
ROTC	2
	<hr/> 15-17

SPRING QUARTER	CREDITS
Pharm. Chem. 239 Organic	5
Zool. 112 General	5
Micro. 301 General	5
Pharm. 204 Orientation	2
ROTC	2
	<hr/> 17-19

### Third Year

AUTUMN QUARTER	CREDITS
Pharm. Chem. 325 Quant.	
Pharm. Anal.	5
Econ. 200 Introduction	5
Physiol. and Biophys. 360	
Gen. Hum. Physiol.	5
	<hr/> 15

WINTER QUARTER	CREDITS
Pharm. Chem. 326 Quant.	
Pharm. Anal.	5
Pharmacol. 301 General	3
Pharm. 331- Preparations	5
Approved electives	3
	<hr/> 16

SPRING QUARTER	CREDITS
Pharm. Chem. 327 Quant.	
Pharm. Anal.	3
Pharmacol. 302 General	5
Pharm. -332 Preparations	5
Approved electives	3
	<hr/> 16

### Fourth Year

AUTUMN QUARTER	CREDITS
Pharm. Chem. 440 Org.	
Med. Prod.	3
Pharmacog. 312- General	4
Bus. Writing 310 Bus.	
Correspond.	5
Market. 381 Retailing	5
	<hr/> 17

WINTER QUARTER	CREDITS
Pharm. Chem. 441 Org.	
Med. Prod.	3
Pharmacog. -313-	
General	4
Pharm. 318 Pharm.	
Acctg.	5
Market. 441 Retail Sales	
Promotion	3
	<hr/> 15

SPRING QUARTER	CREDITS
Pharm. Chem. 430 Inorg.	
Med. Prod.	3
Pharm. Chem. 442 Org.	
Med. Prod.	3
Pharmacog. -314 General	4
Pharm. 407- Dispensing	5
	<hr/> 15

### Fifth Year

AUTUMN QUARTER	CREDITS
Pharm. -408- Dispensing	5
Pharm. 450 Pharm. Laws	3
Approved electives	8
	<hr/> 16

WINTER QUARTER	CREDITS
Pharm. -409 Dispensing	5
Pharm. 451 Spec. Pharm.	
Pract.	3
Approved electives	8
	<hr/> 16

SPRING QUARTER	CREDITS
Pharm. Chem. 497	
Toxicology	3
Pharm. 452 Prof.	
Management	3
Approved electives	9
	<hr/> 15

## COURSE-NUMBERING SYSTEM

Courses numbered from 100 through 299 are lower-division courses, for pre-pharmacy and second-year students; those numbered from 300 through 499 are upper-division, for third-, fourth-, and fifth-year students. Some 400 courses, if listed in the *Graduate School Bulletin* and if approved by the College of Pharmacy, may be applied toward an advanced degree. Courses numbered 500 and above are open to graduate students only.

The number in parentheses following the course title indicates the amount of credit the course carries. In most lecture courses a credit is given for each class hour a week during a quarter; laboratory courses generally carry less credit than the work time required. An asterisk in place of a credit number means that the amount of credit is variable. Hyphens between course numbers mean that credit is not granted until the series of courses is completed.

Not all these courses are offered every quarter. Final confirmation of courses to be offered, as well as a list of times and places of class meetings, is given in the *Yearly Time Schedule*.

## PHARMACEUTICAL SCIENCES

### PHARMACEUTICAL CHEMISTRY

Chairman: LOUIS FISCHER, 307 Bagley Hall

The Department of Pharmaceutical Chemistry offers, for undergraduate students, courses which deal with the application of chemistry to the study of substances used in pharmacy and medicine. Advanced courses covering specialized techniques in pharmaceutical chemistry, medicinal products, and plant chemistry are presented at the graduate level.

Students who intend to work toward a Master of Science or Doctor of Philosophy degree should communicate with the Chairman of the Department before registration.

### COURSES

- |  |                     |
|--|---------------------|
| <b>237, 238, 239 Organic Pharmaceutical Chemistry (5,5,5)</b>  | <b>Huitric</b>      |
| The chemistry of the carbon compounds. Prerequisite, Chemistry 170.  |                     |
| <b>301 Bibliography Technique (2)</b>  | <b>McCarthy</b>     |
| Use of scientific literature, preparation of abstracts, and assignments in selected pharmaceutical topics.   |                     |
| <b>325 Quantitative Pharmaceutical Analysis (5)</b>  | <b>Krupski</b>      |
| Principles of volumetric analysis with special emphasis on medicinal compounds. Prerequisite, Chemistry 170.   |                     |
| <b>326 Quantitative Pharmaceutical Analysis (5)</b>  | <b>Krupski</b>      |
| Principles of gravimetric and colorimetric analysis applied to medicinal compounds. Prerequisite, 325.   |                     |
| <b>327 Quantitative Pharmaceutical Analysis (3)</b>  | <b>Krupski</b>      |
| Physiochemical methods used in pharmaceutical analysis. Prerequisite, 326.   |                     |
| <b>340-341-342 Organic Medicinal Products (3-2-2)</b>  | <b>Fischer</b>      |
| Nomenclature, classification, synthesis, properties, structure, and activity of medicinal products. Prerequisite, Chemistry 239. (Last time offered, Spring Quarter, 1960.)                |                     |
| <b>395, 396 Pharmaceutical Chemistry (3,3)</b>   | <b>Fischer</b>      |
| The chemistry of pharmaceuticals and their constituents with respect to the physical and chemical methods used in standardization. Prerequisite, 326.                                      |                     |
| <b>430 Inorganic Medicinal Products (3)</b>  | <b>Krupski, Orr</b> |
| Classification, nomenclature, physical and chemical properties of inorganic medicinal compounds; and a discussion of radioactive medicinal products. Prerequisite, Chemistry 170.          |                     |
| <b>440, 441, 442 Organic Medicinal Products (3,3,3)</b>  | <b>Fischer</b>      |
| Nomenclature, classification, synthesis, properties, structure, and activity of medicinal products. (Formerly 340-341-342.) Prerequisite, 239. (First time offered, Autumn Quarter, 1960.) |                     |
| <b>480 Advanced Organic Medicinal Products Laboratory (3)</b>  | <b>Huitric</b>      |
| Synthesis of important medicinal products and isolation of active principles from natural sources. (Offered every other year; offered 1960-61.)  |                     |

- 497 Pharmaceutical Chemistry and Toxicology (5)** **Fischer**  
History, source, structure, synthesis, qualitative detection, and quantitative determination of alkaloids, including the separation and identification of poisons from animal tissue. Prerequisites, 326 and 239. (Last time offered, Spring Quarter, 1960.)
- 497 Toxicology (3)** **Fischer**  
Separation and identification of poisons from animal tissues. Prerequisites, 326 and 239. (First time offered, Spring Quarter, 1961.)
- 499 Undergraduate Research (1-5)** **Fischer, Huitric, Krupski, McCarthy, Orr**  
Research problems in pharmaceutical chemistry. Open to qualified juniors and seniors.

## COURSES FOR GRADUATES ONLY

- 511, 512, 513 Advanced Pharmaceutical Chemistry (3,3,3)** **Krupski**  
pH determination and buffer systems, fluorometry, and gasometric methods of analysis, chromatography, ion exchange, and the use of various instruments for scientific investigations and vitamin determinations. (Offered every third year; offered 1961-62.)
- 520 Seminar (1, maximum 5)** **Staff**  
Graduate students attend seminars and make one formal presentation per year while in residence; 1 credit per year is allowed.
- 521, 522 Advanced Organic Medicinal Products (3,3)** **Huitric**  
Application of integrated data from the physical and biological sciences to problems of chemotherapy, including transport of drugs to site of action, biotransformation of drugs, interaction of drugs with enzyme systems and recent advances in drug design. Prerequisites, Chemistry 357, 531, and Biochemistry 482, or permission. (Offered every third year; offered 1960-61.)
- 531, 532, 533 Plant Chemistry (3,3,3)** **McCarthy**  
Alkaloids, volatile oils, steroids, and glycosides, including methods of isolation, proof of structure and configuration, and synthesis, with emphasis on materials of pharmaceutical interest. (Offered every third year; offered 1959-60.)
- 600 Research (\*)** **Fischer, Huitric, Krupski, McCarthy, Orr**
- 700 Thesis (\*)** **Staff**

## PHARMACOGNOSY

**Chairman: VARRO E. TYLER, JR., 303 Bagley Hall**

Pharmacognosy deals with the systematic study of natural drug products employed as pharmaceuticals and medicinals. The Department of Pharmacognosy offers courses in the general aspects of plant and animal drug principles, including their sources, separation, biosynthesis, identification, and uses. Other courses of advanced nature include the subjects of hormones, sera, vaccines, allergens, and problems in drug plant cultivation. These courses are also available to qualified students from related science areas.

The Department directs the activities of the Drug Plant Gardens and Laboratory. An extensive collection of living drug plants is maintained for experimental use.

Students who intend to work toward a Master of Science or Doctor of Philosophy degree should communicate with the Chairman of the Department before registration.

## COURSES

- 212-213-214 Pharmacognosy (3-3-3)** **Tyler**  
A general introduction to plant and animal products used in pharmacy. Emphasis is placed upon active principles, their sources, certain derivatives, production, and uses. Therapeutic and nontherapeutic agents are included. Prerequisite, Botany 111 or an equivalent course in biology. (Last time offered, Spring Quarter, 1959.)
- 304 Pharmacognosy Laboratory (3)** **Tyler**  
The application of microscopic and microchemical methods in the study of vegetable and animal drug principles. Prerequisites, -214 and Pharmaceutical Chemistry 239 (Last time offered, Autumn Quarter, 1959.)
- 312-313-314 General Pharmacognosy (4-4-4)** **Tyler**  
The study of natural products of plant and animal origin as important pharmaceuticals. Sources, processes of isolation and general fundamental properties are described. (Formerly 212-213-214). Prerequisite, Pharmaceutical Chemistry 239. (First time offered, Autumn Quarter, 1959.)
- 405 Advanced Pharmacognosy (3)** **Tyler**  
A laboratory course covering advanced techniques in pharmacognosy.

- 406 Medicinal Plants (2)** **Tyler**  
Problems in drug plant cultivation and commerce, with considerable field work in the Drug Plant Gardens. Emphasis is placed upon alkaloid-, glycoside-, and oil-yielding plants. Weedicides and insecticides are included. Prerequisite, -314 or permission.
- 411 Hormones and Glandular Products (3)** **Staff**  
An advanced study of pharmaceutical products derived from animal exocrine and endocrine glands, with emphasis upon hormones and their chemical and physiological role as drugs. Prerequisites, -214, and Zoology 208 or equivalent. (Last time offered, Winter Quarter, 1960.)
- 411 Hormones and Glandular Products (2)** **Staff**  
An advanced study of pharmaceutical products derived from animal exocrine and endocrine glands, with emphasis upon hormones and their chemical and physiological role as drugs. Prerequisites, -314, and Physiology and Biophysics 360 or equivalent. (First time offered, Winter Quarter, 1961.)
- 412 Serums, Vaccines, and Allergens (2)** **Staff**  
Production, quality, and use of serum, vaccine, virus, and allergenic products currently employed in the prevention and treatment of disease. Prerequisites, -214, 411, and Microbiology 301. (Last time offered, Spring Quarter, 1960.)
- 412 Immunological Agents (3)** **Staff**  
Production, quality, and use of serum, vaccine, virus, and allergenic products currently employed in the prevention and treatment of disease. Prerequisite, -314 and Microbiology 301. (First time offered, Spring Quarter, 1961.)
- 499 Undergraduate Research (1-5)** **Tyler**  
Research problems in pharmacognosy. Open to qualified juniors and seniors.

## COURSES FOR GRADUATES ONLY

- 520 Seminar (1, maximum 5)** **Staff**  
Graduate students must attend seminars and make one formal presentation per year while in residence; 1 credit per year is allowed.
- 600 Research (\*)** **Tyler**
- 700 Thesis (\*)** **Staff**

## PHARMACY AND PHARMACY ADMINISTRATION

**Chairman: L. WAIT RISING, 306 Bagley Hall**

The Department of Pharmacy and Pharmacy Administration teaches the courses directly concerned with professional orientation, fundamental pharmaceutical procedures, prescription compounding, hospital pharmacy, manufacturing, and management. Graduate work is available leading to the Master of Science and Doctor of Philosophy degrees in the various fields of pharmacy. The Department also offers several service courses to nonmajors in other divisions of the University.

Students who intend to work toward a Master of Science or Doctor of Philosophy degree should communicate with the Chairman of the Department before registration.

## COURSES

- 115 Home Remedies (2)** **Rising**  
A helpful review of the preparations commonly used at home for maintaining health and good appearance. Medicines for the treatment of everyday conditions, such as colds, headaches, sore throats, and minor infections, are studied from the standpoint of composition, intelligent use, safety, and effectiveness. Cosmetics and related preparations are included. For nonmajors.
- 204 Orientation and History (2)** **Orr**  
A study of the profession of pharmacy, its development and its literature.
- 251 Elementary Pharmacy (2)** **Staff**  
A survey of drug standards, laws, and dosage forms. Calculations of dosages and solutions. For students in the school of Nursing.
- 261 Pharmacology and Therapeutics (3)** **Staff**  
General study of the action and uses of drugs. For students in the School of Nursing.
- 313-314-315 Advanced Prescriptions, Professional Pharmacy, Professional Management (5-5-5)** **Rising**  
Principles of management and the laws governing the practice of pharmacy. The divisions of professional pharmacy are discussed under such headings as general practice, veterinary, and dental pharmacy. Advanced techniques in prescription practice are stressed. Prerequisite, -211. (Last time offered, Spring Quarter, 1960.)

- 318 Pharmaceutical Accounting (5)** **Lorig**  
Basic principles of accounting as used in pharmacy, with emphasis on state and federal taxes and deductions, and on fiscal reports for comparing business trends under accepted business procedures.
- 331-332 Pharmaceutical Preparations (5-5)** **Staff**  
A study of pharmaceutical dosage forms including processes, physical principles and metrology involved in their preparation. Prerequisites, Physics 102 and 108, Microbiology 301, and Pharmaceutical Chemistry 239.
- 352 Pharmacy and Therapeutics for Dental Hygienists (3)** **Staff**  
Principles of pharmacy; mathematics of pharmacy; pharmacological and therapeutic action of drugs pertaining to dentistry.
- 382 Modern Pharmaceuticals (5)** **Plein**  
New and important pharmaceuticals found in modern practice considered from the standpoint of composition, manufacture, dosage, and properties. Prerequisites, -211, Pharmaceutical Chemistry 239 or equivalent, and senior standing. (Last time offered, Autumn Quarter, 1960.)
- 407-408-409 Dispensing Pharmacy (5-5-5)** **Hall**  
Principles of prescription compounding and dispensing, including study of some commercially-prepared modern pharmaceuticals. Prerequisite, 332. (First time offered, Spring Quarter, 1960.)
- 420 Manufacturing Pharmacy (3)** **Plein**  
A study of the techniques and equipment in preparing pharmaceutical products on a small plant scale basis. Prerequisites, 332 and fifth-year standing. (First time offered, Autumn Quarter, 1961.)
- 450 Pharmacy Laws (3)** **Rising**  
A study of the laws regulating the practice of pharmacy. These include federal, state, and municipal laws, and professional ethics. (Formerly 313.-) Prerequisite, fifth year standing. (First time offered, Autumn Quarter, 1960.)
- 451 Specialized Pharmaceutical Practice (3)** **Rising**  
A study of several areas of specialized practice in pharmacy. Important examples are veterinary pharmacy, dental pharmacy, pediatric pharmacy, ophthalmologic pharmacy and podiatric pharmacy. (Formerly -314.-) Prerequisite, fifth-year standing. (First time offered, Winter Quarter, 1961.)
- 452 Professional Management (3)** **Rising**  
A study of the special problems involved in the management of the professional phases of pharmacy at the retail or manufacturing level. Their integration with over-all managerial procedures is stressed. (Formerly -315.-) Prerequisite, fifth-year standing. (First time offered, Spring Quarter, 1961.)
- 473 Cosmetic Manufacturing (3)** **Rising**  
Preparation of many types of cosmetics and study of their physical, chemical, and physiological properties. Prerequisite, Pharmaceutical Chemistry 239.
- 483 Hospital Pharmacy (3-5)** **Plein**  
Principles and techniques of hospital dispensing and dispensary management. Prerequisite, permission.
- 499 Undergraduate Research (1-5)** **Hall, Plein, Rising**  
Research problems in manufacturing and dispensing pharmacy. Open to qualified juniors and seniors.

## COURSES FOR GRADUATES ONLY

- 520 Seminar (1, maximum 5)** **Staff**  
Graduate students must attend seminars and make one formal presentation per year while in residence; 1 credit per year is allowed.
- 540 Pharmaceutical Emulsions (2)** **Rising**  
Problems in preparation of emulsions in pharmaceutical manufacturing. Prerequisites, Pharmaceutical Chemistry 239 and Chemistry 357 or equivalent.
- 550 Solvents and Solvent Extraction (2)** **Plein**  
Theories of solvent extraction and the use of solvents applied to pharmaceutical manufacturing. Prerequisite, permission.
- 600 Research (\*)** **Hall, Plein, Rising**
- 700 Thesis (\*)** **Staff**

## OTHER COURSES FOR PHARMACY STUDENTS

### BOTANY

- 111 Elementary Botany (5)** **Staff**  
Structure, physiology, and reproduction of seed plants. Open for only 3 credits to those who have had Elementary Botany 105.



**BUSINESS WRITING**

- 310 Business Correspondence (5)** **Staff**  
Analysis of principles, including psychological factors, and actual business letters in terms of fundamentals. Prerequisite, English 103.

**CHEMISTRY**

- 100 General Chemistry (4)** **Staff**  
Open only to students without high school chemistry credit. States of matter, atomic, and molecular structure, covalence, reactions, and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103 or the Algebra Placement Test. (Formerly 111.)
- 110 General Chemistry (3)** **Staff**  
For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions and equations. To continue with Chemistry 150, students must have passed Mathematics 101 or 103 or the Algebra Placement Test. (Formerly 115.)
- 150 General Chemistry (4)** **Staff**  
For students planning more than two quarters of chemistry. Stoichiometry, gases, aqueous solutions, kinetics, acid and base equilibria, electrochemistry, oxidation and reduction. Prerequisite, 100 or 110; Mathematics 101 or 103 or passing score on Algebra Placement Test. (Formerly 112.)
- 160 General Chemistry (3)** **Staff**  
Periodic System, phase equilibria, metals and non-metals, metallurgy, and nuclear reactions. Prerequisite 150. (Formerly 113.)
- 170 Qualitative Analysis (3)** **Staff**  
Semi-micro qualitative analysis for common cations and anions; separation and identification procedures. Prerequisite, 160, which may be taken concurrently. (Formerly 113.)

**ECONOMICS**

- 200 Introduction to Economics (5)** **Staff**  
Organization, operation, and control of the American economy; consideration of problems of inflation, unemployment, taxation, the public debt, monopoly, trade unions, and international trade. American capitalism compared with communism and socialism. Open to freshmen.

**ENGLISH**

- 101, 102, 103 Composition (3,3,3)** **Staff**  
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form.

**MARKETING**

- 381 Retailing (5)** **Staff**  
Store location, layout, organization, policies, and systems; principles of buying, stock control, pricing, inventory methods, personnel management; profit planning and business control; coordination of store activities. Prerequisite, 301.
- 441 Retail Sales Promotion (3)** **Staff**  
Store design and layout, display, advertising, publicity, personal salesmanship, promotional budget, and coordination of promotional activities.

**MATHEMATICS**

- 101 Intermediate Algebra (5)** **Staff**  
Similar to third term of high school algebra. Not open for credit to students who have taken one and one-half years of algebra in high school. Prerequisite, one year of high school algebra.
- 103 Intermediate Algebra and Trigonometry (3)** **Staff**  
Meets five hours per week. First four weeks, review of intermediate algebra. After this review, students must pass qualifying test to continue in 103. Those failing the test will be registered in 101, for which they will receive no University credit. Last six weeks, plane trigonometry, equivalent to 104. Intended for students with the following prerequisites who fail the qualifying test for 104. Prerequisites, one and one-half years of high school algebra and one year of plane geometry.
- 104 Plane Trigonometry (3)** **Staff**  
Trigonometric functions, identities, graphs, logarithms, and solution of triangles. Mathematics 120 may be taken concurrently as a supplement to this course. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, and one year of plane geometry.
- 105 College Algebra (5)** **Staff**  
Functions and graphs; linear and quadratic equations; progressions; complex numbers; theory of equations; determinants. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101, or 103.

**MICROBIOLOGY**

- 301 General Microbiology (5)** **Staff**  
Microorganisms and their activities. A survey course for students of pharmacy, nursing, home economics, education, and others with minimal training in chemistry. Prerequisites, two quarters of general chemistry.

**PHARMACOLOGY****301, 302 General Pharmacology (3,5)****Staff**

The action of drugs on physiological function, with special reference to the use of drugs in the therapeutic treatment of disease. Toxicological manifestations of excessive doses of drugs; management and treatment of such poisonous effects.

**PHYSICAL AND HEALTH EDUCATION****Health Education****110 Health Education (Women) (2)****Staff**

Health problems of freshman women. Required of all freshmen; exemption without credit by examination. See page 29.

**175 Personal Health (Men) (2)****Staff**

Health information that affords a basis for intelligent guidance in the formation of health habits and attitudes. Required of all freshmen; exemption without credit by examination. See page 29.

**292 First Aid and Safety (Men and Women) (3)****Staff**

The student may meet requirements for both standard and advanced American Red Cross first aid certification. Includes safety education in schools. Prerequisite for men, junior standing.

**Physical Education Activities****101 through 255 Physical Education Activities (Men) (1 each)****Staff**

101, 102, 103, adapted activities; 106 handball; 107, basketball; 108, tennis; 109, softball; 110, golf (fee, \$3.00 per quarter); 111, track; 112, crew (class), prerequisite, swimming; 114, boxing; 115, gymnastics; 117, wrestling; 118, volleyball; 119, swimming; 121, touch football; 122, badminton; 123, archery; 125, skiing (fee); 126, speedball; 127, bowling (fee); 128, weight training; 129, sailing; 131, beginning, 134, intermediate folk and square dancing; 151, modern dance; 154, social dance; 157, canoeing (fee, \$2.50 per quarter); 141, freshman, 241, varsity basketball; 142, freshman, 242, varsity crew, prerequisite, swimming; 143, freshman, 243, varsity football; 144, freshman, 244, varsity track; 145, freshman, 245, varsity swimming; 146, freshman, 246, varsity baseball; 147, freshman, 247, varsity tennis; 148, freshman, 248, varsity golf; 149, freshman, 249, varsity skiing; 150, freshman, 250, varsity volleyball; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.

**111 through 170; 211 through 270 Physical Education Activities (Women) (1 each)****Staff**

111, adapted activities; 112, basic activities (general); 113-114, basic activities (applied); 115, archery; 118, badminton; 119, body conditioning; 121, bowling (fee); 124, fencing; 126, golf (fee, \$3.00 per quarter); 128, riding (fee); 129, sailing; 131, ski conditioning; 132, elementary skiing (fee); 133, stunts and tumbling; 135, tennis; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, folk and square dance; 149, international folk dance; 151, modern dance; 154, social dance; 155, tap dance; 157, canoeing (fee, \$2.50 per quarter); 160, adapted swimming; 161, beginning swimming; 162, elementary swimming; 215, intermediate archery; 218, intermediate badminton; 221, intermediate bowling (fee); 222, advanced bowling (fee); 224, intermediate fencing; 228, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dance; 251, intermediate modern dance; 252, advanced modern dance; 257, intermediate canoeing (fee, \$2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, rhythmic swimming; 266, diving; 267, lifesaving.

**PHYSICS****101, 102, 103 General Physics (4,4,4)****Staff**

101: mechanics and sound. Concurrent registration in 107 recommended and may be required by individual departments. Prerequisites, plane geometry, trigonometry, and one year of high school physics or its equivalent by permission. 102: electricity and magnetism. No credit in 102 if 112 has been taken. Prerequisite, 101; concurrent registration in 108 recommended and may be required by individual departments. 103: heat, light, and modern physics. No credit in 103 if 113 has been taken. Prerequisites, 101, 102, or concurrent registration in 102; concurrent registration in 109 recommended and may be required by individual departments.

**107, 108, 109 General Physics Laboratory (1,1,1)****Staff**

107: mechanics and sound laboratory. Concurrent registration in 101 recommended and may be required by individual departments. 108: electricity and magnetism laboratory. Concurrent registration in 102 recommended and may be required by individual departments. 109: heat and light laboratory. Concurrent registration in 103 recommended and may be required by individual departments.

**PHYSIOLOGY AND BIOPHYSICS****360 General Human Physiology (5)****Staff**

Lecture, laboratory, and laboratory conference instruction in the basic principles and basic laboratory techniques of physiology. For students of pharmacy. Prerequisites, Zoology 112. Pharmaceutical Chemistry 239, Physics 102 and 108, Microbiology 201. (First time offered, Autumn Quarter, 1959.)

**ZOOLOGY****111, 112 General Zoology (5,5)****Staff**

Physical basis of life, structure, function, development, inheritance, evolution, and ecology of animals. 111: invertebrate phyla through molluscs. 112: annelids through chordates. 111 prerequisite for 112.

BULLETIN • UNIVERSITY OF WASHINGTON



SCHOOL OF SOCIAL WORK

1960-1962

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**BULLETIN, UNIVERSITY OF WASHINGTON** is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; Summer Quarter bulletin; the bulletin of the Center for Graduate Study at Hanford; and bulletins of the Division of Correspondence Study and the Division of Evening Classes.

**INTRODUCTION TO THE UNIVERSITY**, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. **UNIVERSITY RULES AND REGULATIONS**, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. **HANDBOOK OF SCHOLARSHIPS**, the third general bulletin, lists the various scholarships available.

Curricula, courses, and scholarship requirements in each field of study are described in the college and school bulletins. Each of these bulletins also discusses services, organizations, and expenses as they relate to students in the particular college or school.

Requests for copies of any of the bulletins should be addressed to the Addressograph Service.

*General Bulletins*

**HANDBOOK OF SCHOLARSHIPS (RESTRICTED DISTRIBUTION)**

**INTRODUCTION TO THE UNIVERSITY**

**UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)**

*Bulletins of the Colleges and Schools*

**COLLEGE OF ARCHITECTURE AND URBAN PLANNING**

**COLLEGE OF ARTS AND SCIENCES**

**COLLEGE OF BUSINESS ADMINISTRATION**

**SCHOOL OF DENTISTRY**

**COLLEGE OF EDUCATION**

**COLLEGE OF ENGINEERING**

**COLLEGE OF FISHERIES**

**COLLEGE OF FORESTRY**

**GRADUATE SCHOOL**

**SCHOOL OF LAW**

**SCHOOL OF MEDICINE**

**SCHOOL OF NURSING**

**COLLEGE OF PHARMACY**

**SCHOOL OF SOCIAL WORK**

*Other Bulletins*

**SUMMER QUARTER**

**CENTER FOR GRADUATE STUDY AT HANFORD**

**CORRESPONDENCE STUDY**

**EVENING CLASSES**

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**BULLETIN**  
**UNIVERSITY OF WASHINGTON**  
**General Series No. 962**  
**November, 1960**

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# CONTENTS

CALENDAR . . . . .	4
ADMINISTRATION . . . . .	11
Board of Regents	
Officers of Administration	
Faculty of the School of Social Work	
Affiliated Faculty from Other University Departments	
Library and Administrative Staff	
Field Teaching Centers	
Field Instructors and Affiliated Agencies	
GENERAL INFORMATION . . . . .	19
Admission	
Veterans	
Required Tests and Examinations	
Registration	
Scholarship	
Tuition and Fees	
Estimate of Yearly Expenses	
Student Activities and Services	
THE SOCIAL WORK PROGRAMS . . . . .	33
Undergraduate Curriculum in Social Welfare	
Courses	
The Master of Social Work Program	
Courses	

## CALENDAR

*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in the following Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

### SPRING QUARTER, 1961

#### REGISTRATION PERIOD

JAN. 23-FEB. 17	Advance Registration only for students in residence Winter Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
MAR. 21-23	In-Person Registration for students in residence Winter Quarter, 1961, who did not complete Spring Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
MAR. 21-23	In-Person Registration for former students not in residence Winter Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is March 10.</i>
MAR. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
MAR. 15	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
MAR. 21-23	In-Person Registration for ALL New students.
MAR. 23	Last day to register for Spring Quarter, 1961. Note application deadlines.
MAR. 27-31	Change of registration by appointment only.

#### ACADEMIC PERIOD

MAR. 27—MONDAY	Instruction begins for all students
MAR. 31—FRIDAY	Last day to add a course
MAY 12—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 27—SATURDAY	Advanced credit examinations
MAY 30—TUESDAY	Memorial Day holiday
JUNE 4—SUNDAY	Baccalaureate Sunday
JUNE 2-8	Final examinations
JUNE 8—THURSDAY	Quarter ends
JUNE 10—SATURDAY	Commencement

**SUMMER QUARTER, 1961****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

June 1, 2, 5

June 12-16

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hospital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

*Students in residence Spring Quarter, 1961:*

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....	Monday, April 17, 8 a.m. to 5 p.m.
Juniors.....	Tuesday, April 18, 8 a.m. to 5 p.m.
Sophomores.....	Wednesday, April 19, 8 a.m. to 5 p.m.
Freshmen.....	Thursday, April 20, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter 1961*, may obtain an Application for Appointment or Permit by writing to, or calling in person, at the Registrar's Office, Room 109, Administration Building, or telephoning LAkeview 4-6000, Extension 2551, beginning April 17 and preferably *no later than May 15*. Application for Registration Appointment must be received before registration materials can be processed. *New (entering) Students* will receive Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 19—MONDAY	Instruction begins
JUNE 20—TUESDAY	Last day to add a course for the first term
JUNE 23—FRIDAY	Last day to add a course for the full quarter
JUNE 30—FRIDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—TUESDAY	Independence Day holiday
JULY 15—SATURDAY	Advanced credit examinations
JULY 19—WEDNESDAY	Final examinations and first term end
JULY 20—THURSDAY	Second term begins
JULY 21—FRIDAY	Last day to add a course for the second term
JULY 28—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 12—SATURDAY	Advanced credit examinations
AUG. 18—FRIDAY	Final examinations and second term end

**AUTUMN QUARTER, 1961****REGISTRATION PERIOD**

MAY 1-26

Advance Registration only for students in residence Spring Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

- SEPT. 5-22 In-Person Registration for students in residence Spring Quarter, 1961, who did not complete Autumn Quarter, 1961, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
- SEPT. 5-22 In-Person Registration for former students not in residence Spring Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Appointments or Permits is September 15.*
- AUG. 1 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- SEPT. 1 Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
- SEPT. 7-22 In-Person Registration for ALL new students.
- SEPT. 22 Last day to register for Autumn Quarter, 1961. Note application deadlines.
- SEPT. 25-29 Change of registration by appointment only.

#### ACADEMIC PERIOD

- SEPT. 25—MONDAY Instruction begins for all students
- SEPT. 29—FRIDAY Last day to add a course
- NOV. 1—WEDNESDAY Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1962, due at Registrar's Office.
- NOV. 11—SATURDAY State Admission Day holiday
- NOV. 17—FRIDAY Last day to submit applications for advanced credit examinations
- NOV. 22-27 Thanksgiving recess (6 p.m. to 8 a.m.)
- DEC. 2—SATURDAY Advanced credit examinations
- DEC. 6-12 Final examinations
- DEC. 12—TUESDAY Quarter ends

#### WINTER QUARTER, 1962

##### REGISTRATION PERIOD

- OCT. 23-Nov. 17 Advance Registration only for students in residence Autumn Quarter, 1961. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- DEC. 26-28 In-Person Registration for students in residence Autumn Quarter, 1961, who did not complete Winter Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
- DEC. 26-28 In-Person Registration for former students not in residence Autumn Quarter, 1961. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Appointments or Permits is December 8.*



- DEC. 1 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- DEC. 20 Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
- DEC. 26-28 In-Person Registration for ALL new students.
- DEC. 28 Last day to register for Winter Quarter, 1962. Note application deadlines.
- JAN. 2-8 Change of registration by appointment only.

**ACADEMIC PERIOD**

- JAN. 2—TUESDAY Instruction begins for all students
- JAN. 8—MONDAY Last day to add a course
- FEB. 16—FRIDAY Last day to submit applications for advanced credit examinations
- FEB. 22—THURSDAY Washington's Birthday and Founder's Day holiday
- MAR. 3—SATURDAY Advanced credit examinations
- MAR. 9-15 Final examinations
- MAR. 15—THURSDAY Quarter ends

**SPRING QUARTER, 1962****REGISTRATION PERIOD**

- JAN. 22-FEB. 16 Advance Registration only for students in residence Winter Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
- MAR. 20-22 In-Person Registration for students in residence Winter Quarter, 1962, who did not complete Spring Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
- MAR. 20-22 In-Person Registration for former students not in residence Winter Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. *Deadline for applying for Registration Appointments or Permits is March 9.*
- MAR. 1 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
- MAR. 15 Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.

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*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in this Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

MAR. 20-22	In-Person Registration for ALL new students.
MAR. 22	Last day to register for Spring Quarter, 1962. Note application deadlines.
MAR. 26-30	Change of registration by appointment only.

**ACADEMIC PERIOD**

MAR. 26—MONDAY	Instruction begins for all students
MAR. 30—FRIDAY	Last day to add a course
MAY 11—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 26—SATURDAY	Advanced credit examinations
MAY 30—WEDNESDAY	Memorial Day holiday
JUNE 3—SUNDAY	Baccalaureate Sunday
JUNE 1-7	Final examinations
JUNE 7—THURSDAY	Quarter ends
JUNE 9—SATURDAY	Commencement

**SUMMER QUARTER, 1962****REGISTRATION PERIOD**

General In-Person Registration for ALL students (*by appointment only*):

May 31-June 2, 4  
June 11-15

*Registration may be delayed if new student Applications for Admission or former student Applications for Appointment or Permit to register are received after May 15.*

Students in the Schools of Law, Dentistry, Medicine, Social Work, and the Hospital Division of the School of Nursing must file an Application for Registration Permit, although no appointment date is necessary.

Registration Appointments or Permits will be issued as follows:

***Students in residence Spring Quarter, 1961:***

Registration Appointments or Permits to register will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office as follows:

Seniors and Graduates.....	Monday, April 16, 8 a.m. to 5 p.m.
Juniors .....	Tuesday, April 17, 8 a.m. to 5 p.m.
Sophomores.....	Wednesday, April 18, 8 a.m. to 5 p.m.
Freshmen.....	Thursday, April 19, 8 a.m. to 5 p.m.

*Former Students not in residence Spring Quarter, 1962*, may obtain an Application for Appointment or Permit by writing to, or calling in person at the Registrar's Office, Room 109, Administration Building, or telephoning LAkeview 4-6000, Extension 2551, beginning April 17 and preferably *no later than May 15*. Application for Registration Appointment must be received before registration materials can be processed. *New (entering) Students* will be mailed Registration Appointments with their Official Notice of Admission.

**ACADEMIC PERIOD**

JUNE 18—MONDAY	Instruction begins for all students
JUNE 19—TUESDAY	Last day to add a course for the first term
JUNE 22—FRIDAY	Last day to add a course for the full quarter
JUNE 29—FRIDAY	Last day to submit applications for advanced credit examinations for first term

JULY 4—WEDNESDAY	Independence Day holiday
JULY 14—SATURDAY	Advanced credit examinations
JULY 18—WEDNESDAY	Final examinations and first term end
JULY 19—THURSDAY	Second term begins
JULY 20—FRIDAY	Last day to add a course for the second term
JULY 27—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 11—SATURDAY	Advanced credit examinations
AUG. 17—FRIDAY	Final examinations and second term end

## AUTUMN QUARTER, 1962

### REGISTRATION PERIOD

APR. 30—MAY 25	Advance Registration only for students in residence Spring Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
SEPT. 10-28	In-Person Registration for students in residence Spring Quarter, 1962, who did not complete Autumn Quarter, 1962, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
SEPT. 10-28	In-Person Registration for former students not in residence Spring Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is September 1.</i>
JULY 15	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointments will be mailed with Official Notice of Admission.
SEPT. 1	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
SEPT. 12-28	In-Person Registration for ALL new students.
SEPT. 28	Last day to register for Autumn Quarter, 1962. Note application deadlines.
OCT. 1-5	Change of registration by appointment only.

### ACADEMIC PERIOD

OCT. 1—MONDAY	Instruction begins
OCT. 5—FRIDAY	Last day to add a course
NOV. 1—THURSDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1963, due at Registrar's Office

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*Applications for Admission, Registration Appointments, or Permits received after the deadline for filing will not be considered for the quarter concerned.*

*Dates in this Calendar are subject to change without notice. Dates appearing in admission and registration instructions take precedence over those in this Bulletin.*

NOV. 12—MONDAY	State Admission Day holiday
NOV. 21—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 21-26	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 8—SATURDAY	Advanced credit examinations
DEC. 12-18	Final examinations
DEC. 18—TUESDAY	Quarter ends

## WINTER QUARTER, 1963

### REGISTRATION PERIOD

OCT. 29-Nov. 27	Advance Registration only for students in residence Autumn Quarter, 1962. A service fee of \$15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.
JAN. 2-4	In-Person Registration for students in residence Autumn Quarter, 1962, who did not complete Winter Quarter, 1963, Advance Registration. ALL must pick up a Registration Appointment or Permit to register at the Registrar's Office.
JAN. 2-4	In-Person Registration for former students not in residence Autumn Quarter, 1962. Appointments and Permits to register may be obtained by writing to or calling at the Registrar's Office. <i>Deadline for applying for Registration Appointments or Permits is December 1.</i>
DEC. 1	Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.
DEC. 20	Deadline for return to Student Health Center of the Health History and Physical Examination report form by all new students and former students who are returning after an absence of one or more calendar years.
JAN. 2-4	In-Person Registration for ALL new students.
JAN. 4	Last day to register for Winter Quarter, 1963. Note application deadlines.
JAN. 7-11	Change of registration by appointment only.

### ACADEMIC PERIOD

JAN. 7—MONDAY	Instruction begins for all students
JAN. 11—FRIDAY	Last day to add a course
FEB. 21—THURSDAY	Last day to submit applications for advanced credit examinations
FEB. 22—FRIDAY	Washington's Birthday and Founder's Day holiday
MAR. 9—SATURDAY	Advanced credit examinations
MAR. 15-21	Final examinations
MAR. 21—THURSDAY	Quarter ends

*For further information concerning subsequent quarters inquire at the Registrar's Office.*

**ADMINISTRATION****BOARD OF REGENTS**

JOHN L. KING, *President*  
 JOSEPH DRUMHELLER, *Vice-President*  
 MRS. A. SCOTT BULLITT  
 HERBERT S. LITTLE  
 ALBERT B. MURPHY  
 HAROLD S. SHEFELMAN  
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*Vice-Provost of the University*  
*Registrar*  
*Director of Admissions*  
*Dean of Students*  
*Dean of the School of Social Work*

**FACULTY OF THE SCHOOL OF SOCIAL WORK**

(As of September, 1960)

A single date following the name indicates the beginning of service in the University. When two dates are given, the second, in parentheses, is the date of the promotion to present academic rank.

Abrahamson, Arthur Clarence, 1956 (1959), *Associate Professor of Social Work*  
 B.A., 1942, Agustana College; M.A., 1947, Minnesota

Ferguson, Grace B., 1941 (1945) (1960), *Professor Emeritus of Social Work*  
 B.A., 1917, Minnesota; M.A., 1930, Indiana

Gronewold, David H., 1954 (1960), *Professor of Social Work*  
 B.A., 1929, North Central College; M.A., 1952, Chicago

Hanneman, Carl Fred, 1960, *Assistant Professor of Social Work*  
 B.A., 1949, Washington State University; M.A., 1951, Indiana University

Howery, Victor I., 1952 (1958), *Professor of Social Work*;  
*Dean, School of Social Work*

B.S., 1936, Wisconsin State College; Ph.M., 1946, M.S.W., 1948, Ph.D., 1949, Wisconsin

Hunt, Marguerite, 1949 (1960), *Professor of Social Work*  
 A.B., 1929, Brown; M.S., 1936, Western Reserve

Justice, Robert S., 1960, *Clinical Instructor of Social Work*  
 B.A., 1949, University of Puget Sound; M.S.W., 1955, Washington

Lawrence, Richard Glenn, 1956 (1960), *Assistant Dean and Assistant Professor of Social Work*  
 B.A., 1948; M.A., 1951, Iowa

MacDonald, Catherine J., 1945 (1954), *Assistant Professor of Social Work*  
 B.A., 1936, Washington

Macdonald, Robert W., 1960, *Visiting Assistant Professor of Social Work*  
 B.A., 1948, Manitoba; B.S.W., 1949, British Columbia; M.S.W., 1956, British Columbia

Maier, Henry W., 1959, *Associate Professor of Social Work*  
 A.B., 1947, Oberlin College; M.S.Sc., 1949, Western Reserve University;  
 Ph.D., 1959, Minnesota

Mundt, LeNora B., 1957 (1960), *Associate Extension Lecturer of Social Work*  
 B.S., 1944, Utah; M.S.W., 1950, Washington

Mykut, Margaret C., 1951 (1960), *Clinical Associate Professor of Social Work*  
 B.S., 1938, Oregon; M.S.W., 1944, Washington

- Northwood, Lawrence K., 1959, *Associate Professor of Social Work*  
B.A., 1947, Wayne University; Ph.D., 1953, Michigan
- Parrott, George E., 1960, *Extension Instructor of Social Work*  
B.A., 1950, College of Puget Sound; M.S.W., 1955, Washington
- Parsons, Jack R., 1955 (1957), *Associate Professor of Social Work*  
B.A., 1935, M.A., 1940, College of the Pacific; M.S., 1943, Columbia; Ph.D., 1958, Chicago
- Reiss, Grace Dewey, 1947 (1959), *Associate Professor of Social Work*  
B.A. 1932, Iowa; M.A., 1940, Minnesota
- Smith, Edmund Arthur, 1957 (1959), *Assistant Professor of Social Work*  
B.A., M.A., 1954, Washington; Ph.D., 1957, Harvard
- Stutsman, Louise M., 1956 (1959), *Assistant Professor of Social Work*  
B.A., 1940, Cornell College; A.M., 1949, Chicago
- Walter, Edward D., 1953 (1957), *Associate Professor of Social Work*  
B.A., 1940, Carleton College; M.S.W., 1951, Southern California
- Webb, Gerald K., 1959, *Visiting Assistant Professor of Social Work*  
B.A., 1953, British Columbia; B.S.W., 1954, British Columbia; M.S.W., 1955, British Columbia

## AFFILIATED FACULTY FROM OTHER UNIVERSITY DEPARTMENTS

- Gose, J. Gordon, 1944 (1946), *Professor of Law*  
A.B., 1926, Whitman College; LL.B., 1929, Washington; LL.D., 1956, Whitman College
- Heilbrunn, Gert, *Clinical Associate Professor of Psychiatry*  
B.A., 1929, City College of Nuremberg; M.D., 1935, Bern (Switzerland)
- Kaufman, S. Harvard, *Clinical Associate Professor in Psychiatry*  
B.S., 1934, M.D., 1936, Wisconsin
- Schwartz, Lawrence H., *Clinical Instructor in Psychiatry*  
M.D., 1949, Duke
- Rieke, Luvern V., 1949 (1956), *Professor of Law*  
B.S., 1948, LL.B., 1949, Washington; LL.M., 1953, Chicago; LL.D., 1959, Pacific Lutheran University
- Strother, Charles Riddell, *Professor of Psychology in the College of Arts and Sciences, and Professor of Clinical Psychology in the School of Medicine*  
B.A., 1929, M.A., 1932, Washington; Ph.D., 1935, Iowa
- Stevens, George Neff, 1952, *Dean of the School of Law; Professor of Law*  
A.B., 1931, Dartmouth College; LL.B., 1935, Cornell; M.A., 1941, Louisville; S.J.D., 1951, Michigan
- Trautman, Philip A., 1956 (1959), *Associate Professor of Law*  
B.A., 1952, LL.B., 1954, Washington

## LIBRARY AND ADMINISTRATIVE STAFF

- Carlson, Edith, *Administrative Secretary*  
Persson, Pat, *Secretary to the Dean, Assistant Dean, and Admissions Secretary*  
Humes, Guela G., *Library Supervisor*

## FIELD TEACHING CENTERS

### Board of Prison Terms and Paroles:

- Harris G. Hunter, *Chairman*  
Robert G. Austin, *Chief Probation and Parole Officer*  
Donald Rinehart, M.S.W., *Training Consultant*

### Juvenile Court of King County:

- William Long, *Judge*  
Robert F. Utter, *Court Commissioner*  
Carl Erickson, *Director*  
Richard Buckland, M.S.W., *Assistant Director*  
Elizabeth Toth, M.S.W., *Field Instructor*

**Seattle Public Schools:**Ernest Campbell, *Superintendent*Lyle Stewart, *Assistant Superintendent**Department of Guidance Services*Hildegarde Berthiaume, *Director*Amorette Richards, *Director, School Social Service Section*Tom Cooney, M.S.W., *Field Instructor*Sylvia LaForrest, M.S.W., *Field Instructor***State Department of Institutions:**Garrett Heyns, Ph.D., *Director***Bureau of Juvenile Rehabilitation:**Maurice Harmon, M.S.Sc., *Chief**Juvenile Parole Services*Lloyd Bates, *Supervisor**Seattle District Office of Juvenile Parole*W. Richard Philpott, *Supervisor*Dan Jensen, M.S.W., *Training Consultant**Bureau for Handicapped Children*Van R. Hinkle, *Supervisor**Rainier School, Buckley, Washington*Wesley White, Ed.D., *Superintendent*Emilie Johnson, M.S.W., *Director, Social Service Department*Peggy Luening, M.S.W., *Training Consultant**Lakeland Village, Medical Lake, Washington*L. F. Mason, *Superintendent*Eugene Garms, M.S.S.W., *Director, Social Service Department*Lois Wallace, M.S.W., *Training Consultant***State Department of Public Assistance:**George Starlund, *Director*Marion Wold, M.S.W., *Supervisor of Training**King County Office, State Department of Public Assistance*Leonard Hegland, *Administrator**Children's Services Unit*Marianna Kyle, *Supervisor*Marjorie Foster, M.S.W., *Training Consultant**South District Branch Office*Phyllis Verhuel, *Supervisor*Adele von Lubken, M.S.W., *Training Consultant***University of Washington, University Hospital:**LeRoy Rambeck, B.A., *Administrator*Margaret Mykut, M.S.W., *Director, Department of Social Services*Robert S. Justice, M.S.W., *Coordinator for Social Work Education*Doris Carrington, M.S.W., *Field Instructor*Bertha L. Doremus, M.A., *Field Instructor*Charlotte Koff, M.S., *Field Instructor***FIELD INSTRUCTORS AND AFFILIATED AGENCIES**Adams, Roberta, *Washington Children's Home Society*  
M.S.W., WashingtonAllen, Allethia, *Florence Crittenton Home*  
M.S.W., BostonAllred, James, *Spastic Children's Clinic and Pre-School*  
M.S.W., Washington

- Barquist, Pauline, *Medina Children's Home*  
M.S.W., Washington
- Broad, Audrey E., *Travelers Aid Society*  
M.S., Columbia
- Carrington, Doris, *Child Psychiatry, University Hospital*  
M.S.W., Washington
- Cooney, Tom, *Seattle Public Schools*  
M.S.W., Washington
- Dallas, Constance, *Catholic Children's Services, Tacoma*  
M.S.W., Washington
- Dick, Luther, *Community Psychiatric Clinic*  
M.S.W., Washington
- Doremus, Bertha, *Social Service, University Hospital*  
M.A., Chicago
- Eby, Lenna, *Firland Sanitorium*  
M.S.W., Washington
- Edwards, Burdette, *Fircrest School*  
M.S.W., Washington
- Ellis, Jack, *Bremerton Child Guidance Clinic*  
M.S.W., British Columbia
- Farber, Arthur, *Galland (Carolyn Kline) Home for the Aged*  
M.S., Columbia
- Farley, Dorothy, *Ruth School for Girls*  
M.S.W., California
- Foster, Marjorie W., *King County Public Assistance (North End Branch)*  
M.S.W., Southern California
- Garvey, Alice, *Maple Lane School*  
M.S.W., Washington
- Grant, Gordon, *Luther Burbank School*  
M.S.W., British Columbia
- Haggerty, Marie, *Ryther Child Center*  
M.S.W., Washington
- Jensen, Dan, *Seattle Area Juvenile Parole*  
M.S.W., Washington
- Justice, Robert S., *Clinic for Child Study (University of Washington)*  
M.S.W., Washington
- Kazama, Donald, *Veterans Administration (Social Service)*  
M.S.W., Washington
- Koff, Charlotte, *Social Service, University Hospital*  
M.S., New York School of Social Work
- La Forrest, Sylvia, *Seattle Public Schools*  
M.S.W., Washington
- Luening, Peggy, *Rainier School*  
M.S.W., Washington
- Lundelius, Rhesa M., *Eastern State Hospital, Spokane*  
M.S.W., Smith
- Markman, Abe, *Atlantic Street Center*  
M.S.S., New York University
- McLeod, Margaret, *Children's Orthopedic Hospital*  
M.S.W., Washington
- Miller, Clementine M., *U.S. Veterans Hospital*  
M.S.W., Washington
- Miller, Sidney, *Ryther Child Center*  
M.S.W., Washington
- Minton, Sue, *Ruth School for Girls*  
M.S.W., Washington
- Morton, Margaret, *Fort Worden Diagnostic and Treatment Center*  
M.S.W., Utah



- Murphy, James, *Federal Penitentiary, McNeil Island*  
M.S.W., Washington
- Nelson, Robert D., *Veterans Administration (Mental Hygiene)*  
M.S.W., Washington
- Newkirk, Jeanne, *YWCA*  
M.S.W., Connecticut
- Parrott, George, *Western State Hospital, Fort Steilacoom*  
M.S.W., Washington
- Pratt, Bettye, *Neighborhood House*  
M.S.W., Atlanta
- Pratt, Edwin, *Seattle Urban League*  
M.S.W., Atlanta
- Rackow, Bernard, *Jewish Family and Child Service*  
M.S.W., Carnegie Institute of Technology
- Rank, Betty, *Tallmadge Hamilton House*  
M.A., California
- Rinehart, Donald, *Board of Prison Terms and Paroles*  
M.S.W., Washington
- Simester, Patricia, *Veterans Administration (Mental Hygiene)*  
M.S.W., Washington
- Squires, Melvina, *Catholic Children's Service, Seattle*  
M.S.W., Washington
- Swartz, Irene, *Family Society*  
M.S.W., Washington
- Toth, Elizabeth, *Juvenile Court*  
M.S.W., Washington
- von Lubken, Adele, *King County Public Assistance (South End Branch)*  
M.S.W., Denver
- Wallace, Lois, *Lakeland Village, Spokane*  
M.S.W., Washington
- Webber, Fred, *Parkland Children's Home*  
M.S.W., British Columbia
- Weisman, Jane, *American Red Cross*  
M.S.W., Washington
- Wood, Vivian, *Tacoma Public Schools*  
M.S.W., Washington

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#### CHANGES IN UNIVERSITY REGULATIONS

*The University and its colleges and schools reserve the right to change the fees, rules, and calendar regulating admission and registration, instruction in, and graduation from the University and its various divisions, and to change any other regulations affecting the student body. Changes shall go into force whenever the proper authorities so determine, and shall apply not only to prospective students but also to those who at that time are matriculated in the University. The University also reserves the right to withdraw courses at any time.*

*A graduate student must satisfy the requirements for an advanced degree which are in force at the time the degree is to be awarded.*



## GENERAL INFORMATION

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# GENERAL INFORMATION

**T**HE SCHOOL OF SOCIAL WORK was established in March, 1958, by the Board of Regents of the University of Washington. Prior to this date, instruction in social work was offered through the Graduate School of Social Work, a division of the Graduate School of the University.

Instruction in social work was first offered at the University in 1919 under the Department of Sociology. The Graduate Division of Social Work was established in 1934, and in 1939 it became the Graduate School of Social Work under the Graduate School. The School of Social Work was recognized as an independent professional school in 1958. It is fully accredited by the Accreditation Commission of the Council on Social Work Education.

## PHILOSOPHY AND OBJECTIVES

The School of Social Work provides educational activities for: (1) an undergraduate curriculum in Social Welfare through affiliation with the Division of General Studies, College of Arts and Sciences; (2) a post-baccalaureate (graduate) professional curriculum preparing for positions of professional social work responsibility in public and private agencies; (3) a program of courses in the field of social welfare for graduate-level students in other units of the University; (4) a program of courses in the field of social welfare for students enrolled in the adult evening classes program; (5) a program of short courses, institutes, and workshops for professional practitioners who enroll in such postgraduate activities as the means to improve professional competence; (6) a program of courses, seminars, institutes, and workshops for staff members of social welfare agencies whose interests are allied to the professional practice of social work.

An on-going research program is conducted by members of the faculty and students.

The professional curriculum, one of the major program responsibilities for the School of Social Work, provides an educational experience which has been designed to prepare students:

- a. To help individuals, groups, or communities with what are to them unsatisfying social situations or with what are to society unsatisfactory social situations. These are social situations where:
  - (1) an individual, groups, or community is dissatisfied with his or its performance;
  - (2) an individual, group, or community violates explicitly stated requirements of society.
- b. To expand the knowledge upon which social work practice is based.
- c. To record and impart social work knowledge pertinent to social welfare.

## **ADMISSION TO THE GRADUATE SCHOOL AND THE SCHOOL OF SOCIAL WORK**

Admission to the graduate professional program of the School of Social Work requires formal admission to the Graduate School, as well as acceptance by the School of Social Work.

Properly qualified students who are graduates of the University of Washington, or of other accredited colleges or universities, may be admitted in one of the following classifications.

### **FULL STANDING**

To qualify for full standing an applicant must have a standard bachelor's degree from an accredited institution, a grade-point average of no less than 3.00 (B) in the senior year, and the undergraduate preparation necessary to successfully complete the work required for the advanced degree in his chosen field.

### **PROVISIONAL STANDING**

A student with a grade-point average of less than 3.00, but above 2.75 in his senior year, may apply for admission with provisional standing in the Graduate School. No student with a grade-point average lower than 2.75 for the senior year may be admitted to the Graduate School, except on written recommendation of the School of Social Work at this University, and the approval of the Dean of the Graduate School. An undergraduate deficiency in preparation for advanced study will result in provisional standing if admitted.

Graduates of nonaccredited institutions presenting standard bachelor's degrees and meeting the scholastic requirements, also may apply for provisional standing, provided the institutions attended are of similar organization to this University and offer a standard program of study which may eventually lead to accreditation by the Regional Accrediting Association. Such applicants require special approval by the Dean of the Graduate School.

Provisional standing may be changed to full standing upon successfully completing two quarters of acceptable graduate work which is fully applicable toward an advanced degree. Students may not, however, become candidates for advanced degrees while in a provisional status.

### **APPLICATION PROCEDURE**

Admission to the School of Social Work is accomplished through:

- a. the filing of an application for admission to the Graduate School and credentials with the University's Office of Admissions, and
- b. the filing of a second special application form and other credentials with the School of Social Work, and
- c. arranging for an interview with a representative of the School of Social Work.

The necessary application forms, which are self-explanatory, may be obtained from the University's Office of Admissions and the School of Social Work, respectively. Complete credentials, as indicated, must be filed prior to the following dates in order to be assured of consideration for admission to the quarter for which

application is being made: August 1 for Autumn Quarter, 1961, and July 15 for subsequent Autumn Quarters; December 1 for Winter Quarter; March 1 for Spring Quarter; May 15 for Summer Quarter.

When the required application forms and credentials have been received and evaluated, the applicant will be notified of his admission status. Students wishing an unofficial evaluation of their transcripts and advanced information regarding their eligibility for admission may submit credentials in the spring term preceding graduation.

All records become a part of the official file and can neither be returned nor duplicated for any purpose. Failure to submit complete credentials will be considered a serious breach of honor, and may result in permanent dismissal from the University.

A leaflet giving general information and instructions for registration is mailed with the Notice of Admission. In the event of a discrepancy, instructions in the leaflet supersede those found in earlier publications. *The University assumes no responsibility for students who do not apply the information or observe the instructions given in the leaflet, or for applicants who come to the campus before they have been officially notified of their admission.*

*The admissions credentials of applicants who do not register for the quarter to which they have been admitted are normally retained in the Office of Admissions for a period of one year from the date of application. At the end of this period, credentials on file are discarded unless the applicant has notified the Office of his continued interest in attending the University, or of his enrollment in the Evening Classes program. Should a student wish to renew his application after the one-year lapse, he must submit new credentials in advance of the date given above for the quarter desired.*

A student entering the University for the first time is required to submit to the Student Health Service (Hall Health Center) a form containing his health history and a report of a physical examination by a physician. The Office of Admissions will send new students the form and necessary instructions. See page 23.

#### UNIVERSITY OF WASHINGTON STUDENTS

University of Washington graduates apply for admission in the same manner and satisfy the same requirements as students completing their baccalaureate degrees at other schools. They may obtain the appropriate forms from the Office of Admissions and the School of Social Work.

University of Washington students who are within 6 credits of completing their undergraduate work, and who otherwise meet the requirements for admission to the Graduate School with full standing, may register the quarter just prior to admission to the Graduate School for as many as 6 credits in graduate courses. This is in addition to their 6 credits of undergraduate work. Although this dual registration must receive prior approval by the Graduate School, students concerned will not be reclassified as graduates until the bachelor's degree has been granted and after official admission to the Graduate School. Only under these circumstances may graduate work taken as an undergraduate be applied toward an advanced degree.

Former students of the University of Washington who were not in residence the preceding Spring Quarter are given until September 15 to file complete credentials for an Autumn Quarter application. However, *the special application form must be filed with the School of Social Work before August 1.*

#### VETERANS

Veterans and children of deceased veterans should meet the general admission criteria and follow the general procedures outlined for all applicants. Applications

for and questions about government aid should be addressed to the Veterans Division Regional Office.

#### FOREIGN STUDENTS AND STUDENTS EDUCATED ABROAD

Foreign students are admitted and satisfy the same requirements as American students, but must file their credentials six months before the opening of the quarter in which they wish to enroll. They must demonstrate a satisfactory proficiency in the English language.

#### WORLD WAR I OR II VETERANS

Under certain conditions a veteran who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges. See page 25.

#### KOREAN VETERANS

A Korean veteran under Public Law 550 should obtain admittance to the University prior to making application for a Certificate for Education and Training, thus eliminating the chance of obtaining a certificate valid for an incorrect degree. If the veteran has any questions regarding application for a certificate, he should consult the Veterans Division, Safety Division Building. Educational allowance payments are made directly to the veteran by the Veterans Administration after the veteran and institution submit a monthly attendance certification.

##### Korean Certificate

Application for this certificate should be made at least four weeks prior to the beginning of University instruction. If the veteran is eligible, the Veterans Administration will issue him a Certificate for Education and Training which must be presented, along with his Program of Studies, to the Veterans Division, Safety Division Building as soon as registration is completed. A Korean veteran should be prepared to meet all his own expenses as well as the cost of tuition, fees, and supplies for at least two months, because allowances are not made until after a full month's attendance has been established.

##### Quarter Credit Requirements (Public Law 550)

14 credits .....	Full subsistence
10 to 13 credits.....	Three-fourths subsistence
7 to 9 credits.....	One-half subsistence
6 credits or less.....	Established tuition and fees or credits $\div 14 \times \$110.00$ , whichever is the lesser.

##### Graduate Credit Requirements (Public Law 550) 500-level Courses or Above

9 credits .....	Full subsistence
7 to 8 credits.....	Three-fourths subsistence
5 to 6 credits.....	One-half subsistence
4 credits or less.....	Established tuition and fees or credits $\div 14 \times \$110.00$ , whichever is the lesser.

*If a graduate is combining 400-level courses with 500-level courses, he should consult with the Veterans Division, Safety Division Building, to determine the scale of pay.*

##### Termination of Training

A veteran *eligible* under Public Law 550 must complete his training by *eight years* after his release from active service, or by January 31, 1965, whichever is earlier.

#### DISABLED VETERANS

A veteran with a disability under Public Law 894 should contact a training officer in the nearest Veterans Administration Office approximately four weeks prior to registration.

**CHILDREN OF DECEASED VETERANS**

Public Law 634 grants federal benefits to children of deceased veterans of World War I, World War II, or the Korean Conflict who died as a result of injury or disease incurred or aggravated while in the service. Information regarding eligibility under this law should be requested from a Veterans Administration Regional Office.

The Certificate for a Program of Education issued to those eligible persons by the Veterans Administration is to be presented to the Veterans Division, Safety Division Building, on the date of registration.

**MEDICAL EXAMINATION**

A student entering the University for the first time, or returning to the University after an absence of more than one calendar year, or who has previously attended Summer Quarter classes but is entering regular University classes for the first time, is required to submit to the Student Health Service (Hall Health Center) a form containing his health history and a report of a physical examination by a physician. The form will be sent to new students by the Office of Admissions and to returning former students by the Registrar. This examination, which is required before a student may register, is taken at the student's expense. A chest X ray, also required of the above students, is given at the Student Health Service without charge.

With the exception of Canadian students, who will follow the above instructions, foreign students must take the required physical examination at the Student Health Service when they arrive on the campus.

**REGISTRATION****REGULAR STUDENTS**

A regular student is a student who fulfills the following requirements: (1) he has been granted admission to the Graduate School and the School of Social Work; (2) his current Program of Studies is satisfactory to the Dean of the School of Social Work; (3) he has received medical clearance, and has completed his registration, including payment of tuition and fees, the filing of class cards, and the depositing of registration materials at Sections.

**PART-TIME STUDENTS**

Insofar as resources permit, the School of Social Work attempts to meet the needs of employed social workers in the community for part-time and/or continued study. Those persons meeting requirements for admission as regular students may take selected courses from the graduate curriculum for credit. Students who expect to use graduate credit accruing from part-time work must apply for admission and have admissibility established, to be assured that work satisfactorily completed may be credited toward degree requirements. Some of the advanced courses in the curriculum may be taken by graduates of schools of social work who wish "refresher courses."

Professional seminars are offered regularly for employed social workers. It is assumed that all who register for these seminars have completed the professional curriculum. Through the professional seminars, employed social workers may meet their need for continued study. Institutes and workshops on selected topics are regularly offered. In general, workshops and institutes are developed following requests from professional membership groups and/or employing agencies.

**PROCEDURE**

Each regular student will receive directions for registration from the Office of the School of Social Work. *Course programming and directions on registration in classes issued by the School of Social Work substitute for the registration appointment and directions incident thereto issued by the Registrar's Office. Directions pertaining to the payment of fees issued by the Registrar's Office are to be followed by social work students.*

**ADVISING**

Each accepted applicant to the School of Social Work will be assigned a faculty adviser. Notification of adviser assignments is included with the registration materials forwarded to the student from the Office of the School of Social Work about September 1 preceding the opening of the Autumn Quarter.

**REGISTERED CREDITS ALLOWED EACH QUARTER**

A total of 15 credits per quarter is regarded as the maximum load in graduate work; 12 credits constitute a normal load. The programs of students employed in the University or elsewhere will be limited; such students must discuss their schedules with the Dean when they register. Students who are employed full time cannot register for more than 6 credits.

Only courses numbered 400, 500, and 600 in the major field can be applied to credit for advanced degrees. Courses numbered 300 are not applicable to credit toward advanced degrees, except when applied by permission toward the graduate minor, or as supporting courses.

**CHANGES OF REGISTRATION**

After students have registered, they cannot change their schedules except with permission of the School of Social Work and the Dean of the Graduate School. No student is permitted to make a registration change that involves entering a new course after the first calendar week of the quarter. After that time no student may register without the consent of the Dean of the Graduate School, the Office of the School of Social Work, and the instructor whose class the student wishes to enter.

**WITHDRAWAL FROM A COURSE**

Official withdrawal from a course is made only under the following conditions: (1) during the first fifteen calendar days of a quarter, with the consent of the withdrawing student's adviser; (2) after the first fifteen calendar days of a quarter and before the end of the first six calendar weeks of a quarter, with the approval of both the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing student is enrolled; and (3) after the first six calendar weeks of a quarter and before final examination week, only upon certification in writing to the Registrar by the dean of the college in which the withdrawing student is enrolled that, in the judgment of the dean, withdrawal is necessitated by the student's hardship. Withdrawals from courses accomplished by any other method are unofficial withdrawals which are entered on a student's record as EW, and are assigned the value of E in the computation of the student's grade-point average. No official withdrawal may be made during final examination week.

Official withdrawals are entered on a student's record as follows: (1) a withdrawal within the first fifteen calendar days of a quarter, as W; (2) a withdrawal after the first fifteen calendar days of a quarter, as PW, if the student's work has been satisfactory, and as E, if the student's work has been unsatisfactory. Grades of PW and W are assigned no value in the computation of grade-point averages.

**WITHDRAWAL FROM THE UNIVERSITY**

The student should obtain at the office of the Dean of the Graduate School the "Request for Withdrawal From the University" form. The same system of grading applies as that described under Withdrawal From a Course.

**SCHOLASTIC PERFORMANCE**

Students are expected to make satisfactory progress toward degree requirements. Each student must present 72 quarter credits of passing work, of which 65 quarter credits must be of B work or better. Each student must maintain a grade-point average of B in all courses numbered 300 and above. If a grade of less than B is received in one of the prescribed or elective courses, the student is automatically



issued an academic warning. If the student's record indicates that he is not making satisfactory progress toward the requirements enumerated above, he may be placed upon academic probation. If work in succeeding quarters is satisfactory, the student is automatically removed from probation. If the student is placed on probation in successive quarters, he may be dropped from the School of Social Work.

## TUITION AND FEES

All tuition and fees are payable at the time of registration. The University reserves the right to change any of its fees without notice.

Principal fees for each quarter (Autumn, Winter, and Spring) are listed below. Summer fees are listed in the *Summer Quarter Bulletin*.

Each student enrolled in Social Work 515 or Social Work 535 (Field Instruction and Advanced Field Instruction) pays a laboratory fee of \$15.00 per academic year.

### Tuition

Resident students, per quarter \$35.00

A resident student is one who has been domiciled in Washington for at least a year immediately prior to registration. The domicile of a minor is that of his parents.

Nonresident students, per quarter 105.00

Prospective students are classified as nonresidents when their credentials come from schools outside Washington. If they believe they are residents, they may petition the Residence Classification Office, 205A Administration Building, for a change of classification.

Auditors, per quarter 12.00

Veterans of World War I or II

Exemption from tuition charges is granted resident students who either (1) served in the United States Armed Forces during World War I and received honorable discharges; or (2) served in the United States Armed Forces during World War II at any time after December 6, 1941, and before January 1, 1947, and received honorable discharges, but are no longer entitled to federal educational benefits; or (3) are United States citizens who served in the armed forces of governments associated with the United States during World Wars I or II and received honorable discharges. Nonresident students who meet one of these requirements pay one-half of the nonresident tuition. This exemption is not granted to Summer Quarter students.

Proof of eligibility should be met as follows:

- (1) World War I veterans should present copy of discharge papers to Comptroller's Office, 203 Administration Building.
- (2) World War II veterans with Korean service or who have suffered disability should present a letter from the Veterans Administration Regional Office to the Veterans Division, Safety Division Building, stating they are no longer eligible for any federal educational benefits. (Excepted are those veterans who have had both World War II benefits and Korean benefits and have expired those benefits at the University of Washington.)
- (3) World War II veterans who have not suffered any disability or served in the Korean Conflict should present an 8½-inch x 11-inch photostat of discharge papers to the Veterans Division, Safety Division Building.

*Exemption must be cleared prior to student's appointment day for registration in order to prevent personal payment.*

### Incidental Fee, per quarter

Full-time resident students 27.50

Part-time resident students (registered for 6 credits or less) 10.00

Full-time nonresident students 52.50

Part-time nonresident students (registered for 6 credits or less) 35.00

Auditors do not pay an incidental fee; there are no other exemptions.

### ASUW Fees

Membership, per quarter 8.50

Optional for auditors, part-time students, and persons registered for thesis only or degree final only.

Athletic admission ticket (optional for ASUW members) 3.50-6.50

Ticket for Autumn, Winter, and Spring Quarters, \$6.50; for Winter and Spring Quarters only, \$3.50; for Spring Quarter only, \$3.50.

***Thesis Only Fee*** 27.50

Those registered for thesis only (for credit or final) must be certified by the Dean of the Graduate School and are required to pay this fee and any laboratory breakage charge. ASUW fee, optional.

***Degree Final Only Fee*** 27.50

Nonthesis students registered for degree final only must be certified by the Dean of the Graduate School and are required to pay this fee and any laboratory breakage charge. ASUW fee, optional.

***Grade Report Fee*** .50

One grade report will be issued each quarter without charge; the fee, payable in advance, is charged for each additional copy.

***Transcript Fee*** 1.00

One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy.

***Thesis Binding and Publication Fee***

Master's degree candidates 2.00

The fee covers the cost of binding one copy for the University Library.

Doctor's degree candidates 25.00

The fee covers the cost of binding manuscript copies for the University Library and the cost of microfilm publication.

***Diploma Fee*** 5.00**SPECIAL FEES**

A registration service fee of \$15.00 is charged those students: (1) eligible for Advance (mail) Registration who fail to participate; or (2) who, after the established application deadline, are granted Appointments or Permits to register by In-Person Registration by action of the Registration Appeal Board. A late registration fee of \$15.00 is charged any student granted permission to register after the last registration day before the opening of Autumn, Winter, and Spring Quarters by action of the Registration Appeal Board. A fee of \$5.00 is charged Autumn, Winter, and Spring Quarters for each change of registration or change of section or number of changes which are made simultaneously, except that there is no charge when the change is made on the initiative of the University. The fee for a special examination is \$1.00 and for removal of an Incomplete, \$2.00.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter, are: bowling, \$5.00; canoeing, \$3.00; golf instruction, \$1.50.

**REFUND OF FEES**

All major fees will be refunded in full if complete withdrawal is made during the first three calendar days of the quarter; one-half the amount will be refunded if withdrawal is made during the first thirty calendar days. Fee refunds are not made to students withdrawing under discipline.

Applications for refund may be refused unless they are made during the quarter in which the fees apply.

At least two weeks must elapse between payment and refund of fees, if payment was made by check.

**ESTIMATE OF YEARLY EXPENSES**

The figures given here are minimum estimates for an academic year, which includes Autumn, Winter, and Spring Quarters. Living costs and personal expenses vary widely with the needs of the individual student.

## GENERAL INFORMATION

27

### *Tuition, Incidental, and ASUW Membership Fees*

Full-time resident student	\$213.00
Full-time nonresident student	498.00

*Athletic Admission Ticket* (optional) 6.50

*Health and Accident Insurance* (optional) 16.50

### *Special Fees and Deposits*

Breakage ticket 15.00

*Books and Supplies* 70.00

### *Board and Room*

Room and meals in Men's Residence Halls 675.00

Room and meals in Women's Residence Halls 615.00-720.00

Room and meals in fraternity or sorority house 670.00-760.00

(Including dues and special fees.)

Initial cost of joining is not included; this information may be obtained from the Interfraternity Council or Panhellenic Council.

*Personal Expenses* 300.00

## STUDENT ACTIVITIES AND SERVICES

### STUDENT SOCIAL WORK CLUB

All students enrolled in the professional curriculum in social work are eligible for membership in the Student Social Work Club. Through participation in the Club program and committee work, students have an opportunity to participate in activities which are pertinent to their professional career interests. The Club serves as sponsor of several social events.

### SCHOLARSHIP AWARDS, FELLOWSHIPS, AND LOANS

Social work students are eligible to receive a number of awards for outstanding achievement. Awards are made on the basis of past academic record and professional promise. Financial need is a part of the Faculty Scholarship Committee's consideration, if the foregoing factors place the student in a competitive position for an award. The School of Social Work participates with agencies and foundations in making many awards of varying amounts available to students who are in attendance at the School. Awards run from approximately \$300 per academic year to \$2,400 per academic year.

Scholarships and loans through the University are also available. Information may be obtained by writing to the Office of the Dean of Students, University of Washington.

The University of Washington also awards 100 tuition scholarships each academic year to worthy students from other countries. There are no scholarships available for the Summer Quarter. These awards are made on the basis of the academic record of the student, recommendations from his professors, his need for such assistance, and the availability of such openings in his department at the University. These scholarships cover tuition only and are administered by the Foreign Exchange Scholarship Committee, Foreign Students Office, University of Washington, Seattle 5, Washington, U.S.A. Application for these scholarships must be made by March 1 for the following year.

Social work students may apply for loans from the Mildred Buck Loan Fund, which was established for social work students by friends of the School of Social Work.

Some of the awards annually made under the administration of the School of Social Work Faculty Scholarship Committee are:

CROWN ZELLERBACH FOUNDATION SCHOLARSHIP AND FELLOWSHIP AWARDS,  
\$1,200 and \$600.

VOCATIONAL REHABILITATION SCHOLARSHIP AWARDS, from \$1,800 to \$2,000. FLORENCE MARY HAMMOND MEMORIAL SCHOLARSHIP, at least one award of \$1,800.

Interest in applying for a scholarship award, fellowship, or training stipend should be indicated on the application form submitted to the School of Social Work or by letter to the Chairman of the Faculty Scholarship Committee. In turn, the interested student will receive a listing of available financial aids from the Chairman of the Committee. Scholarship awards are made annually about the middle of May.

#### OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is concerned with the general welfare of students and welcomes correspondence and conferences with both parents and students. The Office works closely with the advisory system of the colleges and schools of the University; it directs students to faculty advisers, the Counseling Center, and other persons and agencies offering information and assistance with personal and similar problems. The Dean of Students Office also has current information on Selective Service Regulations.

The Foreign Students Office operates through the Office of the Dean of Students. The Foreign Student Adviser and his staff offer guidance on all nonacademic problems to students from other countries. Questions about immigration regulations, housing, social relationships, personal problems, finances, minimum course requirements, and employment should be referred to this Adviser. Students who are interested in study abroad may obtain from him information about schools in other countries and about Fulbright and other scholarships.

#### COUNSELING CENTER

The Counseling Center in Lewis Hall Annex offers vocational and educational counseling to students who need help in their adjustments to college. The staff of the Center, which includes vocational counselors and psychologists, works closely with other student services and supplements the academic advisory program.

#### HOUSING

Information and applications for residence in University-owned housing for single persons may be obtained by writing to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, or to the Manager, Women's Residence Halls, University of Washington, Seattle 5. Preference in assignment to vacancies is given to students under twenty-one years of age until August 1; thereafter assignments are made in the order of application. Prospective students may apply for the residence halls prior to their acceptance by the University but not before April 15.

University regulations require that women students under twenty-one who do not live at home must live in approved group residences such as the Women's Residence Halls, sororities, and church-sponsored living groups. Other types of living arrangements must be reported to the Dean of Women and be approved by the student's parents or guardian.

Information about fraternities or sororities may be obtained by writing to the Interfraternity Council or the Panhellenic Council, Student Union Building, University of Washington, Seattle 5.

The Office of Student Residences maintains listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses which are available to University students. These listings must, however, be consulted in person.

Teaching and research assistants and other part-time sub-faculty personnel are given first priority for assignment to University-owned housing facilities for married students. Second preference for assignment to Union Bay Village or Sand Point Homes is given to graduate, medical, dental, and law students who have children. Prospective students are eligible to apply when they have been accepted

for admission. Write to the Office of Student Residences, 23 Administration Building, for further information and application forms.

A complete statement of University housing policy appears in the *Student Handbook of University Rules and Regulations* and the *Housing Bulletin*.

#### HEALTH SERVICES

The University maintains a health service and infirmary to help guard against infectious diseases and incipient ill health.

The infirmary receives bed patients at any hour and provides nursing care, medicines, and the attendance of a staff doctor up to one week each quarter free of charge. For a period longer than one week, a charge of \$2.00 a day is made. At their own expense, infirmary patients may consult any licensed physician in good standing.

Health and Accident Insurance for students is available at the time of registration.

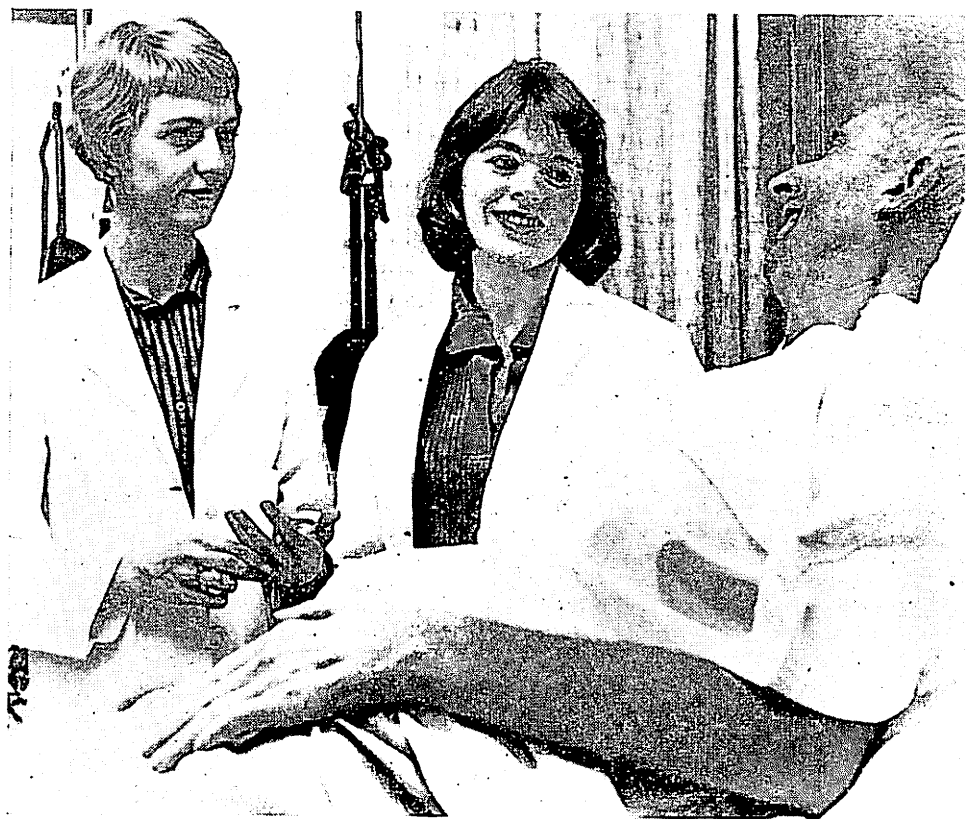
#### EMPLOYMENT

Information concerning part- and full-time work off campus may be obtained through the University Placement Office. Applications are accepted from students or graduates of the University and from the wives or husbands of University students. Applications must be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Department and by the ASUW Personnel Office.

Listings of part-time work in social agencies in the community are included in placement files within the School of Social Work. Faculty advisers are in a position to help students find part-time work.

#### PLACEMENT AFTER GRADUATION

Because of the critical shortage of professionally prepared social workers, employment opportunities for graduates are numerous. Position vacancies in agencies and organizations in the immediate geographical region are maintained in a placement file within the library of the School of Social Work. All agencies and organizations in the region are encouraged to list their vacancies with the School of Social Work. A file of announcements of position vacancies nationwide and in foreign countries is maintained as received through the initiation of the agencies-seeking staff. Representatives of major agencies visit the campus each year to recruit graduating students. Students are encouraged to interview agency representatives.



## THE SOCIAL WORK PROGRAMS

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# THE SOCIAL WORK PROGRAMS

## UNDERGRADUATE CURRICULUM IN SOCIAL WELFARE

The School of Social Work offers a program leading to an undergraduate major in Social Welfare in collaboration with the Division of General Studies of the College of Arts and Sciences. Students planning to undertake professional study in social work, students who are interested in appointment to social welfare positions which do not require professional education, and students who wish a liberal arts background with a concentration in the social sciences and social welfare, may fulfill their interests by enrollment in the Division of General Studies, College of Arts and Sciences. Through this program, the student may complete the recommended curriculum for a well-rounded preparation in the social sciences, including at least 10 credits in each of the following fields: anthropology, sociology, history, psychology, philosophy, political science, and economics. Three social welfare courses (13-15 credits) are required for students majoring in the undergraduate social welfare curriculum. Educational advising for this curriculum is provided by staff of the Office of the Division of General Studies and/or the Director of the undergraduate curriculum in the School of Social Work. Members of the faculty of the School of Social Work are available to advise students on their career interests and career planning in professional social work.

## COURSES

- 300 Survey of Social Service Programs (3)** **Lawrence, Staff**  
A survey of social welfare programs in the United States. Exploration of the principles and practices in the use of these programs to meet human needs. Prerequisite, upper-division standing. (Offered in evening classes and summer programs only.)
- 391 Supervised Study (2-6, maximum 6)** **Lawrence**  
Specialized and supervised academic and field study in an agency of a selected social welfare problem.
- 400 Field of Social Welfare (5)** **Lawrence, Parsons**  
The origin, development, and present status of social service programs, with particular emphasis on the relationship of program resources, human needs, and the methods through which services are provided. Prerequisite, upper-division standing.
- 401 Principles of Interviewing (2)** **Lawrence, Reiss**  
The interview as a basic method in helping people. Analysis of interviews from case records with the objective of identifying the processes and techniques of skillful interviewing; ways in which the purpose and setting of the interview influences its nature and course. Prerequisite, upper-division standing.

## REFRESHER COURSES

Refresher courses are offered each Summer Quarter for students who have earned a professional degree, but for whom there has been a lapse in professional practice. These courses are specifically helpful to students who have completed one year of post-baccalaureate professional study in an accredited school of social work and who wish to return for continued study leading to the professional degree. For students whose previous social work education was completed six years before re-entry to full-time study, satisfactory completion of the refresher courses is one of the qualifications for admission as a degree candidate. Credits earned in refresher courses are not applicable toward degree requirements.

### 461 Refresher Course: Social Work Methods (2)

A review of the basic principles and concepts underlying professional practice of social work methods. Also, a review of recent professional literature and clinical materials. Offered Summer Quarter only.

### 462 Refresher Course: Human Growth and Behavior (2)

A review of knowledge pertaining to concepts of development and behavior as related to social behavior and social work practice. Offered Summer Quarter only.

### 463 Refresher Course: Social Services (2)

A review and analysis of organization and structure of social welfare services and programs. Offered Summer Quarter only.

**Application Procedure:** Application for the refresher courses must be made to the Dean, School of Social Work, University of Washington, Seattle 5, Washington. After the applicant has been accepted, a Summer Quarter Bulletin with instructions for registration will be mailed.

## THE MASTER OF SOCIAL WORK PROGRAM

The program of professional social work education at the University of Washington is designed to prepare students for professional practice in social work. It is a two-year program of study leading to the Master of Social Work degree. Among the areas of practice in which students are prepared to accept staff positions are the following: adoptions, foster home care, institutional care, child protection, child guidance, family counseling, probation and parole, medical social work, psychiatric social work, school social work, public assistance service, community center work, social group service programs.

The course of study is composed of courses concerned with the philosophy, organization, and administration of social service programs; the understanding of human growth and behavior; the use of professional social work methods, and the use of research methods. It is divided into five curriculum segments. Each student must present 8 credits of satisfactory work in the social welfare organization segment of the curriculum. Courses in this segment are included in those numbered from 502 through 504 and in the 520 seminar series. Courses in Sociology listed as 472, 473, 474, 571, 572, and 573, in the section, "Courses in Affiliated Departments" may be elected as equivalents to required social work seminars. A minimum of 11 credits of satisfactory work must be presented in the Human Growth and Behavior segment of the curriculum. These courses are included in those Psychiatry and Psychology courses indicated as "Courses in Affiliated Departments" and courses numbered 556 and 557. A total of 18 credits is required in the Social Work Methods sequence of the curriculum. Each student must satisfactorily complete the beginning course in Social Case Work, Social Group Work, and in Social Community Organization. In addition, the student must complete a course in Basic Concepts in Social Work Method and a pattern of five sequential courses in one of the direct service methods. Research requirements in the curriculum include 2 credits in the beginning course in research (590) and satisfactory completion of a group research project (593-594-595) or a thesis (700).



Each student spends a portion of his time testing his developing knowledge and skill in a health, welfare, or group-service agency. This laboratory experience is under the supervision and instruction of carefully selected, professionally-prepared social workers. It provides students with an opportunity to develop skills in working with individuals and groups; to integrate classroom theoretical material with an actual work experience, and to develop professional attitudes and efficient methods of professional work. In addition to tuition costs and general fees, each student must plan for the costs of transportation to and from the field instruction agencies (approximately \$15.00 per month), and the payment of a special laboratory fee for the field instruction courses.

Requirements for the degree include: Completion of the prescribed curriculum, a minimum of three quarters in residence at this School, the equivalent of field instruction in six quarters, and completion of either an individual thesis or a group research project. Each student must present a total of 72 quarter credits of passing work and maintain a B average in all courses numbered 300 and above. In addition, the student must present a minimum of 65 quarter credits of B work or better. The degree is awarded on the basis of the student's competence in theory and practice, as evidenced through satisfactory completion of courses. The field work performance is a further test of competence. There is no foreign language requirement.

#### **PROGRAM OPTIONS FOR THE MASTER OF SOCIAL WORK DEGREE**

The University of Washington, School of Social Work, offers its degree program through two options. Under one, the student may enroll and complete his program on the Seattle campus. Under the second, he may complete a substantial part of his education through a field teaching program established in Spokane, Washington. The development of the Spokane Program has enabled us to utilize the excellent field instruction resources of eastern Washington.

Under each option, students receive comparable education. The course and field requirements are the same; the standards of instruction and performance are the same. Differences occur primarily in the sequential arrangement of the curriculum. Under the Seattle campus plan, students begin immediately with field and classroom instruction which continues concurrently throughout the six quarters of work (excluding summers) required for graduation. These students remain in the Seattle area throughout this period of time. The normal quarter credit load is 12 credits.

Under the Spokane Program option, students begin in Seattle with classroom work only. This continues for two quarters, during which time they are grounded in basic knowledge and theory relevant to professional social work. Subsequently, they shift to Spokane for three consecutive quarters (including summer). Here, they also have a concurrent program, but primary emphasis is placed on the field experience. All field requirements are completed within these three quarters. One or two courses in methods or human growth and behavior are also taken each quarter. The student then shifts back to Seattle for a final two quarters of classroom work which particularly is focused on integration of learning experiences. The usual quarter-credit load under this plan is 10 credits. Students normally graduate at the same time as their peers enrolled in the Seattle program.

A regular member of the School of Social Work faculty is in residence in the Spokane area. Field instruction in agencies is provided by well-qualified social workers. Currently, field instruction settings related to work with families and children and to mental health problems are being utilized.

#### **STUDENT SOCIAL WORK CONFERENCE**

The Student Club of the School of Social Work, the Alumni Association, and the Puget Sound Chapter of the National Association of Social Workers annually plan a Student Social Work Conference to honor students who have written outstanding papers during the academic year. The conference provides an occasion for members of the professional group to welcome graduates to its ranks and to

provide an opportunity for undergraduate students to learn about social work from students of the School.

Papers are presented in workshops or read at general sessions by students; representatives of agencies active in the topic area discuss practice implications. Students gain experience in planning, organizing, and operating a conference.

## COURSES

- 502 Social Welfare Organization (2)** **Parsons, Smith**  
Historical origins of concepts, policies, and social welfare institutions, critical analysis of current public and private programs at all jurisdictional levels; use of social welfare concepts in planning.
- 503 Social Welfare Organization (2)** **Parsons, Smith**  
Historical origins of concepts, policies, and social welfare institutions, critical analysis of current public and private programs at all jurisdictional levels; use of social welfare concepts in planning.
- 504 Social Welfare Organization (2)** **Parsons, Smith**  
Historical origins of concepts, policies, and social welfare institutions, critical analysis of current public and private programs at all jurisdictional levels; use of social welfare concepts in planning.
- 508 Basic Values and Concepts in Social Work Method (2)** **Abrahamson, Maier**  
An identification and analysis of basic value concepts and principles underlying social case work, social group work, and social community organization practice.
- 509 Readings in Social Work (\*, maximum 6)** **Staff**  
Prerequisite, permission.
- 510 Social Case Work (2)** **Abrahamson, Gronewold, Reiss**  
The case work process in a variety of settings through the analysis and discussion of case records; consideration of basic interviewing principles; development of understanding of motivations in human behavior and application of this understanding in case work. Prerequisite, permission.
- 511 Social Case Work (2)** **Abrahamson, Gronewold, Reiss**  
Continuation of generic case-work theory, with emphasis on diagnosis and case-work treatment. Prerequisite, 510.
- 512 Social Case Work (2)** **Abrahamson, Gronewold, Reiss**  
Elaboration and intensification of basic case-work concepts and their application in practice to various types of agencies. Prerequisite, 511.
- 515 Field Instruction (4-8, maximum 12)** **C. Macdonald, Staff**  
Prerequisite, permission.
- 520 Seminar (\*, maximum 6)** **Staff**  
Prerequisite, permission.
- 521 Social Group Work (2)** **Maier, Walter, Webb**  
Professional social group work as a method and process; objectives, techniques, skills, and media of group work method, and criteria for evaluation of results. Prerequisite, permission.
- 522 Social Group Work (2)** **Maier, Walter, Webb**  
Continuation of social group work study with emphasis on process in groups and identification of group goals.
- 523 Social Group Work (2)** **Maier, Walter**  
Continuation of study in social group work with emphasis on method, skill, and analysis of the professional role.
- 524 Advanced Social Group Work (2)** **Maier, Walter**  
Continued intensive study on social group work method with emphasis on the utilization of program media and the concept of program planning process.
- 525 Advanced Social Group Work (2)** **Maier, Walter**  
Continued intensive study on social group work method with emphasis on structuring group situations, and application of the method to institutional settings.
- 526 Advanced Social Group Work** **Maier, Walter**  
Continued intensive study of social group work method with emphasis on the integration of prerequisite course content and the analysis of issues and trends in social group work practice.
- 530 Advanced Social Case Work (2)** **Abrahamson, Hunt, Reiss**  
Intensive study of the case-work process to deepen and broaden the caseworker's knowledge and understanding of the dynamics of human behavior and to enable him to develop greater skill in interviewing. Prerequisite, permission.
- 531 Advanced Social Case Work (2)** **Abrahamson, Hunt, Reiss**  
Continuation of intensive study of case material, with emphasis on sound direction in case-work treatment. Prerequisite, 530.
- 532 Advanced Social Case Work (2)** **Abrahamson, Hunt, Reiss**  
Intensive drill in case analysis, seeing the case as a whole, achieving a balanced perspective on the relationship between inner and outer forces, and planning appropriate treatment. Prerequisite, 531.

- 533 Trends in Social Case Work (2)** **Abrahamson, Hunt, Reiss**  
Generic and differential factors in understanding and utilizing various administrative settings in social case-work practice. Study of developments and trends in social case-work practice. Prerequisite, permission.
- 534 Trends in Social Case Work (2)** **Abrahamson, Hunt, Reiss**  
Continuation of 533. Prerequisite, permission.
- 535 Advanced Field Instruction (4-8, maximum 12)** **C. Macdonald, Staff**  
Prerequisite, 515.
- 556 Social Aspects of Illness and Disability (2)** **R. Macdonald**  
Physical growth and change of the individual as correlated with factors of emotional and social development; consideration of specific medical problems. Prerequisite, permission.
- 557 Social Work with Sick, Disabled, or Handicapped Persons** **R. Macdonald**  
Application of select behavioral science concepts to social work practice with persons who are ill, handicapped, or disabled. Prerequisite, 556.
- 570 Administration of Social Agencies (2)** **Parsons**  
Problems of administration that confront the administrator and his staff in any public or private agency; relations with board and staff; problems of finance and budget making, office management. Emphasis on dynamic principles of the administrative process. Prerequisite, permission.
- 572 Social Community Organization (2)** **Walter**  
Problems of adjusting social welfare needs and resources; understanding the social forces of the community; methods used by public and private agencies to organize to meet social welfare needs; interpretation of agency programs to the community; the place of boards and committees. Prerequisite, permission.
- 573 Social Welfare Planning Process (2)** **Walter**  
An examination of the process of promoting and sustaining an adjustment between social welfare resources and social welfare needs. Analysis of personal and social factors in specific community organization efforts and the nature of the professional worker's participation in them. Discussion based upon records of specific community situations. Prerequisite, 572.
- 580 Public Welfare (2)** **Parsons**  
Care of needy under poor laws, emergency relief and modern public assistance programs; characteristics of state assistance plans; administration of work relief; federal grants-in-aid; adult probation and parole; vocational rehabilitation services. Prerequisite, permission.
- 586 Statistics in Social Work (2)** **Staff**  
Elementary statistical method applied to social welfare problems; sources for continuing statistical reports; interpretation and use of statistics in welfare administration. Prerequisite, permission.
- 587 Law and Social Welfare (2)** **Gronewold**  
The basis of law, its philosophy and development, its broad principles, and the procedure by which it operates; specific aspects of law pertinent to social work orientation, including law in relation to the family, children, guardianships, and acts against society, and property laws. Prerequisite, permission.
- 590 Social Work Research (2)** **Stutsman, Northwood**  
Methods used in the study of social work practice, program evaluation, and community needs and resources. Study of current social work research field practice through group research projects. Presentation and evaluation of research projects currently carried by students in the research program. Prerequisite, second-year graduate standing.
- 591 Social Work Research (2)** **Stutsman, Northwood**  
Continuation of study of research methods. Prerequisite, 590.
- 592 Social Work Research (2)** **Stutsman, Northwood**  
Continuation of study of research methods. Prerequisite, 591.
- 593-594-595 Field Practice in Research (2-2-2)** **Staff**  
Field practice in a group project in lieu of an individual thesis. Includes development of research design, collection of data, tabulation and analysis, and report writing. Prerequisite, 590 or its equivalent.
- 700 Thesis (\*)** **Staff**

## COURSES IN AFFILIATED DEPARTMENTS

### PSYCHIATRY

- 450 Principles of Personality Development (2)** **Kaufman**
- 451 Principles of Personality Development (2)** **Heilbrunn**
- 452 Clinical Psychiatry (2)** **Schwartz**
- 553 Psychodynamics and Psychopathology (2)** **Heilbrunn**
- 558 Seminar: Interviewing (2)** **Sayer**
- 559 Child Psychiatry (2)** **Kaufman**

### PSYCHOLOGY

- 599 Survey of Clinical Psychometrics (2)** **Strother**

**SOCIOLOGY**

<b>472 Juvenile Delinquency (5)</b>	<b>Hayner, Schrag</b>
<b>473 Corrections (5)</b>	<b>Hayner, Schrag</b>
<b>474 Probation and Parole (3)</b>	<b>Hayner</b>
<b>571 Correctional Communities (3)</b>	<b>Hayner</b>
<b>572 Analysis of Criminal Careers (3)</b>	<b>Hayner</b>
<b>573 Crime Prevention (3)</b>	<b>Hayner</b>
<b>574 Seminar in Methods of Criminological Research (3)</b>	<b>Schrag</b>