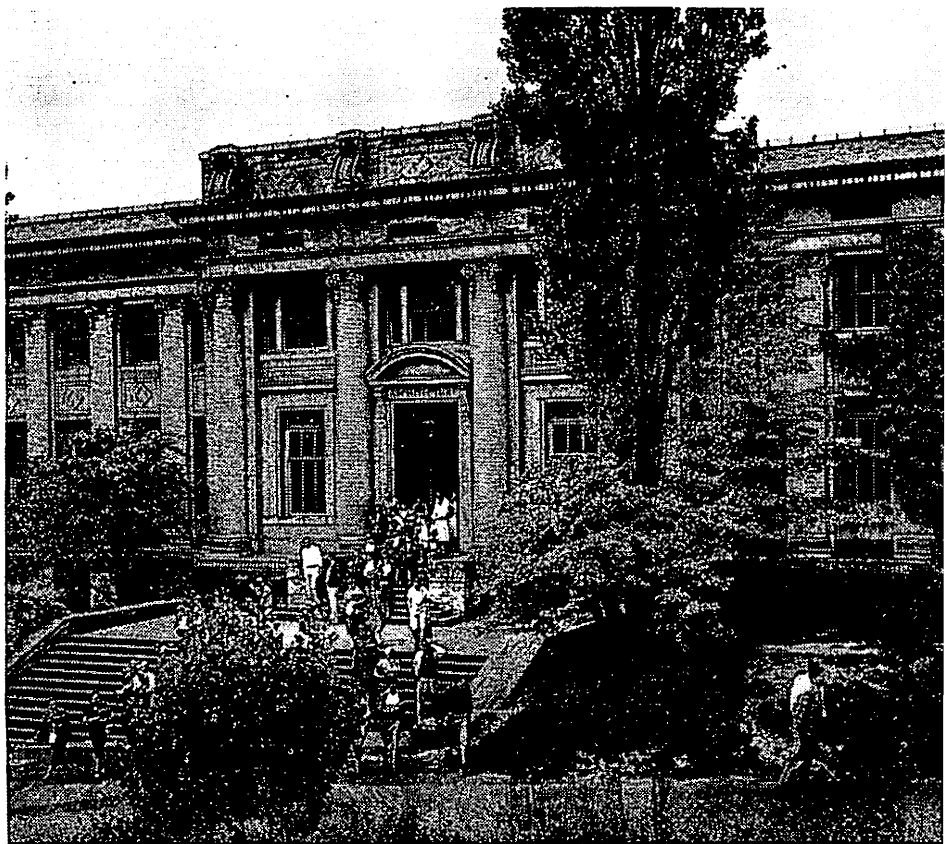


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BULLETIN • UNIVERSITY OF WASHINGTON



**COLLEGE OF
ARCHITECTURE AND
URBAN PLANNING**

1957-1959

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; and publications of the Division of Adult Education and Extension Services, 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 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
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EVENING CLASSES

BULLETIN
UNIVERSITY OF WASHINGTON
General Series No. 917
November, 1957

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CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

No instruction is offered in the College of Architecture and Urban Planning in the summer. This time is set aside to gain practical experience in the field.

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

- SEPT. 9-OCT. 1 Registration for students in residence Spring Quarter, 1957. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.*)
- SEPT. 13-OCT. 1 Registration for former students not in residence Spring Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.*)
- SEPT. 16-SEPT. 27 Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 15, for application deadlines. Registration appointments will be mailed with notification of admission.*)
- SEPT. 16-OCT. 1 Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 15, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- SEPT. 30—MONDAY Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
- OCT. 2—WEDNESDAY Instruction begins (8 a.m.) for all other students
- OCT. 8—TUESDAY Last day to add a course
- NOV. 11—MONDAY State Admission Day holiday
- NOV. 27—WEDNESDAY Last day to submit applications for advanced credit examinations
- NOV. 27-DEC. 2 Thanksgiving recess (6 p.m. to 8 a.m.)
- DEC. 14—SATURDAY Advanced credit examinations
- DEC. 16—MONDAY Final examinations begin
- DEC. 20—FRIDAY Final examinations and Quarter end

WINTER QUARTER, 1958

REGISTRATION PERIOD

NOV. 25-DEC. 13

Registration for students in residence Autumn Quarter, 1957. (*Registration appointments will be issued on presentation of ASUW cards beginning October 25.*)

JAN. 2-JAN. 3

Registration for former students not in residence Autumn Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.*)

JAN. 2-JAN. 3

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

JAN. 6-MONDAY

Instruction begins

JAN. 10-FRIDAY

Last day to add a course

FEB. 22-SATURDAY

Washington's Birthday and Founder's Day holiday

FEB. 28-FRIDAY

Last day to submit applications for advanced credit examinations

MAR. 15-SATURDAY

Advanced credit examinations

MAR. 17-MONDAY

Final examinations begin

MAR. 21-FRIDAY

Final examinations and Quarter end

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26-MAR. 14

Registration for students in residence Winter Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning January 24.*)

MAR. 26-MAR. 28

Registration for former students not in residence Winter Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.*)

MAR. 26-MAR. 28

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

MAR. 31-MONDAY

Instruction begins

APR. 4-FRIDAY

Last day to add a course

MAY 9-FRIDAY

Last day to submit applications for advanced credit examinations

MAY 23-FRIDAY

Governor's Day

MAY 24-SATURDAY

Advanced credit examinations

MAY 30-FRIDAY

Memorial Day holiday

JUNE 8-SUNDAY

Baccalaureate Sunday

JUNE 9-MONDAY

Final examinations begin

JUNE 13-FRIDAY

Final examinations and Quarter end

JUNE 14-SATURDAY

Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4-JUNE 6

Registration for all students. (*Registration appointments for students in residence Spring Quarter, 1958, and for former students not in residence Spring Quarter, 1958, may be obtained from the Registrar's Office beginning April 21. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.*)

JUNE 16-JUNE 20

ACADEMIC PERIOD

JUNE 23-MONDAY

Instruction begins

JUNE 24-TUESDAY

Last day to add a course for the first term

JUNE 27-FRIDAY

Last day to add a course for the full quarter

JULY 3-THURSDAY

Last day to submit applications for advanced credit examinations for first term

JULY 4-FRIDAY

Independence Day holiday

JULY 19-SATURDAY

Advanced credit examinations

JULY 23-WEDNESDAY

Final examinations and first term end

JULY 24-THURSDAY

Second term begins

JULY 25-FRIDAY

Last day to add a course for the second term

AUG. 1-FRIDAY

Last day to submit applications for advanced credit examinations for second term

AUG. 16-SATURDAY

Advanced credit examinations

AUG. 22-FRIDAY

Final examinations and second term end

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 8-SEPT. 30

Registration for students in residence Spring Quarter, 1958. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.*)

SEPT. 12-SEPT. 30

Registration for former students not in residence Spring Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.*)

SEPT. 15-SEPT. 26

Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 15, for application deadlines. Registration appointments will be mailed with notification of admission.*)

SEPT. 15-SEPT. 30

Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 15, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

SEPT. 29—MONDAY

Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

OCT. 1—WEDNESDAY

Instruction begins (8 a.m.) for all other students

OCT. 7—TUESDAY

Last day to add a course

NOV. 11—TUESDAY

State Admission Day holiday

NOV. 26—WEDNESDAY

Last day to submit applications for advanced credit examinations

NOV. 26—DEC. 1

Thanksgiving recess (6 p.m. to 8 a.m.)

DEC. 13—SATURDAY

Advanced credit examinations

DEC. 15—MONDAY

Final examinations begin

DEC. 19—FRIDAY

Final examinations and Quarter end

WINTER QUARTER, 1959

REGISTRATION PERIOD

NOV. 20—DEC. 12

Registration for students in residence Autumn Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning October 23.*)

DEC. 29—DEC. 31

Registration for former students not in residence Autumn Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 23.*)

DEC. 29—DEC. 31

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

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—MONDAY

Final examinations begin

MAR. 20—FRIDAY

Final examinations and Quarter end

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24—MAR. 13

Registration for students in residence Winter Quarter, 1959. (*Registration appointments will be issued on presentation of ASUW cards beginning January 23.*)

MAR. 25—MAR. 27

Registration for former students not in residence Winter Quarter, 1959. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.*)

MAR. 25—MAR. 27

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

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—MONDAY	Final examinations begin
JUNE 12—FRIDAY	Final examinations and Quarter end
JUNE 13—SATURDAY	Commencement

SUMMER QUARTER, 1959

REGISTRATION PERIOD

JUNE 3—JUNE 5	<i>Registration for all students. (Registration appointments for students in residence Spring Quarter, 1959, and for former students not in residence Spring Quarter, 1959, may be obtained from the Registrar's Office beginning April 20. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.)</i>
JUNE 15—JUNE 19	

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

SEPT. 30—WEDNESDAY	Instruction begins
DEC. 18—FRIDAY	Quarter ends

For more detailed information consult 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.

ADMINISTRATION

BOARD OF REGENTS

THOMAS BALMER, *President*
HAROLD S. SHEFELMAN, *Vice-President*
MRS. J. HERBERT GARDNER
CHARLES M. HARRIS
JOHN L. KING
WINLOCK W. MILLER
JOSEPH DRUMHELLER

Seattle
Seattle
La Conner
Entiat
Seattle
Seattle
Spokane

HELEN E. HOAGLAND, *Secretary*

OFFICERS OF ADMINISTRATION

HENRY SCHMITZ, Ph.D.
ETHELYN TONER, B.A.
NELSON A. WAHLSTROM, B.B.A.
ERNEST M. CONRAD, B.B.A.
DONALD K. ANDERSON, B.A.
ARTHUR P. HERRMAN, B.A.

President of the University
Registrar
Comptroller and Treasurer
Business Manager
Dean of Students
Acting Dean of the College of Architecture and Urban Planning

FACULTY OF THE COLLEGE OF ARCHITECTURE AND URBAN PLANNING

(As of September 16, 1957)

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.

Dietz, Robert Henry, 1947 (1953), *Associate Professor of Architecture*

B.Arch., 1941, Washington; M.Arch., 1944, Massachusetts Institute of Technology

Gowen, Lance Edward, 1924 (1937), *Professor of Architecture*

B.A. in Arch., 1916, M.A. in Arch., 1921, Gr. Arch., 1922, California

Herrman, Arthur Philip, 1923 (1937), *Professor of Architecture; Acting 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, *Acting 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

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

Pries, Lionel Henry, 1928 (1948), *Professor of Architecture*

A.B., 1920, California; M.Arch., 1921, Pennsylvania

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, 1948 (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
 Wherrette, William Carnes, 1948 (1953), *Assistant Professor of Architecture*
 B.Arch., 1948, Carnegie Institute of Technology
 Wolfe, Myer Richard, 1949 (1954), *Associate 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.....	<i>Assistant Professor, Art</i>
Hill, Raymond L.....	<i>Professor, Art</i>
Mason, Alden C.....	<i>Associate Professor, Art</i>
Smith, Charles W.....	<i>Assistant Professor, Art</i>
Tsutakawa, George.....	<i>Associate Professor, Art</i>

COORDINATING COMMITTEE OF GRADUATE PROGRAM IN URBAN PLANNING

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

ADVISERS

Horwood, Edgar M., Thesis Adviser.....	<i>Associate Professor, Civil Engineering</i>
Wolfe, Myer R., Registration Adviser.....	<i>Associate Professor, Urban Planning</i>

LIBRARY and ADMINISTRATIVE STAFF

Betty L. Austin.....	<i>Librarian</i>
Mary-Jane Worth.....	<i>Administrative Assistant to the Dean</i>
Eliza M. Hayward.....	<i>Secretary</i>



GENERAL INFORMATION

GENERAL INFORMATION

INAUGURATED 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. 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, when Professor Arthur P. Herrman, Director of the School of Architecture since 1937, was appointed Acting Dean.

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

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 magazines; 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.

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
½ unit advanced algebra
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 a third unit of the foreign language; or 2 units of a second foreign language. |
| 2. | 1 unit of laboratory science or mathematics (solid geometry, trigonometry, mathematical analysis). |
| G. Electives | 4½ 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 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.

ADMISSION

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 the territory of Alaska 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 or territory of Alaska, 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, page 34 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 17.)

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 Alaska and 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 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 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 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 17).

All entering freshmen are 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.

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; final admission will be contingent upon submission of a sup-

plementary 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 20 for applicants who have had college work.

Legal Residents of the State of Washington and the Territory of Alaska 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 Athletic 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, 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 and the Territory of Alaska

The University scholarship requirement for nonresidents* or students residing outside the state of Washington or the territory of Alaska 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, second paragraph, page 16).

* Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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 units¹ (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 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 Division of Adult Education and Extension Services (fee \$22.00 per course) and do not carry University credit.

¹ 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.

ADMISSION BY EXAMINATION

A graduate of a *nonaccredited* 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 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 present 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 or territory of Alaska 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 or territory of Alaska, 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 or territory of Alaska 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 or the territory of Alaska 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 extenuating 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 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. A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit and, in addition, shall be allowed up to a maximum of 90 quarter credits from the junior college exclusive of physical education activity credits.

6. 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.

7. 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 members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination.

8. 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 Division of Adult Education and Extension Services. All credits earned by advanced-credit examination and all acceptable Armed Forces training schools credits must be counted in the 90-credit maximum.

9. 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.

10. 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.

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 17-20.

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. 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.

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.

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

UNIVERSITY OF WASHINGTON APTITUDE AND GRADE PREDICTION TESTS

New students of freshmen standing (including transfer students with less than 45 quarter hours of college credit 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 English course, English 50 (Basic Grammar) 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 three 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 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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

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.

APPOINTMENTS

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 4). Students in residence may obtain appointments at the time announced in the Calendar.

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 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.

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 have been earned and the required quarters of ROTC and physical education have been completed. In 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 at this University 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 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 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 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.

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 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 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 one year or more of active service. This exemption also does not grant credit. Veterans with less than one year 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, 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, a course in health education, 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

A resident student is one who has been domiciled in Washington or Alaska 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

Prospective students are classified as nonresidents when their credentials come from schools outside Washington and Alaska. 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 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) 3.00-5.00

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 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 is charged for each additional copy.

Transcript Fee .50

One transcript is furnished without charge; the fee is charged, payable in advance, for each additional copy. Supplementary transcripts are 50 cents each.

Graduation Fee 10.00

SPECIAL FEES

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00 per credit; and for removal of an Incomplete, \$2.00.

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, \$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. Riding Fee is payable to riding academy and varies in amount.

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	\$183.00
Full-time nonresident student	408.00

<i>Athletic Admission Ticket</i> (optional)	3.00-5.00
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<i>Accident Insurance</i> (optional)	3.75
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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	600.00
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Room and meals in Women's Residence Halls	540.00-630.00
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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.

HONOR 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 pro-

fession. 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.

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 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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical 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. Housing is available to women in the Women's Residence Halls. For further information write to 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 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 which 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.

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 PROGRAMS

THE COLLEGE PROGRAMS

THE COLLEGE OF ARCHITECTURE AND URBAN PLANNING offers courses leading to the degrees of Bachelor of Architecture and Bachelor of Urban Planning. 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 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	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
Approved Electives	5	Approved Electives	5	Approved Electives	5
Health Educ. 110 or 175 . .		Phys. Educ. activity	1	Phys. Educ. activity	1
Health	2	ROTC	2-3	ROTC	2-3
Phys. Educ. activity	1		16-19		16-19
ROTC	2-3				
	16-19				

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
	15-18	ROTC	2-3		14-17
			16-19		

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
Arch. 235 Mech. Equip.	2	Arch. 236 Mech. Equip.	2	Arch. 237 Mech. Equip.	2
Arch. 276 Statics	3	Arch. 277 Strength of Materials	3	Arch. 278 Trusses	3
	15		15		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	
Arch. 376 Timber & Steel . . .	4	Arch. 377 Reinforced		Concrete	4
	16	Concrete	4	Urban Plan. 380 City	
			16	Planning	3
					17

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		Arch. 468 Prof. Practice . . .	2
	14	Law	3		15
			16		

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 . . .	2	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		16-19		16-19
ROTC	2-3				
	16-19				

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
	15-18	ROTC	2-3		14-17
			16-19		

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 City	
	15		15	Planning	3
				Gen. Engr. 121 Surveying. . .	3
					16

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. 490 City	
Urban Plan. 485 Housing . . .	2	Urban Plan. 480 City Plan.		Plan. Design	7
Econ. 350 Pub. Finance &		Practice	3	Civil Engr. 429 Traffic	
Taxation I	5	Real Estate 301 Urban		Engr.	3
	14	Real Estate	5	Bus. Law 307 Business	
			15	Law	3
				Approved Electives	3
					16

Fifth Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Urban Plan. 491 City Plan. Design	7	Urban Plan. 492 City Plan. Design	7	Urban Plan. 493 City Plan. Design	7
Civil Engr. 403 Urban Planning	3	Pol. Sci. 475 Munic. Govt. & Admin.	5	Approved Electives	5
Pol. Sci. 376 State & Local Govt.	5	Approved Electives (usually Pol. Sci. 581)	5		12
	15		17		

Approved electives: Civil Engr. 315 Photogrammetry (3); Civil Engr. 350 Introduction to Sanitary Engineering (3); Civil Engr. 428 Highway Planning (3); Pol. Sci. 470 Introduction to Public Administration (5); Pol. Sci. 581 Seminar in Public Policy in Planning (5); 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)** Kolb, Pries
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)** Gowen
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)** Gowen
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)** **Wherrette**
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)** **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.
- 480 City Planning Practice (3)** **Wolfe**
Planning techniques, analysis of planning surveys and supporting data, investigation of comprehensive plan components and effectuating measures. Prerequisite, 380 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)** **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

The curriculum includes, but is not limited to, the courses listed below. *Prerequisite* courses are those suggested as part of the undergraduate preparation for entrance to the curriculum. Some deficiencies in prerequisite courses may be removed after admission to graduate study. *Required* courses are the core of the graduate program. Candidates take all required courses except those previously completed and those for which substitutions are approved. *Recommended* courses are those from which students may choose electives to supplement the core courses.

Following the *prerequisite*, *required*, and *recommended* courses are course descriptions not included in the undergraduate curricula.

PREREQUISITES

- Urban Planning 380** Introduction to City Planning (3)
or **Civil Engineering 403** Principles of Urban Planning (3)
- General Business 101** Introduction to Business (5)
or **Economics 200** Introduction to Economics (5)
- Geography 360** Introductory Cartography (5)
- Political Science 376** State and Local Government and Administration (5)
or **475** Problems of Municipal Government and Administration (5)
- Sociology 110** Survey of Sociology (5) or **310** General Sociology (5)
- Sociology 223** Social Statistics (5)
or **Mathematics 281** Elements of Statistical Method (5)

REQUIRED

- Urban Planning 480** City Planning Practice (3)

- Urban Planning 590 City Planning Problems (7)
 Urban Planning 591 City Planning Problems (7)
 Urban Planning 592 City Planning Problems (7)
 Civil Engineering 595 Advanced Professional Design and/or Analysis (2-5, maximum in one field 15)
 Geography 441 Industrial Geography (3 or 5) or 442 Commercial Geography (3 or 5) or 477 Urban Geography (3 or 5)
 Political Science 581 Seminar in Public Policy in Planning (5)
 Real Estate 301 Principles of Urban Real Estate (5)
 Sociology 331 Population Problems (5) or 430 Human Ecology (5)
 Thesis (*)

RECOMMENDED

- Urban Planning 485 Housing (2)
 Urban Planning 490, 491, 492, 493 (7,7,7,7) City Planning Design
 Urban Planning 593 City Planning Problems (7)
 Civil Engineering 315 Photogrammetry (3)
 Civil Engineering 350 Introduction to Sanitary Engineering (3)
 Civil Engineering 428 Highway Planning (3)
 Civil Engineering 429 Traffic Engineering (3)
 Communications 303 Public Relations (3)
 Economics 350 Public Finance and Taxation I (5)
 Geography 258 Maps and Map Reading (2)
 Geography 277 Cities of the United States (3)
 Geography 425J Graphic Techniques in the Social Sciences (5)
 Geography 444 Geography of Water Resources (3 or 5)
 Geography 464 Map Reproduction (3)
 Political Science 470 Introduction to Public Administration (5)
 Sociology 365 Urban Community (5)
 Sociology 420 Methods of Sociological Research (5)
 Sociology 425J Graphic Techniques in the Social Sciences (5)
 Sociology 455 Housing in the American Community (5)
 Sociology 530 Advanced Human Ecology (3)
 Sociology 531 Demography (3)
 Transportation 301 Principles of Transportation (5)

CIVIL ENGINEERING

- 315 Photogrammetry (3)** **Chittenden, Colcord**
 Application of aerial photography to the problems of engineering and map making. 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. Prerequisites, General Engineering 121 and junior standing; permission for nonengineering students.
- 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.
- 403 Principles of Urban Planning (3)** **Horwood**
 An introduction to modern urban planning. Recent historical developments. The interrelation of land uses and utilities. Enabling legislation and forms of municipal regulations. Prerequisite, senior or graduate standing.
- 428 Highway Planning (3)** **Hennes, Horwood**
 The planning, financing, and operation of highways. Studies in the overall cost of highway transportation. Capital improvements in relation to reduced vehicular operating costs. The economics of truck operation on grades. The theory of random arrival at intersections. The state and federal highway systems. Toll facilities, limited access highways, and roadside protection. Prerequisite, senior or graduate standing.

- 429 Traffic Engineering (3)** **Horwood, Sawhill**
Traffic engineering functions and administration. Street and intersection capacities. Urban arterial and freeway planning. Traffic and parking surveys. One-way street systems. Signal timing for traffic movement and traffic control warrants. Prerequisite, senior or graduate standing in engineering or graduate standing in urban planning.

- 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).

COMMUNICATIONS

- 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 in Winter Quarter only. Prerequisite, upper-division standing or permission.

ECONOMICS

- 200 Introduction to Economics (5)** **Buechel, 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.

- 350 Public Finance and Taxation I (5)** **Hall, Lampman**
Principles of taxation, tax forms and practices, public expenditure, public credit, and public budgetary policy.

GENERAL BUSINESS

- 101 Introduction to Business (5)** **Cox, Goldberg, Wheeler**
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.

GEOGRAPHY

- 258 Maps and Map Reading (2)** **Heath, Sherman**
Categories of maps and aerial photographs and their special uses; map reading and interpretation.

- 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.

- 360 Introductory Cartography (5)** **Heath, Sherman**
Theory and principles of map scales, grid systems, symbolism, color, lettering, and map reproduction. Practical laboratory experience in using drafting instruments and cartographic materials.

- 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, 223 or approved equivalent.

- 441 Industrial Geography (3 or 5)** **Garrison**
Geographic principles related to the development, distribution, and problems of manufacturing industries; case studies of industrial regions. Lectures (3 credits); field work (2 credits) optional with permission of instructor.

- 442 Commercial Geography (3 or 5)** **Garrison**
Geographic principles related to the localization of world, national, and city commercial areas; case studies including extra- and inter-city commercial patterns. Lectures (3 credits); field work (2 credits) optional with permission of instructor.

- 444 Geography of Water Resources (3 or 5)** **Marts**
An analysis and appraisal of water resources in land and industrial developments; problems and policies of river basin planning with emphasis on the Pacific Northwest. Two Saturday field trips are required. An excellent course for those persons who wish to minor in the regional aspects of planning.

- 464 Map Reproduction (3)** **Heath, Sherman**
Reproduction processes and methods of photographic projection as applied to cartography. Prerequisite, 360.

- 477 Urban Geography (3 or 5)** **Ullman**
A geographic analysis of urban settlements in terms of their nature, distribution, principal functions, supporting areas, and internal structure.

MATHEMATICS

- 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, Mathematics 105 and one year of plane geometry.

POLITICAL SCIENCE

- 376 State and Local Government and Administration (5)** **Webster**
 Structure, functions, procedures, and suggested reorganization, with special reference to the state of Washington and its units of local government.
- 470 Introduction to Public Administration (5)** **Staff**
 Basic relationship of administration to other agencies of government.
- 475 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 the municipalities in the state of Washington.
- 581 Seminar in Public Policy in Planning (5)** **Webster**
 Planning theory; law and administration; legal basis of governmental planning, with emphasis upon state, local, and regional government; the planning agency in government; general scope and limitations of powers and functions; policy determination and public relations; coordination with administrative departments; drafting enabling legislation, planning regulations, and zoning and subdivision ordinances.

REAL ESTATE

- 301 Principles of Urban Real Estate (5)** **Staff**
 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.

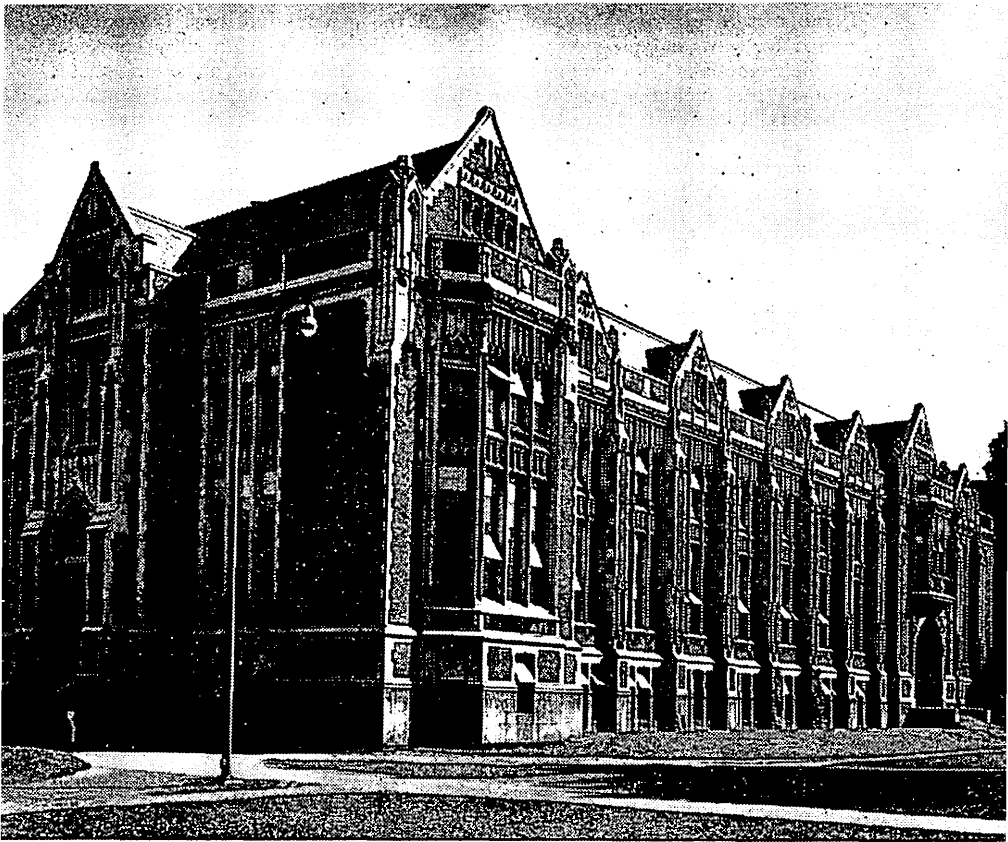
SOCIOLOGY

- 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.
- 223 Social Statistics (5)** **Camilleri, Miyamoto**
 Methods and sources for quantitative investigation. Prerequisites, 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)** **Staff**
 Major quantitative and qualitative problems of population in contemporary society. Prerequisite, 110 or 310.
- 365 Urban Community (5)** **Cohen**
 Comparative and analytic study of organization and activities of urban groups. Prerequisite, 110.
- 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.
- 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.
- 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.
- 455 Housing in the American Community (5)** **Cohen**
 Analysis of current housing problems and conditions.
- 530 Advanced Human Ecology (3)** **Schmid**
 Reading and research in spatial distribution of human institutions. Prerequisites, 230 or 430, and 15 credits in social science.
- 531 Demography (3)** **Schmid**
 Research problems in population and vital statistics. Prerequisites, 311 and 15 credits in social science or permission.

TRANSPORTATION

- 301 Principles of Transportation (5)** **Staff**
 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.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF
ARTS AND SCIENCES
1957-1959

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; and publications of the Division of Adult Education and Extension Services, 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 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
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EVENING CLASSES

BULLETIN
UNIVERSITY OF WASHINGTON
General Series No. 913
July, 1957

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CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

- SEPT. 9-OCT. 1 Registration for students in residence Spring Quarter, 1957. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.*)
- SEPT. 13-OCT. 1 Registration for former students not in residence Spring Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.*)
- SEPT. 16-SEPT. 27 Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 40, for application deadlines. Registration appointments will be mailed with notification.*)
- SEPT. 16-OCT. 1 Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 40, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- SEPT. 30—MONDAY Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
- OCT. 2—WEDNESDAY Instruction begins (8 a.m.) for all other students
- OCT. 8—TUESDAY Last day to add a course
- NOV. 11—MONDAY State Admission Day holiday
- NOV. 27—WEDNESDAY Last day to submit applications for advanced credit examinations
- NOV. 27-DEC. 2 Thanksgiving recess (6 p.m. to 8 a.m.)
- DEC. 14—SATURDAY Advanced credit examinations
- DEC. 16—MONDAY Final examinations begin
- DEC. 20—FRIDAY Final examinations and Quarter end

WINTER QUARTER, 1958

REGISTRATION PERIOD

- NOV. 25-DEC. 13 Registration for students in residence Autumn Quarter, 1957. (*Registration appointments will be issued on presentation of ASUW cards beginning October 25.*)
- JAN. 2-JAN. 3 Registration for former students not in residence Autumn Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.*)
- JAN. 2-JAN. 3 Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

JAN. 6—MONDAY	Instruction begins
JAN. 10—FRIDAY	Last day to add a course
FEB. 22—SATURDAY	Washington's Birthday and Founder's Day holiday
FEB. 28—FRIDAY	Last day to submit applications for advanced credit examinations
MAR. 15—SATURDAY	Advanced credit examinations
MAR. 17—MONDAY	Final examinations begin
MAR. 21—FRIDAY	Final examinations and Quarter end

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26-MAR. 14	Registration for students in residence Winter Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 24.</i>)
MAR. 26-MAR. 28	Registration for former students not in residence Winter Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.</i>)
MAR. 26-MAR. 28	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

MAR. 31—MONDAY	Instruction begins
APR. 4—FRIDAY	Last day to add a course
MAY 9—FRIDAY	Last day to submit applications for advanced credit examinations
MAY 23—FRIDAY	Governor's Day
MAY 24—SATURDAY	Advanced credit examinations
MAY 30—FRIDAY	Memorial Day holiday
JUNE 8—SUNDAY	Baccalaureate Sunday
JUNE 9—MONDAY	Final examinations begin
JUNE 13—FRIDAY	Final examinations and Quarter end
JUNE 14—SATURDAY	Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4-JUNE 6	Registration for all students. (<i>Registration appointments for students in residence Spring Quarter, 1958, and for former students not in residence Spring Quarter, 1958, may be obtained from the Registrar's Office beginning April 21. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 16-JUNE 20	

ACADEMIC PERIOD

JUNE 23—MONDAY	Instruction begins
JUNE 24—TUESDAY	Last day to add a course for the first term
JUNE 27—FRIDAY	Last day to add a course for the full quarter
JULY 3—THURSDAY	Last day to submit applications for advanced credit examinations for first term

JULY 4—FRIDAY	Independence Day holiday
JULY 19—SATURDAY	Advanced credit examinations
JULY 23—WEDNESDAY	Final examinations and first term end
JULY 24—THURSDAY	Second term begins
JULY 25—FRIDAY	Last day to add a course for the second term
AUG. 1—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 16—SATURDAY	Advanced credit examinations
AUG. 22—FRIDAY	Final examinations and second term end

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 8-SEPT. 30	Registration for students in residence Spring Quarter, 1958. (<i>Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.</i>)
SEPT. 12-SEPT. 30	Registration for former students not in residence Spring Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.</i>)
SEPT. 15-SEPT. 26	Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 40, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)
SEPT. 15-SEPT. 30	Registration for new transfer students with at least full sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 40, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

SEPT. 29—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
OCT. 1—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 7—TUESDAY	Last day to add a course
NOV. 11—TUESDAY	State Admission Day holiday
NOV. 26—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 26-DEC. 1	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 13—SATURDAY	Advanced credit examinations
DEC. 15—MONDAY	Final examinations begin
DEC. 19—FRIDAY	Final examinations and Quarter end

WINTER QUARTER, 1959

REGISTRATION PERIOD

NOV. 20-DEC. 12	Registration for students in residence Autumn Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning October 23.</i>)
DEC. 29-DEC. 31	Registration for former students not in residence Autumn Quarter, 1958. (<i>Registration appointments may be ob-</i>

DEC. 29-DEC. 31

ACADEMIC PERIOD

JAN. 5-MONDAY

JAN. 9-FRIDAY

FEB. 23-MONDAY

FEB. 27-FRIDAY

MAR. 14-SATURDAY

MAR. 16-MONDAY

MAR. 20-FRIDAY

tained by writing to or applying at the Registrar's Office beginning October 23.)

Registration for new students. (New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.)

Instruction begins

Last day to add a course

Washington's Birthday and Founder's Day holiday

Last day to submit applications for advanced credit examinations

Advanced credit examinations

Final examinations begin

Final examinations and Quarter end

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24-MAR. 13

Registration for students in residence Winter Quarter, 1959. (Registration appointments will be issued on presentation of ASUW cards beginning January 23.)

MAR. 25-MAR. 27

Registration for former students not in residence Winter Quarter, 1959. (Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.)

MAR. 25-MAR. 27

Registration for new students. (New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.)

ACADEMIC PERIOD

MAR. 30-MONDAY

APR. 3-FRIDAY

MAY 8-FRIDAY

MAY 22-FRIDAY

MAY 23-SATURDAY

MAY 30-SATURDAY

JUNE 7-SUNDAY

JUNE 8-MONDAY

JUNE 12-FRIDAY

JUNE 13-SATURDAY

Instruction begins

Last day to add a course

Last day to submit applications for advanced credit examinations

Governor's Day

Advanced credit examinations

Memorial Day holiday

Baccalaureate Sunday

Final examinations begin

Final examinations and Quarter end

Commencement

SUMMER QUARTER, 1959

REGISTRATION PERIOD

JUNE 3-JUNE 5

JUNE 15-JUNE 19

Registration for all students. (Registration appointments for students in residence Spring Quarter, 1959, and for former students not in residence Spring Quarter, 1959, may be obtained from the Registrar's Office beginning April 20. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification 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

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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Seattle
Seattle
La Conner
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Seattle
Seattle
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HELEN E. HOAGLAND, *Secretary*

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HENRY SCHMITZ, Ph.D. *President of the University*
HAROLD P. EVEREST, M.A. *Vice-President of the University*
ETHELYN TONER, B.A. *Registrar*
NELSON A. WAHLSTROM, B.B.A. *Comptroller and Business Manager*
DONALD K. ANDERSON, B.A. *Dean of Students*
LLOYD S. WOODBURN, Ph.D. *Dean of the College of Arts and Sciences*
WALTER L. RILEY, M.A. *Assistant Dean of the College of Arts and Sciences*
EDWARD H. LAUER, Ph.D. *Dean Emeritus of the College of Arts and Sciences*

FACULTY OF THE COLLEGE OF ARTS AND SCIENCES

(As of July 20, 1957)

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

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

Gunter, Erna, 1923 (1941), *Professor of Anthropology; Director of Washington State Museum*
A.B., 1919, Barnard; A.M., 1920, Ph.D., 1928, Columbia

Hulse, Frederick Seymour, 1948 (1949), *Associate Professor of Anthropology*
A.B., 1927, M.A., 1928, Ph.D., 1934, Harvard

Jacobs, Melville, 1928 (1952), *Professor of Anthropology*
A.B., 1922, City College of New York; A.M., 1923, Ph.D., 1931, Columbia

Osborne, H. Douglas, 1949 (1952), *Assistant Professor of Anthropology; Curator of the Museum*
B.A., 1938, M.A., 1941, New Mexico; Ph.D., 1951, California

Ottenberg, Simon, 1955 (1957), *Assistant Professor of Anthropology*
B.A., 1948, Wisconsin; Ph.D., 1957, Northwestern

Ray, Verne Frederick, 1933 (1947), *Professor of Anthropology*
B.A., 1931, M.A., 1933, Washington; Ph.D., 1937, Yale

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
- Winans, Edgar V., 1957, *Instructor in Anthropology*
B.A., 1952, M.A., 1954, California (Los Angeles)

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 (1955), *Assistant Professor of Art*
B.A., 1943, Washington; M.F.A., 1954, Minnesota
- Benson, Edna Grace, 1927 (1954), *Associate Professor Emeritus in Commercial Art*
B.A., 1909, M.A., 1923, Columbia
- Bonifas, Paul Ami, 1946 (1947), *Associate Professor 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 (1955), *Assistant 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.A. in Arch., 1931, Virginia; Art Students League, 1935, (New York)
- Hafermehl, C. Louis, 1957, *Assistant Professor of Art*
R.F.A., 1940, Bethany College (Kansas); M.F.A., 1955, Cranbrook Academy of Art (Michigan)
- Hensley, Mercedes 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
- Hixson, William John, 1950 (1955), *Assistant 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, (Illinois)
- Johnson, Pauline, 1941 (1945), *Associate 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 (1954), *Assistant 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, Delaclone, Whistler Simon, and Lhote Schools of Art (Paris)
- Patterson, Viola Hansen, 1947 (1955), *Assistant Professor of Art*
B.A., 1921, B.S. in L.S., 1921, B.F.A., 1925, M.F.A., 1947, Washington
- Penington, Ruth Esther, 1928 (1951), *Professor of Art*
B.F.A., 1927, M.F.A., 1927, Washington

Rand, Theodore L., 1954, *Lecturer in Art*
Cornish

Reed, Truman Gervais, 1951 (1955), *Lecturer in Art; Assistant Director Henry Art Gallery*
B.A., 1949, Yale

Rogers, Millard Buxton, 1952, *Lecturer in Art*
B.F.A., 1937, M.F.A., 1940, Art Institute of Chicago; M.A., 1940, Chicago

Smith, Charles Wallace, 1948 (1956), *Assistant Professor of Art*
Pratt Institute; B.A., 1954, Washington; 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

Hotson, John William, 1911 (1947), *Professor Emeritus of Botany; Research Consultant*
A.B., 1901, A.M., 1902, McMaster (Toronto); Ph.D., 1913, Harvard

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

Roman, Herschel Lewis, 1942 (1952), *Professor of Botany*
A.B., 1936, Ph.D., 1942, Missouri

Stadler, David Ross, 1956 (1957), *Assistant Professor of Botany*
A.B., 1948, Missouri; M.A., 1950, Ph.D., 1952, Princeton

Stuntz, Daniel Elliot, 1940 (1950), *Associate 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 (1957), *Associate 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, *Assistant 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 (1957), *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 (1956), *Associate 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 (1957), *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

Wiberg, Kenneth Berle, 1950 (1956), *Associate 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

Lenardon, Robert Joseph, 1957, *Acting Assistant Professor of Classics*
B.A., 1949, British Columbia; M.A., 1950, Ph.D., 1954, Cincinnati.

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; University Editor*
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., 1956, Toronto; Ph.D., 1949, Harvard

SCHOOL OF COMMUNICATIONS

Adams, Edwin Hubbard, 1939 (1950), *Associate Professor of Communications*
B.A., 1927, M.A., 1931, Washington State

- Ames, William E., 1957, *Assistant Professor of Communications*
B.S., 1948, South Dakota State College; M.S., 1952, Iowa State
- Astel, George Bernard, 1943 (1944), *Assistant Professor of Journalism*
B.A., 1923, Washington
- Benson, Merritt Elihu, 1931 (1948), *Professor of Journalism*
L.L.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 in Radio-Television*
B.J., 1944, M.J., 1954, Texas
- Denis, Robert Alan, 1956, *Acting Instructor in Journalism*
B.F.A., 1949, Colorado
- Edelstein, Alex, 1955 (1957), *Assistant Professor of Communications*
A.B., 1946, San Francisco State; M.A., 1948, Stanford
- Everest, Harold Philip, 1940 (1952), *Professor of Journalism; Vice-President of the University*
B.A., 1938, M.A., 1950, Washington
- Hopkins, Thomas Francis, 1956, *Acting Instructor in Radio-Television*
B.A., 1949, Washington; Teaching Certificate, 1950, Washington; M.A., 1954, Colorado State College of Education
- Irwin, Ples Lee, 1956 (1957), *Assistant Professor in Journalism*
B.A., 1941, Washington; M.A., 1951, Minnesota
- Lafromboise, Clarence Brown, 1950, *Assistant Professor of Journalism; Executive Secretary of the Washington Newspaper Publishers Association*
B.B.A., 1926, Washington
- McKenzie, Vernon, 1928, *Professor of Journalism*
B.A., 1909, Toronto; M.A., 1914, Harvard
- Murton, Clarence Charles, 1943 (1957), *Lecturer in Journalism*
B.A., 1924, Washington
- Ryan, Milo, 1946 (1957), *Professor of Journalism and Radio-Television*
B.A., 1928, M.A., 1934, Michigan
- Smith, Henry Ladd, 1955, *Professor of Journalism; Director of the School of Communications*
Ph.B., 1929, Yale; M.A., 1936, Ph.D., 1946, Wisconsin
- Strehlau, Betty Gene, 1953, *Lecturer in Communications*
B.A., 1944, M.A., 1954, Washington
- Warner, Daniel S., 1954 (1955), *Associate Professor of Journalism*
B.A., 1928, Michigan

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 (1955), *Instructor in Drama*
B.A., 1946, San Francisco State College; M.A., 1948, Washington
- Gray, Robert Simpson, 1939 (1957), *Associate 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 (1956), *Assistant Professor of Drama*

A.B., 1946, Western Reserve; M.A., 1953, Washington

Siks, Geraldine Brain, 1950 (1956), *Assistant Professor in 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 Labor Economics; Assistant Director of the Institute of Labor Economics*

A.B., 1940, M.A., 1942, Ph.D., 1950, Stanford

Chang, Chung-Li, 1954 (1956), *Assistant Professor of Economics*

B.A., 1941, St. John's University (Shanghai); M.A., 1948, Ph.D., 1953, Washington

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 (1954), *Associate Professor of Economics*

B.A., 1940, North Carolina; M.A., 1948, Ph.D., 1952, Harvard

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

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

Lampman, Robert James, 1948 (1953), *Associate Professor of Economics*

B.A., 1942, Ph.D., 1950, Wisconsin

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 (1950), *Assistant 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 (1957), *Assistant 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, *Instructor in 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, *Instructor in English*
B.A., 1949, Harvard; M.F.A., 1951, Iowa; Ph.D., 1956, Johns Hopkins
- Bostetter, Edward Everett, 1940 (1947), *Associate Professor of English*
A.B., 1935, Franklin and Marshall (Pennsylvania); M.A., 1937, Ph.D., 1938, Princeton
- Brown, Malcolm Johnston, 1946 (1956), *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 (1947), *Assistant Professor of English*
B.A., 1923, M.A., 1927, Ph.D., 1928, Washington
- Fowler, David Covington, 1952 (1953), *Assistant Professor of English*
B.A., 1942, Florida; M.A., 1947, Ph.D., 1949, Chicago
- Gould, Florence Jones, 1948 (1951), *Assistant 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 (1951), *Assistant Professor 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
- Hall, William Frederick, 1955, *Instructor in English*
B.A., 1950, M.A., 1951, Cambridge; Ph.D., 1954, Johns Hopkins
- Hamilton, Albert Charles, 1952, *Assistant 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 (1954), *Associate 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 (1954), *Associate Professor of English*
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
- Lisca, Peter, 1956 (1957), *Assistant Professor of English*
B.A., 1950, California; M.S., 1951, Ph.D., 1955, Wisconsin
- Marquardt, William F., 1954, *Assistant Professor of English*
B.A., M.A., 1939, Wisconsin; Ph.D., 1949, Northwestern
- Matchett, William, 1954 (1956), *Assistant Professor of English*
B.A., 1949, Swarthmore; M.A., 1950, 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
- 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, *Instructor in English*
B.A., 1949, M.A., 1952, Stanford
- Phillips, William Louis, 1949 (1952), *Assistant Professor of English*
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, *Instructor in 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, *Instructor in 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
- 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 (1957), *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, Chung-li, 1948 (1955), *Assistant Professor of Far Eastern and Russian Institute*
B.A., 1941, St. John's University (Shanghai); M.A., 1948, Ph.D., 1953, 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
- Erlich, Victor, 1948 (1955), *Associate 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, *Visiting 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
- Jansen, Marius Berthus, 1950 (1955), *Associate Professor of Japanese History*
A.B., 1943, Princeton; M.A., 1948, Ph.D., 1950, Harvard
- Li, Fang-kuei, 1949 (1950), *Professor of Chinese Linguistics*
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)
- Mickelsen, 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 Far Eastern and Slavic Languages and Literature*
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)
- Shaw, John Roger, 1950 (1951), *Acting Instructor in Russian Language*
B.A., 1942, 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
- Spector, Ivar, 1931 (1943), *Associate Professor of Far Eastern and Slavic Languages and Literature*
Graduate, 1919, Teachers' Seminar (Russia); M.A., 1926, Northwestern; Ph.D., 1928, Chicago
- Suh, Doo Soo, 1955, *Visiting Lecturer in Far Eastern and Slavic 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)
- Treadgold, Donald Warren, 1949 (1955), *Associate 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)
- Yang, Richard Fu-sen, 1948 (1957), *Assistant Professor of Chinese Language*
B.A., 1943, Yenching (China); M.A., 1950, Ph.D., 1955, Washington

SCHOOL OF FISHERIES

- Bell, Frederick Heward, 1931, *Lecturer in Fisheries*
B.A., 1924, British Columbia
- Bell, Milo Carsner, 1953, *Research Associate Professor in Fisheries*
B.S., 1930, Washington
- DeLacy, Allan Clark, 1946 (1951), *Associate Professor of Fisheries*
B.S., 1932, M.S., 1933, Ph.D., 1941, Washington
- Donaldson, Lauren Russell, 1935 (1948), *Professor of Fisheries; Director of the Applied Fisheries Laboratory*
A.B., 1926, Intermountain Union College (Montana); M.S., 1931, Ph.D., 1939, Washington
- Fields, Paul Eldon, 1955, *Professor of Fisheries*
A.B., 1926, A.M., 1927, Ohio Wesleyan; Ph.D., 1930, Ohio State
- Lynch, James Eric, 1931 (1943), *Professor of Fisheries*
B.A., 1917, M.A., 1921, Nebraska; Ph.D., 1929, California
- Stern, Joseph Aaron, 1953, *Assistant Professor of Fisheries*
S.B., 1949, S.M., 1950, Ph.D., 1953, Massachusetts Institute of Technology

Thompson, William Francis, 1930, *Professor of Fisheries; Director of the Fisheries Research Institute*

B.A., 1911, Ph.D., 1930, Stanford

Van Cleve, Richard, 1948, *Professor of Fisheries; Director of the School of Fisheries*

B.S., 1927, Ph.D., 1936, Washington

Welander, Arthur Donovan, 1937 (1954), *Associate Professor of Fisheries; Associate Professor in Applied Fisheries Laboratory*

B.S., 1934, M.S., 1940, Ph.D., 1946, 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 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 (1957), *Associate Professor of Geography*

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

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, *Assistant Professor of Geography*

B.A., 1946, M.A., 1949, Toronto; Ph.D., 1953, Maryland

Kakiuchi, Hiroaki George, 1957, *Acting Instructor in Geography*

A.B., 1952, A.M., 1953, 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*

B.A., 1937, M.A., 1944, Washington; Ph.D., 1950, Northwestern

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., 1957, 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

Misch, Peter Hans, 1947 (1950), *Professor of Geology*

D.Sc., 1932, Goettingen (Germany)

Neumann, Frank, 1953, *Seismologist and Research Geologist*

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 (1954), *Lecturer in German*
B.A., 1942, Amherst; M.A., 1948, Ph.D., 1954, Yale

Eckelman, Ernest Otto, 1911 (1947), *Professor Emeritus of Germanic Literature; Librarian in Germanics*
B.A., 1897, Northwestern; B.L., 1898, Wisconsin; Ph.D., 1906, Heidelberg (Germany)

Kahn, Robert Ludwig, 1948 (1955), *Assistant Professor of German*
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, Department of Germanic Languages and Literature*
B.A., 1924, Capital; Ph.D., 1936, Chicago

Reed, Carroll Edward, 1946 (1952), *Associate Professor of Germanic Languages*
B.A., 1936, M.A., 1937, Washington; Ph.D., 1941, Brown

Rey, William Henry, 1950 (1955), *Associate 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

Taube, Rene Simon, 1955, *Acting Instructor in Germanic Languages and Literature*
M.A., 1952, Johns Hopkins

Vail, Curtis C. D., 1939, *Professor of Germanic Languages and Literature; Executive Officer of the Department of Germanic Languages and Literature*
A.B., 1924, Hamilton College; M.A., 1929, Ph.D., 1936, 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

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

- Giesey, Ralph Edwin, 1956, *Instructor in History*
A.B., 1944, M.A., 1947, Wayne; Ph.D., 1954, California
- 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 (1934), *Professor 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, *Acting Assistant Professor of History*
B.A., 1947, British Columbia; M.A., 1948, 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
- Treadgold, Donald Warren, 1949 (1955), *Associate Professor of History*
B.A., 1943, Oregon; M.A., 1947, Harvard; D.Phil., 1950, Oxford (England)
- Woolf, Harry, 1955, *Assistant Professor of History*
B.S., 1948, M.A., 1949, Chicago; Ph.D., 1955, Cornell

SCHOOL OF HOME ECONOMICS

- 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
- 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
- Hosmer, Margaret George, 1948 (1954), *Lecturer in Home Economics*
B.S., 1918, North Carolina
- Johnson, Mary Louise, 1945 (1957), *Professor and Director of Home Economics*
B.A., 1940, Hardin-Simmons; M.S., 1942, Wisconsin; D.Sc., 1954, Harvard
- Lawton, Alberta Frances, 1955, *Instructor in Home Economics*
B.S., 1953, Washington; M.S., 1954, Ohio State
- McAdams, Laura Elizabeth, 1941 (1951), *Associate Professor of Home Economics*
B.S., 1923, M.S., 1932, Kansas State College
- Nelson, Lois Elaine, 1956, *Assistant Professor of Home Economics*
B.S., 1948, North Dakota Agricultural College; M.S., 1950, Cornell
- Payne, Blanche, 1927 (1942), *Professor of Home Economics*
B.S., 1916, Kansas State Teachers College; M.A., 1924, Columbia
- Peterson, Mary Angela, 1957, *Assistant Professor of Home Economics*
B.S., 1940, Washington; M.S., 1951, Western Reserve; M.P.H., 1957, California
- 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
- Wybourn, Marjory, 1948 (1952), *Assistant Professor of Home Economics*
B.S., 1944, Washington; M.A., 1948, Columbia

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, *Instructor in 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*
LL.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
- Bremermann, Hans Joachim, 1957, *Assistant Professor of Mathematics*
Ph.D., 1951, University of Muenster
- Brownell, Francis Herbert, III, 1950 (1956), *Associate Professor of Mathematics*
B.A., 1943, M.S., 1947, Yale; Ph.D., 1949, Princeton
- Butler, John Ben, Jr., 1956 (1957), *Assistant Professor of Mathematics*
B.A., 1945, Swarthmore; M.S., 1947, New York; Ph.D., 1954, California
- Chapman, Douglas George, 1949 (1957), *Professor of Mathematics*
B.A., 1938, Saskatchewan; M.A., 1940, Ph.D., 1949, California
- 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 (1951), *Assistant Professor of Mathematics; Director, 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, Hebert 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
- Gonzalez-Fernandez, Jose Maria, 1957, *Instructor in Mathematics*
Medico, 1946, Buenos Aires (Argentina), M.S., 1954, Northwestern
- Haller, Mary Elizabeth, 1931 (1949), *Associate Professor of Mathematics*
B.A., 1924, M.S., 1931, Ph.D., 1934, Washington
- Helmberg, Gilbert, 1956, *Acting Instructor in Mathematics*
Ph.D., 1953, Vienna
- Hewitt, Edwin, 1948 (1954), *Professor of Mathematics*
A.B., 1940, M.A., 1941, Ph.D., 1942, Harvard
- Isbell, John Rolfe, 1957, *Assistant 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
- Kingston, John Maurice**, 1940 (1946), *Assistant 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
- Leipnik, Roy Bergh**, 1950, *Assistant Professor of Mathematics*
S.B., 1945, S.M., 1948, Chicago; Ph.D., 1950, California
- 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
- Newlander, August, Jr.**, 1957, *Instructor in Mathematics*
B.S., 1944, Denver; M.S., 1946, Chicago; Ph.D., 1957, New York
- Nijenhuis, Albert**, 1956, *Assistant Professor of Mathematics*
B.S., 1947, M.S., 1950, Ph.D., 1952, Amsterdam
- Pierce, Richard Scott**, 1955, *Assistant 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
- Vaught, Robert Lawson**, 1954 (1956), *Assistant Professor of Mathematics*
A.B., 1945, Ph.D., 1954, 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
- 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 (1951), *Assistant 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)
- 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
- Hubley, Richard Carleton**, 1956, *Lecturer in Meteorology*
B.S., 1950, M.S., 1952, Ph.D., 1956, Washington
- Reed, Richard John**, 1954, *Assistant Professor of Meteorology*
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, *Assistant 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
- 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
- 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*
- Hokanson, Randolph, 1949, *Assistant Professor of Music*
- 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 Holy Names, Oakland; M.A., 1953, Supv. Credit, 1955, California
- Kechley, Gerald, 1947 (1953), *Instructor in Music*
B.A., 1946, M.A., 1950, Washington
- Kinsella, Hazel Gertrude, 1942 (1947), *Professor 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 (1952), *Associate Professor of Music*
Graduate, 1911, Leipzig (Germany)
- 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, *Associate 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 (1950), *Assistant 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
- Van Ogle, Louise, 1915 (1947), *Professor Emeritus of Music; Examiner in Piano*
- Verrall, John Weedon, 1948 (1950), *Associate 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
- 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
- Frolander, Herbert Farley, 1952 (1957), *Assistant Professor of Oceanography*
Ed.B., 1946, Rhode Island College of Education; Sc.M., 1950, Ph.D., 1955, Brown
- Paquette, Robert George, 1946 (1952), *Lecturer in Oceanography; Research Associate Professor of Oceanography*
B.S., 1936, Ph.D., 1941, Washington
- Ratray, Maurice, Jr., 1950 (1957), *Associate Professor of Oceanography*
B.S., 1944, M.S., 1947, Ph.D., 1951, California Institute of Technology
- Thompson, Thomas Gordon, 1919 (1929), *Professor 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
- 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
- Murphy, Arthur Edward, 1953, *Professor of Philosophy; Executive Officer of the Department of Philosophy*
A.B., 1923, Ph.D., 1925, California
- Rader, Melvin Miller, 1930 (1948), *Professor of Philosophy*
A.B., 1925, M.A., 1927, Ph.D., 1929, Washington
- Sesonske, Alexander, 1956, *Visiting Assistant Professor of Philosophy*
A.B., 1949, Ph.D., 1954, California, Los Angeles
- Smullyan, Arthur Francis, 1946 (1956), *Professor 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
- Clark, Earl Franklin, 1933 (1951), *Lecturer in Physical Education; Athletic Trainer*
- 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
- Donham, Robert Eugene, 1954, *Acting Instructor in Physical Education*
B.S., 1950, Ohio State; M.S., 1953, Washington
- Dye, William Henry Harrison, 1950 (1951), *Lecturer in Physical Education; Head Basketball Coach*
B.S., 1937, Ohio State

- 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
- 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, 1597, *Lecturer in Men's Physical Education; Head Football Coach*
B.S., 1950, Oklahoma
- Peek, Clifford L., 1938, *Assistant Professor of Physical Education*
B.S., 1929, Washington; M.A., 1931, Columbia
- 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
- Reuter, Edward R., 1957, *Instructor in Men's Physical Education*
B.S., 1948, Washington State; M.S., 1949, Ph.D., 1957, Illinois
- Stevens, Leonard Woodbury, 1937 (1948), *Assistant Professor of Physical Education*
B.S., 1933, M.S., 1941, Washington
- Tallman, John D., 1956, *Acting Instructor in Physical Education*
B.A., 1951, M.S., 1956, Washington
- Torney, John Alfred, Jr., 1930 (1948), *Associate Professor of Physical Education*
B.S., 1928, Washington; M.A., 1920, Columbia
- Ulbrickson, Alvin Martin, 1927 (1951), *Lecturer in Physical Education; Head Crew Coach*
B.B.A., 1927, Washington

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
- 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
- Frishkon, Helen Mildred, 1957, *Instructor in Physical Education*
B.S., 1956, Springfield College (Massachusetts)
- 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
- Stallings, Irma Catherine, 1954, *Instructor in Physical Education*
B.S., 1952, Maryland; M.S., 1954, Wisconsin
- 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

- Bichsel, Hans, 1957, *Acting Assistant Professor of Physics*
M.A., Ph.D., 1951, Basel (Switzerland)
- Blair, John Sanborn, 1952 (1957), *Associate Professor of Physics*
B.S., 1943, Yale; M.S., 1949, Ph.D., 1951, Illinois
- Bodansky, David, 1954, *Assistant 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, *Assistant Professor of Physics*
B.Sc., 1946, Queens (Kingston, Ontario); Ph.D., 1952, Massachusetts Institute of Technology
- Farwell, George Wells, 1948 (1955), *Associate Professor of Physics*
B.S., 1941, Harvard; Ph.D., 1948, Chicago
- Geballe, Ronald, 1946 (1954), *Associate Professor of Physics; Acting 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., 1943, 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 (1939), *Assistant Professor of Physics*
B.S., 1919, Washington
- Jacobsohn, Boris Abbott, 1948 (1955), *Associate 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
- 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
- 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

DEPARTMENT OF POLITICAL SCIENCE

- Bone, Hugh Alvin, 1948, *Professor 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; Executive Officer of the Department 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*
A.B., 1947, Pennsylvania State; M.A., 1949, Ph.D., 1953, Harvard
- Hink, Heinz R., 1955 (1957), *Lecturer in Political Science*
L.L.B., 1948, Berlin (Germany); M.A., 1952, Washington
- Hitchner, Dell Gillette, 1947 (1951), *Associate Professor of Political Science*
B.A., 1936, Wichita; M.A., 1937, Missouri; Ph.D., 1940, Wisconsin
- Lyden, Fremont James, 1956 (1957), *Instructor in Political Science*
B.A., 1950, M.P.A., 1952, Washington
- 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, *Acting 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
- 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 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
- Guthrie, Edwin Ray, 1914 (1956), *Professor Emeritus of Psychology; Dean Emeritus of the Graduate School*
B.A., 1907, M.A., 1910, Nebraska; Ph.D., 1912, Pennsylvania; LL.D., 1946, Nebraska
- 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; Chief Examiner, Bureau of Testing*
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; Executive Officer of the Department of Correspondence Study*
B.S., 1926, M.A., 1930, Ph.D., 1932, Princeton
- Loucks, Roger Brown, 1936 (1948), *Professor of Psychology; Executive Officer of the Department 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, *Assistant Professor of Psychology*
B.A., 1951, Rutgers; M.A., 1953, Iowa; Ph.D., 1955, Indiana
- Smith, Moncrieff Hynson, Jr., 1949 (1953), *Associate Professor of Psychology*
A.B., 1940, M.A., 1941, Missouri; Ph.D., 1947, Stanford
- Stotland, Ezra, 1957, *Assistant Professor of Psychology*
M.A., City College of New York, 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—INSTITUTE OF CHILD DEVELOPMENT

- 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
- 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
- Stoddard, Patricia Ostrom, *Lecturer in the Nursery School*
B.A., 1955, Washington

DEPARTMENT OF ROMANCE LANGUAGES AND LITERATURE

- Ayllón, Cándido, 1956 (1957), *Assistant Professor in Spanish*
B.A., 1951, Brooklyn College; M.A., 1952, Ph.D., 1956, Wisconsin
- Bary, David Alan, 1955, *Instructor in Spanish*
A.B., 1948, M.A., 1950, Ph.D., 1956, California (Berkeley)
- 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

- García-Prada, Carlos, 1925 (1957), *Professor Emeritus of Spanish*
Ph.B., 1918, Colegio Del Rosario (Bogotá, Colombia); M.A., 1924, Michigan; Ph.D., 1929,
Universidad Nacional (Bogotá, Colombia)
- Goggio, Charles, 1920 (1956), *Professor Emeritus of Romance Languages*
A.B., 1910, Harvard; A.M., 1914, Ph.D., 1919, Wisconsin
- Hanzeli, Victor Egon, 1957, *Instructor in 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 (1954), *Assistant 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 (1948), *Associate 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, *Instructor in Sociology*
A.B., Rochester, 1950; M.A., 1953, Ph.D., 1956, North Carolina
- 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)
- Cohen, Joseph, 1932 (1941), *Assistant Professor of Sociology*
B.A., 1925, M.A., 1927, Washington; Ph.D., 1935, Michigan
- 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, *Acting Instructor in Sociology*
A.B., 1952, Pomona; M.A., 1956, Washington
- Hayner, Norman Sylvester, 1925 (1937), *Professor of Sociology*
B.A., 1920, Washington; M.A., 1921, Ph.D., 1923, Chicago
- Kalbach, Warren E., 1953 (1957), *Acting Instructor in Sociology*
B.A., 1949, Washington; M.A., 1953

- Larsen, Otto Nyholm, 1949 (1956), *Assistant Professor of Sociology*
B.A., 1947, M.A., 1949, Ph.D., 1955, Washington
- Lundberg, George Andrew, 1945, *Professor of Sociology*
B.A., 1920, North Dakota; M.A., 1923, Wisconsin; Ph.D., 1925, Minnesota
- Miyamoto, Shotaro Frank, 1945 (1956), *Associate Professor of Sociology*
B.A., 1936, M.A., 1938, Washington; Ph.D., 1950, Chicago
- 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., 1939, Washington State College; M.A., 1945, Ph.D., 1950, Washington
- Wager, Leonard Wesley, 1954 (1957), *Acting Assistant Professor of Sociology*
B.A., 1949, M.A., 1952, Washington
- Wheeler, Stanton, 1956 (1957), *Acting Instructor in Sociology*
B.A., 1952, Pomona College; M.A., 1956, Washington
- 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, 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
- Richards, Gale Lee, 1952, *Assistant Professor of Speech*
B.A., 1940, Akron; M.A., 1942, Ph.D., 1950, Iowa

- Scheidel, Thomas Maynard, 1955, *Acting Instructor in Speech*
B.A., 1953, Willamette; M.A., 1955, Washington
- Sugarman, Alfred, 1957, *Instructor in Speech*
B.A., 1947; 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 (1951), *Instructor 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 (1947), *Assistant Professor of Zoology*
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 (1954), *Associate 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, *Assistant 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 (1943), *Professor of Zoology*
A.B., 1925, Illinois; M.S., 1928, Ph.D., 1931, Michigan
- Whiteley, Arthur Henry, 1947 (1952), *Associate 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
- Bovee, Harley H., 1953 (1955), *Research Instructor in Public Health and Preventive Medicine*
B.S., 1948, Washington
- Douglas, Howard Clark, 1941 (1950), *Associate 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 (1953), *Assistant Professor of Microbiology*
S.B., 1947, Ph.D., 1950, Chicago
- Hain, Raymond F., 1951 (1952), *Assistant Professor of Pathology*
B.S., 1942, Albright; M.D., 1945, Jefferson Medical College
- Hatlen, Jack Bernard, 1952, *Lecturer in Public Health and Preventive Medicine; Campus Sanitarian*
B.S., 1949, 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 (1943), *Associate Professor of Microbiology*
A.B., 1927, Luther College; Ph.D., 1936, Minnesota
- Pate, John B., 1954, *Research Associate in Public Health and Preventive Medicine*
B.S., 1952, Washington
- 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)
- Reiff, Robert H., 1952, *Instructor in Pathology*
A.B., 1939, Whitman College; Ph.D., 1944, Minnesota; M.D., 1948, Tennessee
- 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, *Instructor in Microbiology*
B.S., 1950, Cornell; Ph.D., 1954, Yale
- 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
- Zahler, Stanley A., 1954, *Instructor in Microbiology*
A.B., 1948, New York; S.M., 1949, Ph.D., 1952, Chicago



GENERAL INFORMATION

GENERAL INFORMATION

THE 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, Fisheries, 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, 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 Henry Suzzallo Library, center of the University library system, maintains special collections for architecture, art, chemistry, communications (journalism and radio-television), drama, English, speech, Far Eastern, fisheries, oceanography, geography, the Institute of Labor Economics, languages, mathematics, physics, music, philosophy, political science, and psychology.

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 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.

A language laboratory, operated jointly by the language departments and the Film Center, makes it 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, 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.

Two special activities in fisheries are of importance to the region. The Applied Fisheries Laboratory, associated with the School of Fisheries, is a national center for research in aquatic radiobiology, and the Fisheries Research Institute is working on a long-range survey of Alaska salmon resources.

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.

Revised Admission Requirements for 1960

Effective in September, 1960 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 elementary geometry) |
| C. Foreign Language | 2 units in one language |
| D. Social Science | 1 unit |
| E. Science | 1 unit of one laboratory science |
| F. Additional required courses: | |
| 1. | 1 unit of literature, composition, drama, journalism or speech, or a third unit of the foreign language; or 2 units of a second foreign language. |
| 2. | 1 unit of laboratory science or mathematics (advanced algebra, solid geometry, trigonometry, mathematical analysis). |
| 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 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, 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 Division of Adult Education and Extension Services. 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. Deficiencies will not carry graduation credit and will not be applied toward satisfaction of the College group requirement. However, the Admissions Board may make exceptions in the pattern of required units for students from small high schools which cannot adjust immediately to the new requirements.

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 Alaska 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 40-45.

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 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 air-mailed 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 42).

All entering freshmen are 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.

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; 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 43 for applicants who have had college work.

Legal Residents of the State of Washington and the Territory of Alaska 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 Athletic 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, 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 and the Territory of Alaska

The University scholarship requirement for nonresidents^o or students residing outside the state of Washington or the territory of Alaska 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 Nonresident Scholarship Requirement, page 41.)

^o Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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 units¹ (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	1 unit
Mathematics (elementary algebra and plane geometry) ^o	2 units	Electives (minimum)	7 units

^o Both algebra and geometry are required for science majors, but nonscience majors may present 2 units of algebra if preferred.

Less than 1 unit in a foreign language will not be counted.

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.

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

¹ 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.

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 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 \$22.00 per course) and do not carry University credit.

ADMISSION BY EXAMINATION

A graduate of a *nonaccredited* 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 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 or territory of Alaska 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.

3. *Applicants who are not legal residents of the state of Washington or territory of Alaska, 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 or territory of Alaska 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 or the territory of Alaska 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, 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 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. 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 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. A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit, and, in addition, shall be allowed up to a maximum of 90 quarter credits from the junior college exclusive of physical education activity credits.

6. 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.

7. 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 members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination.

8. 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 Division of Adult Education and Extension Services. 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.

9. 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.

10. 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 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 42 and 43.

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 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 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 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.

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 51).

REQUIRED TESTS AND EXAMINATIONS

UNIVERSITY OF WASHINGTON APTITUDE AND GRADE PREDICTION TESTS

New students of freshman standing (including transfer students with less than 45 quarter hours of college credit 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 50 (Basic Grammar) 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 three 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 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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

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, filing his class cards, and depositing his registration book at Sections, 101 Administration Building.

APPOINTMENTS

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 4). Students in residence may obtain appointments at the time announced in the Calendar.

ADVISING

After notification of admission, and before registration, new students should visit or write to the College for help 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, and medicine.

REGISTERED CREDITS ALLOWED EACH QUARTER

Except with the consent of his dean, no student may be registered for less than 12 credits (or its equivalent) or more than 16 credits (or its 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 its 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.

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 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, 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, plus the required quarters of ROTC and physical education, have been earned. In 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 at this University 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.

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 requirements 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 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 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.

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 Department of Physical 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 Department of Physical 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 one year or more of active service. This exemption does not grant credit. Veterans with less than one year 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, 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, a course in health education, 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

A resident student is one who has been domiciled in Washington or Alaska 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

Prospective students are classified as nonresidents when their credentials come from schools outside Washington and Alaska. If they believe they are residents, they may petition the Nonresident Tuition 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) 3.00-5.00

Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00;
Spring Quarter, \$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 is returnable for full or partial refund.

Locker Fee, per quarter 1.50

Required of men students taking physical education activities.

<i>Grade Sheet Fee</i>	.25
One grade sheet is furnished each quarter without charge; the fee is charged for each additional copy.	
<i>Transcript Fee</i>	.50
One transcript is furnished without charge; the fee is charged, payable in advance, for each additional copy. Supplementary transcripts are 50 cents each.	
<i>Graduation Fee</i>	10.00

SPECIAL FEES

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00 per credit; and for removal of an Incomplete, \$2.00.

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, \$3.00. 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. Riding Fee is payable to riding academy and varies in amount.

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	\$183.00
Full-time nonresident student	408.00

Athletic Admission Ticket (optional) 3.00-5.00

Accident Insurance (optional) 3.75

Special Fees and Deposits 38.50

Military uniform deposit, breakage ticket, and locker fees.

Books and Supplies 75.00

Board and Room

Room and meals in Men's Residence Halls	600.00
Room and meals in Women's Residence Halls	540.00-630.00
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 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.

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.

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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical 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. Housing is available to women in the Women's Residence Halls. For further information write to 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.

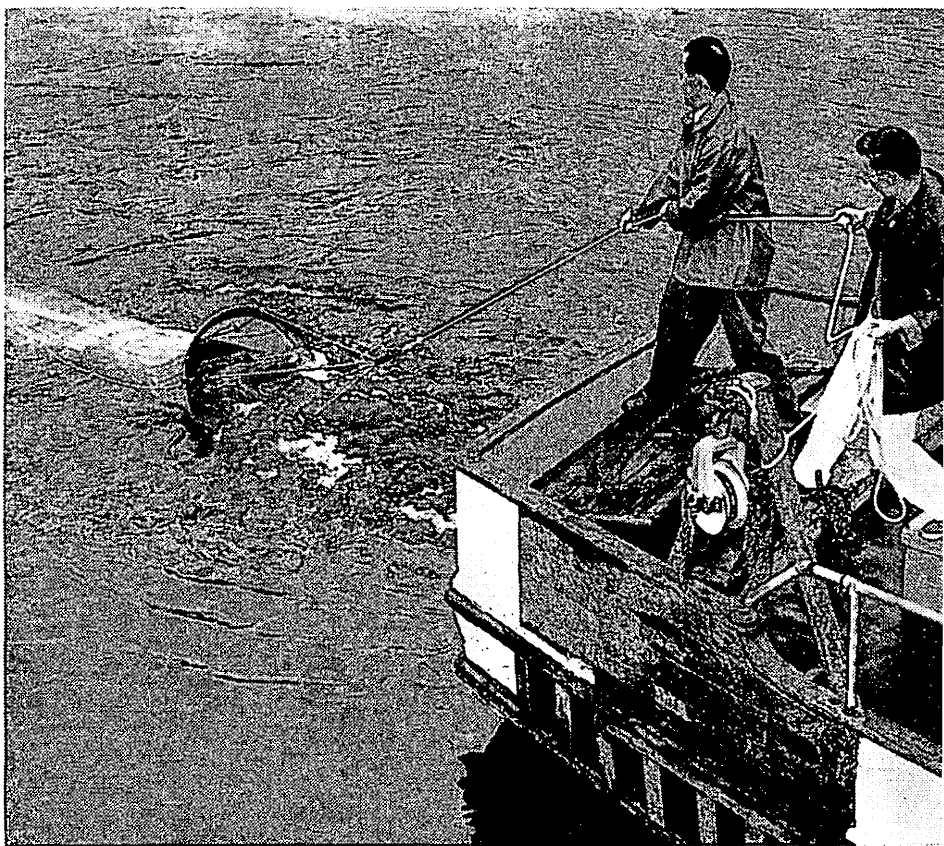
HEALTH CENTER

The University maintains a health center and infirmary which 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.

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 DEPARTMENTAL PROGRAMS

THE DEPARTMENTAL PROGRAMS

THE 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, and medicine, 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 191.

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. 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>
Architecture	Anthropology	Anatomy 301
Art	Economics	Astronomy
Classics	Far Eastern Institute	Biochemistry
Drama	courses	Biology
English	Geography	Botany
Far Eastern languages and literature	History	Chemistry
General and comparative literature	Home economics	Conjoint 317-318
Germanic languages and literature	Philosophy	Fisheries
Humanities 101, 102, 103, 201, 202, 203	Physical education	Geology
Journalism	Political science	Mathematics
Liberal arts	Psychology	Meteorology and climatology
Librarianship	Social Science, 101, 102, 103, 201, 202, 203	Microbiology
Music	Sociology	Oceanography 101
Radio-Television		Pharmacy 115
Romance languages and literature		Physical Science 101
Scandinavian languages and literature		Physics
Slavic languages and literature		Zoology
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 58) 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, fisheries, 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, urban planning, 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, fisheries, 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.

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 courses, for juniors and seniors. Courses open to graduate students only are numbered 500 and above, though 400-numbered courses may carry graduate credit for graduate students.

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*.

ANTHROPOLOGY

Executive Officer: JAMES B. WATSON, 436 Thomson 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 117).

BACHELOR OF ARTS

In this elective curriculum, at least 40 credits in Anthropology are required, including the following courses: Anthropology 101, 102, 103; two area courses from 210, 211, 213, 214, 215, and 311 or 315; one archaeology course from 272, 273; one physical anthropology course from 480, 481, 482; the general linguistics course, 450j; two comparative ethnology courses from 432, 435 or 436, 437.

A 2.50 grade-point average in anthropology courses is required.

If graduate work is contemplated, electives should include two foreign languages, depending on the area of interest.

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 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.

The requirements for a minor in anthropology for a master's degree are 36 credits of undergraduate and graduate work in anthropology, including Anthropology 390 or equivalent, and at least 6 credits in courses numbered 500 or above.

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 FOR UNDERGRADUATES

- | | |
|---|-----------------------|
| 101 Principles of Anthropology: Race (5) | Staff |
| Evolution and heredity as applied to man; racial classification and its significance. | |
| 102 Principles of Anthropology: Social Customs (5) | Staff |
| Man's social customs, political institutions, religion, art, literature, and language. | |
| 103 Principles of Anthropology: Prehistory (5) | Staff |
| Man's cultural development as revealed by archaeology and carried to the beginning of history. | |
| 210 North American Indians (3) | Gearing |
| Historic Indian cultures and their modern representatives. | |
| 211 Oceania (3) | Staff |
| Ethnographic analysis of the islands of the Pacific, including the effects of modern contacts. | |
| 213 Africa (3) | Ottenberg |
| Discussion of the basic civilizations of Africa. | |
| 214 Eurasia (3) | Hulse, Staff |
| The cultures of peoples of Europe and Asia. | |
| 215 Native Peoples of Middle and 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 102 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 North American Archaeology: Archaic Period (2) | Greengo |
| The most ancient cultures of the American Indian. | |
| 273 North American Archaeology: Post-Archaic Period (2) | Greengo |
| Archaeological cultures of the American Indian to the contact period. | |
| 280 Theories of Race (2) | Staff |
| Survey of human heredity; racial history; race differences. Not open to students who have had 101 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**
Study of the material culture of primitive peoples with analysis of techniques of manufacture. Museum material is used for laboratory work.
- 350 Basis of Civilization (3)** **Staff**
Basic inventions, discoveries, and technological achievements of the ancient and primitive worlds; the beginnings of science.
- 370 Methods and Problems of Archaeology (5)** **Greengo**
Field experience in this locality is included. Prerequisite, 103.
- 371 Analysis of Archaeological Data (5)** **Greengo**
(Not offered 1957-58.)
- 380 Primate and Human Evolution (3)** **Hulse**
Development and relationships of primates, including man, traced from comparative and paleontological data.
- 390 Introduction to Anthropology (5)** **Gunther**
A survey of anthropology. For nonmajors. Not open to students who have taken 101, 102, or 103.
- 417 Middle American Civilization (2)** **Greengo, Staff**
The high cultures of Mexico, Guatemala, and Northern Central America. Prerequisite, 315.
- 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, 102 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 Social and Political Institutions (3)** **Read, Ray**
Comparative analysis of selected nonliterate societies.
- 441 Culture and Personality (5)** **Spiro, Jacobs**
The structure of personality; processes and factors in its development in differing types of culture. Prerequisites, 101, 102, or 390, Psychology 100, and junior standing.
- 442 Socialization of the Child in Primitive Culture (3)** **Hulse**
How the child is molded in cultural patterns and prepared for adult life in various primitive societies; comparative data from tribes in North and South America, Africa, Asia, Australia, and Oceania. (Not offered 1957-58.) Prerequisite, 102 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.
- 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)** **Hulse**
Prerequisites, 101, 102, and 103 or Biology 101J-102J.

- 481 Physical Anthropology: Anthropometry (3)** Hulse
Prerequisites, 101, 102, and 103 or Biology 101J-102J.
- 482 Physical Anthropology: Genetics (3)** Hulse
Prerequisites, 101, 102, and 103 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
(Not offered 1957-58.)
- 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
(Not offered 1957-58.)
- 519J Seminar on Asia (3)** Wilhelm, Staff
The large cultural regions of the continent are studied in succession with special reference to anthropological problems. Offered jointly with the Far Eastern and Russian Institute. (Not offered 1957-58.)
- N520 Departmental Seminar (0)** Staff
Departmental seminar required of all candidates for advanced degrees.
- 521 Native American Culture History (4)** Ray
A historical interpretation of the geographical distribution of critical aspects of North and South American Indian cultures. (Not offered 1957-58.)
- 522 Cultural Problems of Western America (3)** Staff
- 523 Colloquium on Arid America (5)** Ray
- 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. (Not offered 1958-59.)
- 525 Seminar in Culture Processes (3, maximum 6)** Watson, Staff
- 527 Acculturation (3)** Watson
- 531 Analysis of Oral Literature (3, maximum 6)** Garfield
(Not offered 1958-59.)
- 541 Seminar in Psychological Aspects of Culture (3)** Spiro, Jacobs
- 542 Personality Patterns in Japanese Culture (3)** Hulse
(Not offered 1958-59.)
- 551 Field Techniques in Linguistics (3)** Jacobs
(Not offered 1957-58.)
- 553J Analysis of Linguistic Structures (3)** Jacobs, Li
Offered jointly with the Far Eastern and Russian Institute.
- 560 Seminar in the History of Anthropology (3)** Staff
- 561 Seminar in Methods and Theories (3)** Ray
- 570 Seminar in Archaeology (3)** Greengo
(Not offered 1957-58.)
- 580 Anthropology in Contemporary Problems (3)** Gunther
- 581 Anthropological Migration and Population Study (3)** Hulse
(Not offered 1957-58.)
- 582 Seminar in Race and Genetics (3)** Hulse
- 600 Research (*)** Staff
- Thesis (*)** Staff

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
Art 105 Drawing	3	Art 106 Drawing	3
Art 109 Design	3	Art 110 Design	3
Engl. 101 Composition ...	3	Engl. 102 Composition ...	3
Modern foreign language..	5	Modern foreign language..	5
Health Educ. 110 or 175 ..		Phys. Educ. activity	1
Health	2	ROTC	2-3
Phys. Educ. activity	1		15-18
ROTC	2-3		
	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
Art 212 History of West. Art	2	Art 213 History of West. Art	2
Art 253 Design	3	Art 254 Design	3
Art 256 Painting	3	Art 257 Painting	3
Approved electives	4	Art 272 Sculpture	3
ROTC	2-3	Approved electives	6
	12-15	ROTC	2-3
			17-20

Third Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Art 201 Ceramic Art	3	Art 202 Ceramic Art	3
Art 360 Life	3	Art 361 Life	3
Arch. 100 Appreciation ...	2	Arch. 101 Appreciation ...	2
Econ., Pol. Sci., or Sociol.	5	Lab. science	5
Approved electives	2	Approved electives	2
	15		15

Fourth Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Art 350 Printmaking or 410 Illustration	3-5	Art 326 History	2
Art 463 Composition	3	Art 464 Composition	3
Approved electives	7-9	Approved electives	10
	13-15		15

THIRD QUARTER	CREDITS
Art 320 History	2
Approved electives	13
	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
Speech 100 Basic Speech Improvement	5	Humanities 102 The Arts	5	Engl. 103 Composition	3
Health Educ. 110 or 175		Phys. Educ. activity	1	Psychol. 100 General	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	3	Art 255 Design	3
Art 253 Design	3	Art 272 Sculpture	3	Art 258 Water Color	3
Art 256 Painting	3	Lab. science	5	Educ. 209 Educ. Psychol.	3
Lab. science	5	Music electives	2	Educ. 370 Teaching Procedures	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 350 Printmaking or 357 Metal Design or 358 Jewelry Design	5	Educ. 390 Evaluation in Educ.	3	Educ. 374 Reading Instruction	5
Approved electives	5	Approved electives	2	Approved electives	3
	15		14		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	2	Educ. 319 Super. of Elem. Art	2	Educ. 372E Professional Lab. Experiences	3
Educ. 402 Child Study & Develop. or Psych. 306 Child Psychology	3-5	Educ. 371X or S Directed Teaching	8	Hist. 464 Wash. & the Pacific Northwest	5
Pub. Health 461 School & Comm. Health	5	Educ. 373 State Manual	2	Approved electives	2
	15		15		13

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	3	Art 254 Design	3	Art 214 Hist. of West. Art	2
Art 256 Painting	3	Art 257 Painting	3	Art 255 Design	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
Art 265 Draw. & Paint.	3
Art 360 Life	3
Art 366 Commer. Design	3
Arch. 100 Appreciation	2
Approved electives	3
	<hr/> 14

SECOND QUARTER	CREDITS
Art 266 Draw. & Paint.	3
Art 361 Life	3
Art 367 Commer. Design	3
Arch. 101 Appreciation	2
Approved electives	3
	<hr/> 14

THIRD QUARTER	CREDITS
Art 309 Portrait	3
Art 362 Life	3
Art 368 Commer. Design	3
Econ. 200 Introduction	5
Approved electives	2
	<hr/> 16

Fourth Year

FIRST QUARTER	CREDITS
Art Hist. elective	2
Art 410 Illustration	5
Art 466 Commer. Design	5
Art 479 Fashion Illus.	2
	<hr/> 14

SECOND QUARTER	CREDITS
Art Hist. elective	2
Art 467 Commer. Design	5
Art 480 Fashion Illus.	2
Adver. 340 Advertising	5
Procedures	5
Approved electives	2
	<hr/> 16

THIRD QUARTER	CREDITS
Art 468 Commer. Design	5
Art 481 Fashion Illus.	2
Mktg. 391 Advertising	5
Approved electives	3
	<hr/> 15

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
Art 105 Drawing	3
Art 109 Design	3
Arch. 100 Appreciation	3
Engl. 101 Composition	3
Health Educ. 110 or 175	2
Health	2
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 14-17

SECOND QUARTER	CREDITS
Art 106 Drawing	3
Art 110 Design	3
Arch. 101 Appreciation	2
Engl. 102 Composition	3
Gen. Engr. 107 Engr.	3
Drawing	3
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Art 107 Drawing	3
Art 111 Design	3
Art 129 Apprec. of Design	2
Engl. 103 Composition	3
Math. 101 Intermed. Alg.	5
Phys. Educ. activity	1
ROTC	2-3
	<hr/> 17-20

Second Year

FIRST QUARTER	CREDITS
Art 253 Design	3
Arch. 314 Drawing	4
Mech. Engr. 201	1
Metal Castings	1
Physics 101 General	4
Physics 107 Lab.	1
ROTC	2-3
Approved electives	2
	<hr/> 15-18

SECOND QUARTER	CREDITS
Art 254 Design	3
Arch. 315 Drawing	4
Mech. Engr. 202 Welding	1
Physics 102 General	4
Physics 108 Lab.	1
ROTC	2-3
	<hr/> 13-16

THIRD QUARTER	CREDITS
Art 255 Design	3
Arch. 316 Drawing	4
Mech. Engr. 203 Metal	1
Machining	1
Physics 103 General	4
Physics 109 Lab.	1
ROTC	2-3
	<hr/> 13-16

Third Year

FIRST QUARTER	CREDITS
Art 212 Hist. of West. Art 2	2
Art 316 Design for	3
Industry	5
Chemistry elective	3
Econ. 200 Introduction	5
	<hr/> 15

SECOND QUARTER	CREDITS
Art 205 Lettering	3
Art 213 Hist. of West. Art 2	2
Art 317 Design for	3
Industry	3
Chemistry elective	5
Mktg. 301 Principles	5
	<hr/> 18

THIRD QUARTER	CREDITS
Art 214 Hist. of West. Art 2	2
Art 282 Furn. Design	3
Art 318 Design for	3
Industry	3
Bus. Law 307 Business	3
Law	3
Mech. Engr. 342 Indus.	3
Materials & Processes.	3
Mech. Engr. 410 Engr.	3
Admin.	3
	<hr/> 17

Fourth Year

FIRST QUARTER	CREDITS
Art 201 Ceramic Art	3
Art 445 Adv. Indus. Des.	5
Adver. 226 Intro. to Adv.	3
Psych. 100 General	5
	<hr/> 16

SECOND QUARTER	CREDITS
Art 326 History	2
Art 357 Metal Design	3
Art 446 Adv. Indus.	5
Design	5
Adver. 340 Advertising	5
Procedures	5
	<hr/> 15

THIRD QUARTER	CREDITS
Art 272 Sculpture	3
Art 320 History of Mod.	2
Sculp.	5
Art 447 Adv. Indus. Des.	5
Gen. Engr. 351 Inventions	1
and Patents	1
Speech 327 Extempor.	3
Speaking	3
Approved elective	2
	<hr/> 16

CURRICULUM IN INTERIOR DESIGN

Second Year

FIRST QUARTER	CREDITS
Art 280 Furn. Design	3
Art 283 History	2
Arch. 100 Appreciation	2
Arch. 124 Design, Gr. I	6
Approved electives	4
ROTC	2-3
	<hr/> 17-20

SECOND QUARTER	CREDITS
Art 281 Furn. Design	3
Arch. 101 Appreciation	2
Arch. 125 Design, Gr. I	6
Approved electives	6
ROTC	2-3
	<hr/> 17-20

THIRD QUARTER	CREDITS
Art 262 Essentials of Int. Design	2
Art 282 Furn. Design	3
Arch. 105 The House	2
Arch. 126 Design, Gr. I	6
Approved electives	2
ROTC	2-3
	<hr/> 15-18

Third Year

FIRST QUARTER	CREDITS
Art 212 Hist. of West. Art	2
Art 310 Int. Design	5
Lab. science	5
Approved electives	3
	<hr/> 15

SECOND QUARTER	CREDITS
Art 213 Hist. of West. Art	2
Art 311 Int. Design	5
Lab. science	5
Approved electives	3
	<hr/> 15

THIRD QUARTER	CREDITS
Art 214 Hist. of West. Art	2
Art 312 Int. Design	5
Econ., pol. sci., or sociol.	5
Approved electives	3
	<hr/> 15

Fourth Year

FIRST QUARTER	CREDITS
Art 472 Adv. Int. Design	5
Home Ec. 125 Textiles	3
Approved electives	7
	<hr/> 15

SECOND QUARTER	CREDITS
Art 326 History	2
Art 473 Adv. Int. Design	5
Approved electives	8
	<hr/> 15

THIRD QUARTER	CREDITS
Art 320 History	2
Mod. Sculpt.	2
Art 474 Adv. Int. Design	5
Home Ec. 329 Hand Weaving	2
Approved electives	6
	<hr/> 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	4
	<hr/> 15

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	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
Approved electives	1
	<hr/> 15

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
Art 201 Ceramic Art	3
Art 212 Hist. of West. Art	2
Art 253 Design	3
Soc. science elective	5
Approved electives	2
ROTC	2-3
	<hr/> 15-18

SECOND QUARTER	CREDITS
Art 202 Ceramic Art	3
Art 213 Hist. of West. Art	2
Art 254 Design	3
Humanities elective	5
Approved electives	2
ROTC	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Art 203 Ceramic Art	3
Art 214 Hist. of West. Art	2
Art 255 Design	3
Soc. sci. elective	5
Approved electives	2
ROTC	2-3
	<hr/> 15-18

Third Year

FIRST QUARTER	CREDITS
Art 256 Painting	3
Art 272 Sculpture	3
Art 353 Adv. Ceramic Art	5
Art history elective	2
Approved electives	2
	<hr/> 15

SECOND QUARTER	CREDITS
Art 273 Sculpture	3
Art 354 Adv. Ceramic Art	4
Art history elective	2
Approved electives	6
	<hr/> 15

THIRD QUARTER	CREDITS
Art 258 Water Color	3
Art 261 Inter. Design	2
Art 274 Sculpture	3
Art 355 Adv. Ceramic Art	4
Art history elective	2
Approved electives	2
	<hr/> 16

Fourth Year

FIRST QUARTER	CREDITS
Art 357 Metal Design	3
Art 360 Life	3
Art 390 Oriental Ceramic	2
Art	2
Art 485 Adv. Ceramic Art	5
Approved electives	2
	<hr/> 15

SECOND QUARTER	CREDITS
Art 358 Jewelry Design	3
Art 361 Life	3
Art 486 Adv. Ceramic Art	5
Approved electives	5
	<hr/> 16

THIRD QUARTER	CREDITS
Art 359 Enameling	3
Art 487 Adv. Ceramic Art	5
Approved electives	4
	<hr/> 12

CURRICULUM IN PRINTMAKING

Second Year

FIRST QUARTER	CREDITS
Art 212 Hist. of West. Art	2
Art 253 Design	3
Art 256 Painting	3
Arch. 100 Appreciation	2
Lab. science	5
ROTC	2-3
	<hr/> 15-18

SECOND QUARTER	CREDITS
Art 213 Hist. of West. Art	2
Art 254 Design	3
Art 257 Painting	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 255 Design	3
Art 258 Water Color	3
Approved electives	7
ROTC	2-3
	<hr/> 15-18

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Art 201 Ceramic Art or 357 Metal Design	3	Art 202 Ceramic Art or 358 Jewelry Design . . .	3	Art 272 Sculpture	3
Art 327 Hist. of Printmaking	2	Art 351 Printmaking— Etching	3	Art 352 Printmaking— Serigraph	3
Art 350 Intro. to Printmaking	3	Art 361 Life	3	Art 362 Life	3
Art 360 Life	3	Art 383 Art of China	3	Art history elective	2-3
Approved electives	4	Approved electives	3	Approved electives	3-4
	15		15		15

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.

In lieu of a thesis, candidates may undertake a problem in painting, sculpture, or design.

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)	Bonifas, Sperry
Pottery design and construction: hand processes, coil, slab, glazing, packing and firing kiln. Prerequisite, sophomore in art.	
205 Lettering (3)	Staff
Design in letters and the composition of letters. Prerequisite, sophomore in art or 100.	
212, 213, 214 History of 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 Two- and Three-Dimensional Design (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. Prerequisite, 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)** **Footo**
Illustrated lectures.
- 265, 266, 267 Drawing and Painting (3,3,3)** **Staff**
Drawing and painting in oil or watercolor, 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)** **Footo**
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)** **Footo**
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 medium. Prerequisites, sophomore 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 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)** **Footo**
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 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.
- 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.
- 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.
- 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 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)** **Bonifas**
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 in art or permission.
- 358 Jewelry Design (3)** **Penington**
Jewelry design and construction, including stone setting and forging in silver or gold. Lectures and research on historic and contemporary examples. Prerequisites, junior standing 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)** **Staff**
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, 265, 266, 267.
- 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 1958-59.)
- 383 Art of China (3)** **Rogers**
Survey of the art of China. (Offered alternate years; offered 1958-59.)
- 384 Art of Japan and Korea (3)** **Rogers**
Survey of the art of Japan and Korea. (Offered alternate years; offered 1958-59.)
- 386 Art of the Ancient Near East (3)** **Rogers**
(Offered alternate years; offered 1957-58.)
- 387 Islamic Art (3)** **Rogers**
(Offered alternate years; offered 1957-58.)
- 388 Medieval Art (3)** **Rogers**
(Offered alternate years; offered 1957-58.)
- 390 Oriental Ceramic Art (2)** **Rogers**
Chinese, Korean, and Japanese ceramics from neolithic times to the present. (Offered alternate years; offered 1957-58.)
- 391 Origins of Modern Art (2)** **Rogers**
(Offered alternate years; offered 1957-58.)
- 392 Art since Cezanne (2)** **Rogers**
(Offered alternate years; offered 1957-58.)
- 410 Illustration (5)** **Staff**
Book and magazine illustration. Composition and history. Prerequisite, senior 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 1958-59.)
- 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, wood-cut, 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**
Development of individuality in painting through creative exercises. Prerequisite, 3 credits from 360, 361, or 362.
- 466, 467, 468 Commercial Design (5,5,5)** **Staff**
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 in art or permission.
- 485, 486, 487 Advanced Ceramic Art (5,5,5)** **Bonifas**
Pottery design and construction; stone ware; clay bodies; glazes. Prerequisite, 355.
- 490 Art in 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 (3-5, maximum 15)** **Staff**
Prerequisite, permission.

COURSES FOR GRADUATES ONLY

500, 501, 502 Seminar in Art Education (3-5, 3-5, 3-5)	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, 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)	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
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

101 Astronomy (5)	Jacobsen
Celestial sphere, solar system, sidereal universe.	
303 Spherical Astronomy (3)	Jacobsen
Spherical triangles, precession, aberration. Prerequisites, 101 or equivalent, calculus, permission.	
401 Astrophysics and Stellar Astronomy (3)	Jacobsen
Stellar spectra; motions, types of stars. Prerequisites, 101 or equivalent, calculus, permission.	
421 Solar System and Dynamical Astronomy (3)	Jacobsen
Planetary motion, special subjects. Prerequisites, 101 or equivalent, calculus, permission.	
499 Undergraduate Research (*, maximum 15)	Jacobsen
Current or special astronomical problems.	

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 Schools of Medicine or 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 Schools of Medicine or 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 Schools of Medicine or Dentistry. Students should work closely with their advisers on this matter.

The following curriculum is suggested for premedical and pre dental students:

First Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Chem. 100 or 110 General	3-4	Chem. 150 General	4
Engl. 101 Composition	3	Engl. 102 Composition	3
Health Educ. 110 or 175		Physics 102 and 108, or	
Health	2	122 General	3-5
Physics 101 and 107, or		Approved electives	2-3
121 General	3-5	Phys. Educ. activity	1
Phys. Educ. activity	1	ROTC	2-3
ROTC	2-3		17-19
	12-18		
Second Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Chem. 231 or 335 Organic	3	Chem. 232 or 336 Organic	3
Chem. 241 or 345 Organic	3	Chem. 242 or 346 Organic	3
Lab.	2	Lab.	2
Zool. 111 General	5	Zool. 112 General	5
Approved electives	5	Approved electives	5
ROTC	2-3	ROTC	2-3
	15-18		15-18
Third Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Chem. 160 and 170 General		Chem. 337 Organic	3
& Qual. Anal.	6	Zool. 456 Vert. Embryol.	5
Engl. 103 Composition	3	Approved electives	7-10
Physics 103 and 109, or		ROTC	2-3
123 General	3-5		18-21
Approved electives	2-3		
Phys. Educ. activity	1		
ROTC	2-3		
	19-21		

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 and Zoology (below and page 216). 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 in the elementary emphasis 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 two quarters 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*. The Department of Botany requires that all candidates for advanced degrees have organic chemistry.

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. Prerequisites, 451 and 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. Prerequisites, 451 and permission.

453 Topics in Genetics (2, maximum 6)

Roman, Stadler

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. Prerequisites, 451 and permission. (Offered alternate years; offered 1957-58)

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 for only 3 credits to those who have had 105.

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

Local flora. Training in identification and recognition of ferns and seed plants.

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.
- 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 1959.)
- 361 Forest Pathology (5)** **Stuntz**
Common wood-destroying fungi and diseases of forest trees. Prerequisite, 115 or equivalent.
- 371 Elementary Plant Physiology (5)** **Meese, Walker**
For nonmajors. Not open to those who have had 216. Prerequisites, 111 and Chemistry 116, 150, 160, 170, or equivalent.
- 431, 432 Taxonomy (5,5)** **Hitchcock**
The flowering plants. (Offered alternate years; offered 1957-58.) 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 1958-59.) Prerequisite for each course, 112 or equivalent.
- 444 Plant Anatomy (5)** **Blaser**
Tissues; origin and development of the stele. (Offered alternate years; offered 1957-58.) 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 1958-59.)
- 472 Plant Physiology (5)** **Meese, 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)** **Meese**
Metabolism of organic compounds with emphasis on photosynthesis and cellular respiration. (Offered alternate years; offered 1958-59.) Prerequisites, 472 or 371, Chemistry 232 and 242, and permission.
- 474 Plant Physiology (5)** **Walker**
Permeability, mineral nutrition, water relations, and growth. (Offered alternate years; offered 1957-58.) Prerequisites, 472 or either 216 or 371, and permission, unless 472 has already been taken.
- 475 Problems in Algal Physiology (6)** **Meese**
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 1957-58.)
- 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)** **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, graduate standing.
- 600 Research (*)** **Staff**
Original investigations of special problems in genetics, morphology, mycology, taxonomy, or plant physiology.
- 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 fields 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. 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; 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; mathematics through 253; Chemistry 100 (or 110), 150, 160, 170; and either the group 335, 336, 337, 345, 346 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 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), 449 (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 401 (Linear Algebra), 402 and 403 (Introduction to Modern Algebra), 417 (Advanced Calculus I), 418 (Advanced Calculus II), 421, 422 (Differential Equations), 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, 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 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)

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.)

Staff

- 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.)
- 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. (Formerly 230.)
- 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.)
- 160 General Chemistry (3)** **Staff**
Periodic System, phase equilibria, metals and nonmetals, 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. Prerequisites, 160, which may be taken concurrently. (Formerly 113.)
- 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. 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.
- 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 (2)** **Staff**
Usually to accompany 335. Organic syntheses. Prerequisite, 335, which may be taken concurrently.
- 346 Organic Chemistry Laboratory (2)** **Staff**
Continuation of 345. Usually to accompany 336. Prerequisites, 335, 336, and 345 which may be taken concurrently.
- 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, 356 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.
- 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, 418, or 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, 333 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 346, 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

- 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, 533, 534 Advanced Organic Chemistry (3,3,3,3,3)** **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.
- 537 Physical Organic Chemistry (3)** **Staff**
Interpretation and application of data obtained by combined methods of organic and physical chemistry to the problems of structure of organic compounds and mechanisms of organic reactions. Prerequisites, 532 and 552, 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**
- Thesis (*)** **Staff**

Chemistry courses are offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington:

- R411 Inorganic Chemistry (4)**
- R412 Chemistry of Less Familiar Elements (4)**
- R413 Elements of Radiochemistry (4)**
- R423 Indicators and Potentiometric Titrations (4)**
- R424 Advanced Quantitative Analysis (5)**
- R426 Instrumental Analysis (4)**
- R447 Organic Reactions (4)**
- R452 Theoretical Chemistry (4)**
- R453 Electrochemistry (4)**
- R454 Physical Chemistry II (4)**
- R455 Colloid Chemistry (4)**

CLASSICS

Executive Officer: JOHN B. McDIARMID, 206 Lewis 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. In addition, 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 classical 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.

Departmental requirements for a graduate minor in Latin or Greek are the same as those for an undergraduate minor.

COURSES FOR UNDERGRADUATES

GREEK

- | | | |
|---------------------|---|-------------------|
| 101-102, 103 | Elementary Greek (5-5,5) | Rosenmeyer |
| | 101-102: an intensive study of grammar with reading and writing of simple Attic prose;
103: reading of selections from classical Greek literature. | |
| 201 | Plato: Shorter Dialogues (3) | McDiarmid |
| | Selections from the Socratic dialogues. Prerequisite, 103. | |
| 202 | Attic Orators (3) | McDiarmid |
| | Selections to illustrate the political and social background of Greece in the late fifth and early fourth centuries B.C. Prerequisite, 201. | |
| 203 | Homer (3) | McDiarmid |
| | Selections from the <i>Iliad</i> or <i>Odyssey</i> . Prerequisite, 202. | |
| 207, 208 | Grammar and Composition (2,2) | McDiarmid |
| | Systematic review of grammatical principles; exercises in prose composition. To be taken concurrently with 201 and 202. | |
| 309 | Advanced Grammar and Composition (1, maximum 4) | McDiarmid |
| | Prerequisite, 208. | |

N391 Sight Reading (0) Prerequisite, permission.	Staff
413 The Pre-Socratic Philosophers (3) (Offered alternate years; offered 1958-59.)	McDiarmid
414 Plato (3) (Offered alternate years; offered 1958-59.)	Rosenmeyer
415 Aristotle (3) (Offered alternate years; offered 1958-59.)	McDiarmid
420 Greek Epic (3) (Offered alternate years; offered 1957-58.)	Rosenmeyer
422 Herodotus and the Persian Wars (3) (Offered alternate years; offered 1957-58.)	Rosenmeyer
424 Thucydides and the Peloponnesian War (3) (Offered alternate years; offered 1957-58.)	Rosenmeyer
442, 443, 444 Greek Drama (3,3,3) Euripides, Sophocles, Aeschylus, Aristophanes. (Offered alternate years; offered 1957-58.)	McDiarmid
451 Lyric Poetry (3) (Offered alternate years; offered 1958-59.)	Rosenmeyer
453 Pindar: The Epinician Odes (Offered alternate years; offered 1958-59.)	McDiarmid
455 Hellenistic Poetry (3) (Offered alternate years; offered 1958-59.)	Rosenmeyer
490 Supervised Study (3-5, maximum 15) Special work in literary and philosophical texts for graduates and undergraduates.	Staff
499 Undergraduate Research (*, maximum 15)	Staff

LATIN

101-102, 103 Elementary Latin (5-5,5) 101-102: an intensive study of grammar with reading and writing of simple Latin prose; 103: reading of selections from classical Latin literature.	Grummel
201 Roman Letters (3) Reading in the letters of Cicero and Pliny to illustrate important phases of Roman life. Prerequisite, two years of high school Latin or 103.	Pascal
202 Roman Elegy (3) Selected elegies of Catullus, Tibullus, Propertius, and Ovid. Prerequisite, 201 or permission.	Pascal
203 Vergil (3) Selections from the first six books of the <i>Aeneid</i> . Prerequisite, 202 or permission.	Read
207, 208 Grammar and Composition (2,2) Systematic review of grammatical principles; exercises in prose composition. Prerequisite, two years of high school Latin or 103.	Read
309 Advanced Grammar and Composition (1, maximum 4) Prerequisite, 208.	Grummel
N391 Sight Reading (0) Prerequisite, permission.	Staff
401 Medieval Latin (3) Prerequisite, permission.	Pascal
404 Comparative Grammar of Latin and Greek (3) Comparative and historical study of Latin and Greek as an introduction to Indo-European philology. Prerequisite, permission.	Grummel
412 Lucretius (3) (Offered alternate years; offered 1958-59.)	Grummel
413 Cicero's Philosophical Works (3) (Offered alternate years; offered 1958-59.)	Grummel
414 Seneca (3) (Offered alternate years; offered 1958-59.)	Grummel
422 Livy (3) (Offered alternate years; offered 1958-59.)	Pascal
424 Tacitus (3) (Offered alternate years; offered 1958-59.)	Pascal
426 Roman Biography (3) (Offered alternate years; offered 1958-59.)	Pascal
430 Latin Novel (3) (Offered alternate years; offered 1957-58.)	Grummel
442 Roman Drama (3) (Offered alternate years; offered 1957-58.)	Pascal

- 451 Roman Satire (3)** **Pascal**
(Offered alternate years; offered 1957-58.)
- 455 Catullus (3)** **Grummel**
(Offered alternate years; offered 1957-58.)
- 456 Horace (3)** **Pascal**
(Offered alternate years; offered 1957-58.)
- 458 Roman Epic (3)** **Grummel**
(Offered alternate years; offered 1957-58.)
- 475LJ Improvement of Teaching: Latin (5)** **Grummel, Pascal**
New techniques and materials for classroom presentation of high school Latin: survey of Latin word formation and syntax in light of recent linguistic research, illustrated by excerpts from Latin literature. Offered jointly with the College of Education. (Offered Summer Quarter only.)
- 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, 102 Latin and Greek in Current Use (2,2)** **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.
- 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**
The problems of literary criticism as considered by Plato, Aristotle, Longinus, and the other major classical writers.

COURSES FOR GRADUATES ONLY

GREEK

- 520 Seminar (3-5, maximum 15)** **Staff**
- 600 Research (3-5, maximum 15)** **Staff**
- Thesis (*)** **Staff**

LATIN

- 520 Seminar (3-5, maximum 15)** **Staff**
- 600 Research (3-5, maximum 15)** **Staff**
- Thesis (*)** **Staff**

COMMUNICATIONS

Director: HENRY LADD SMITH, 129 Communications Building

The School of Communications, through its Divisions of Advertising, Journalism, and Radio-Television, offers curricula for professional training 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 Doctor of Philosophy degree in a related field. (See 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 58.

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.

To be admitted to upper-division courses in the School of Communications, students must have a cumulative grade-point average of 2.50, and a grade-point average of 3.00 in the lower-division communications courses. Secretarial Training 10 (Typewriting), is recommended for students not proficient in typewriting.

Majors in the School must have completed the following courses in the freshman and sophomore years:

	CREDITS
Advertising 226 Introduction to Advertising	3
Communications 100 Communications Today	2
Journalism 200 Newswriting	5
Radio-TV 270 Elements of Radio Writing (Advertising and Radio-TV majors) ..	3

Thereafter, a major student in any of the three Divisions of the School may obtain the degree by the completion of the 180 credits required by the University, including the minimum divisional requirements and the credits in related fields required by the School of Communications.

No student may apply toward graduation more than 60 credits within any one division, 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)	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 divisions 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 above.

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

BACHELOR OF ARTS

The work of the freshman and sophomore years is essentially the same for all students in the School of Communications (see page 82). Freshman and sophomore students planning to continue in the Advertising Division should plan to take, in addition, General Business 101 (Introduction to Business); Art 105 (Drawing); and Marketing 301 (Principles of Marketing). After completing the freshman and sophomore general communications requirements (Communications

100, Journalism 200, Radio-TV 270, and Advertising 226), students in the Advertising Division will be required to take the following courses as the minimum for a degree:

	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
Communications 316 Contemporary Affairs	3
Journalism 300 Laboratory Work on University <i>Daily</i>	3
Journalism 347 Newspaper Operation	5
Journalism 381 Graphic Arts and Typography Laboratory	3
Journalism 391 Photographic Laboratory	1
Radio-TV 352 Radio and Television Advertising	5

Lower- and upper-division credits thus total 51, the minimum required by the Advertising Division for graduation. Of the maximum of 60 credits a student may take within the Division, or the 70 within the School, one-half of the credits beyond the divisional requirements must be in 400-numbered courses.

Journalism

The Division of Journalism offers the curriculum below to majors in this field. In addition, the Division 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 100 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 36 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 Division students are as follows:

	CREDITS
Communications 303 Public Relations	3
Communications 316 Contemporary Affairs	6
Journalism 300 Laboratory Work on University <i>Daily</i>	3
Journalism 301 Copy Editing	3
Journalism 318 Reporting	3
Journalism 319 Reporting	3
Journalism 320 Legal Aspects of Journalism	3
Journalism 347 Newspaper Operation	5
Journalism 381 Graphic Arts and Typography Laboratory	3
Journalism 391 Photographic Laboratory	1
Radio-TV 376 Radio Newswriting	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 414 History of Journalism	3
Communications 415 Comparative Communications	3
Communications 416 Press and World Affairs	3
Communications 480 Propaganda	5

The lower- and upper-division credits required by the Journalism Division for graduation thus total 52-54.

Of the maximum of 60 credits a student may take within the Division, or the 70

within the School, one-half of the credits beyond the divisional requirements must be in 400-numbered courses.

Radio-Television

BACHELOR OF ARTS

The work of the freshman and sophomore years is essentially the same for all students in the School of Communications (see page 82). Students majoring in the Radio-Television Division are required to take the following courses, in addition to the 16 credits required of all majors, as the minimum for a degree.

Two of the following courses:

	CREDITS
Communications 303 Public Relations	3
Communications 316 Contemporary Affairs	3, maximum 6
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 416 Press and World Affairs	3
Communications 480 Propaganda	5

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 Newswriting	3
Radio-TV 450 Television Programming	3
Radio-TV 475 Station Organization	3

Lower- and upper-division credits thus total 47, the minimum required by the Radio-Television Division for graduation. Of the maximum of 60 credits a student may take within the Division, or the 70 within the School, one-half of the credits beyond the divisional 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 (These are basic, or of interest to students in the three Divisions of the School, and may be included in the credits beyond the maximum of 60 required and elected credits in any *one Division*, up to a maximum of 70 credits offered by the School.)

- 100 Communications Today (2)** **Staff**
A survey of the field of communications, including newspapers, magazines, radio, television, public relations, propaganda, pictorial journalism, and advertising. Objectives and responsibilities of the media. Career opportunities in the various fields. Open to lower-division nonmajors. (Formerly Journalism 100.)
- 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 in Winter Quarter only. (Formerly Journalism 303.) Prerequisite, upper-division standing or permission.
- 316 Contemporary Affairs (3, maximum 6)** **McKenzie**
Background and significance of international, national, and local newsworthy events. Primarily a discussion course. (Formerly Journalism 326.)
- 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. (Formerly Journalism 402.)

- 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. (Formerly Journalism 460.) Prerequisites, Communications 303 and permission.
- 406 Press and Society (3)** **Smith, Ames**
An analysis of the role of newspapers, magazines, radio, television, and movies, to determine how well they are fulfilling their functions. (Formerly Journalism 406.)
- 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. (Formerly Journalism 411.)
- 414 History of Journalism (3)** **Smith**
Growth and development of the press, with emphasis on journalism in the United States, its social, political, and ethical responsibilities. Open to nonmajors. (Formerly Journalism 434.)
- 415 Comparative Communications (3)** **Staff**
Analysis of contemporary international, national, and regional media. (Formerly Journalism 435.)
- 416 Press and World Affairs (3)** **McKenzie**
Problems and projects in the coverage of national and international news; government and pressure group influences. Prerequisite, Communications 316.
- 480 Propaganda (5)** **McKenzie**
Propaganda as a social and political force; propaganda techniques and evaluation; psychological warfare operations; emphasis on post-1939 period and Communist propaganda. Open to nonmajors. (Formerly Journalism 480.)
- 498 Problems of Communications (1-5, maximum 10)** **Staff**
Research and individual study. Prerequisite, permission of director and instructor.

ADVERTISING COURSES

- 226 Introduction to Advertising (3)** **Denis, Strehlau, Warner**
Economic and social aspects; organizational structure; comparison of major advertising media, and the elements of creating and producing advertising. Open to nonmajors. (Formerly Journalism 220.)
- 340 Advertising Procedures (5)** **Denis**
Fundamentals of copywriting, layout, and mechanical production in the creation of printed advertising. (Formerly Journalism 370.) Prerequisites, Advertising 226 or Marketing 391. Open to nonmajors.
- 341 Advertising Copy (3)** **Strehlau, Warner**
Principles of copywriting and layout and their interdependence; problems in the preparation of copy and layout, with emphasis on newspapers and direct mail. (Formerly Journalism 348 and 350.)
- 342 Advertising Selling Laboratory (3, maximum 6)** **Warner, Staff**
Supervised field assignments in the analysis of advertising problems of specific businesses and in the servicing of advertising accounts for the University *Daily* and other campus publications. (Formerly Journalism 352.)
- 345 Special Copy Applications (3)** **Warner**
Analysis of principles and techniques of national advertising copy; problems in the preparation of trade, industrial, and consumer copy. (Formerly Journalism 355.)
- 440 Advertising Campaigns (3)** **Denis, Warner**
Problems in the planning and execution of national and local advertising campaigns; research, keynote ideas, budgets; media selection, and merchandising. (Formerly Journalism 440.)
- 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* and other campus publications. (Formerly Journalism 452.)

JOURNALISM COURSES

- 200 News Writing (5)** **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.
- 300 Laboratory Work on University "Daily" (3, maximum 6)** **Astel**
Practical work on the editorial staff of the University of Washington *Daily*. Prerequisites, communications major or permission.
- 301 Copy Editing (3)** **Edelstein, Staff**
Editing news copy, writing cutlines, captions, and headlines; newspaper makeup. Open to nonmajors. (Formerly Journalism 201.) Prerequisite, Journalism 200 or permission.
- 318 Reporting (3)** **Benson, Staff**
General reporting techniques. (Formerly Journalism 327.)
- 319 Reporting (3)** **Christian, Staff**
Covering the principal news beats for the press; operations of local governing institutions; supplementary city assignments. (Formerly Journalism 328.) Prerequisite, Journalism 318.

- 320 Legal Aspects of Journalism (3)** Benson
Legal regulations governing publications. (Formerly Journalism 329.)
- 347 Newspaper Operation (5)** Irwin
Problems of the display, classified, circulation, plant, and promotion departments of large and small newspapers; newspaper finance and management trends. (Not open to those who have had the former Journalism 357.)
- 475J 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, Journalism 200 and 301.
- 381 Graphic Arts and Typography Laboratory (3)** Denis, Murton
Graphic arts principles; printing processes, typography, copyfitting, engraving, paper, and coordination of production. (Formerly Journalism 306.)
- 391 Photographic Laboratory (1)** Shaw
Basic news photography; the photographic process; camera technique; judging picture quality. (Formerly Journalism 310.)
- 404 Magazine Article Writing (3)** Brier
Nonfiction writing for national magazines and for specialized publications. Open to nonmajors. Prerequisite, 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. (Formerly Journalism 473.)
- 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. (Formerly Journalism 333.)
- 417 Industrial Editing and Trade Press (3)** Staff
Writing and production problems of the trade, industrial, and business press. Prerequisites, communications major and Journalism 404.
- 491 Photographic Laboratory (2-4, maximum 6)** Shaw
Darkroom procedures; editing and printing of negatives; photos for engraving; photo staff methods. (Formerly Journalism 410.) Prerequisite, 391 or permission.

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. Not open to students who have credit in Radio-TV 100, 200, or 205. Open to lower-division nonmajors by permission.
- 260 Radio Production (3)** Staff
Studio and microphone setups; timing, use of sound effects and incidental music; performance. Not open to students who have credit in Radio-TV 300 or Drama 441, 442.
- 270 Elements of Radio Writing (3)** Staff
Writing of radio announcements; script forms; principles of writing for listeners. Not open to students who have credit in Drama 444.
- 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 with the University's own radio station. Prerequisites, Radio-TV 260, 270, and permission.
- 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. (Formerly Radio-TV 342.) Prerequisite, Advertising 226.
- 360 Advanced Radio Production (2)** Staff
Direction, production, and advanced performance. Not open to students who have credit in Radio-TV 301 or Drama 443.
- 372 Radio Dramatic Writing (3)** Staff
Principles of writing radio drama and their application. Not open to students who have credit in Radio-TV 272 or Drama 446. Prerequisites, Radio-TV 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 News Writing (3)** Cranston, Ryan
Gathering, writing, and editing news for radio; building news programs. For majors only. (Formerly Radio-TV 320.) Prerequisite, Journalism 200.
- 450 Television Programming (3)** Ryan
Planning, developing, and writing various types of programs, emphasizing visual treatment of ideas.

- 451 Television Performance (2)** **Staff**
Problems of television performance, including techniques of demonstration and interviewing.
- 455 Television Film Techniques (2 or 3)** **Staff**
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 (3)** **Staff**
The art phases of television production; set building and decoration; preparation of visual aids. Prerequisite, permission.
- 460 Radio In The School (2½)** **Adams**
Radio programs available to supplement classroom work, suitable radio transcription equipment for schools, the development of the American system of broadcasting, and the contributions which schools can make to radio. (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. (Formerly Radio-TV 480.)
- 476 Advanced Radio News Laboratory (2, maximum 6)** **Cranston**
Writing and editing news for radio under broadcast conditions. (Formerly Radio-TV 420.) 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. (Formerly Journalism 502.) 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. (Formerly Journalism 506.) Prerequisite, Communication 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. (Formerly Journalism 511.) Prerequisites, Communications 411 or permission, and 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. (Formerly Journalism 501.) Prerequisite, Communications 414 or permission. Open to nonmajors.
- 580 Propaganda Seminar (5)** **McKenzie**
The crystallization of public opinion and of propaganda techniques. (Formerly Journalism 580.) Prerequisites, Communications 480 and permission. Open to nonmajors.
- 598 Selected Readings (1-3, maximum 3)**
Open only to qualified graduate students by permission.
- 600 Research (3-5)**
- Thesis (*)**

DENTAL HYGIENE, PREPROFESSIONAL PROGRAM

Adviser, 121 Miller Hall

The two-year pre dental 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 and 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 *Schools of Medicine and 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 71.)

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, 414, 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

101, 102, 103 Introduction to the Theatre (2,2,2)

Hughes

Significant aspects of the modern theatre.

146, 147, 148 Theatre Speech (3,3,3)

Carr, Galstaun, Gray

Prerequisites, 146 for 147; 147 for 148.

- 251, 252, 253 Acting (3,3,3)** **Carr, Gray, Harrington**
Theory and practice of pantomime, improvisation, and characterization. Prerequisites, 148 for 251; 251 for 252; 252 for 253.
- 307, 308, 309 Puppetry (2,2,2)** **Valentinetti**
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.
- 403 Scene Construction (3)** **Lounsbury**
Principles and actual construction of stage scenery and properties.
- 404 Scene Design (3)** **Conway**
Upper-division students only. Prerequisite, 403.
- 405 Historic Costume for the Stage (3)** **Crider**
Survey of historic costume in the Western world beginning with the Egyptians and continuing to the present period.
- 406 Make-up (3)** **Davis**
- 407 History of Theatrical Costume (2)** **Crider**
Historical survey of theatrical costume beginning with the Attic theatre to the modern. Includes drama, opera, and ballet. Prerequisite, 405 or permission of instructor.
- 408 Stage Costume Construction (2)** **Hedges**
Practical laboratory course in techniques of costume construction, including fundamentals of pattern making. Prerequisite, 405.
- 410 History of Wigs and Wig Making (2)** **Crider**
The role of wigs in historical dress and techniques of wig construction. Prerequisite, 405 or permission of instructor.
- 411, 412, 413 Playwriting (3,3,3)** **Hughes**
A professional course. Prerequisites, English 328, 329, and permission.
- 414 Stage Lighting (3)** **Conway, Lounsbury**
A nontechnical survey course.
- 415 Advanced Stage Lighting (3)** **Staff**
Prerequisites, 414 and permission.
- 417, 418, 419 Advanced Theatre Workshop (2,2,2)** **Staff**
Prerequisite, permission of instructor.
- 420 History of Masks and Mask Making (2)** **Davis**
The role of masks in Western and Oriental theatre. Techniques of mask construction. Prerequisite, 405.
- 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.
- 481, 482, 483 Directing (3,3,3)** **Harrington**
Prerequisites, 421 and 422, or 423.
- 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

- 509 Advanced Stage Costume Construction and Design (3)** **Crider**
Prerequisites, 405 and 408, or permission of instructor.
- 515 Scenic Projection (3)** **Conway**
Theories and experiments with various methods of scenic projection. Prerequisites, 414, 415, or permission.

517 Advanced Stage Design (3) Prerequisites, 404, and either 417, 418 or 419, or permission.	Conway
518 Technical Direction (3, maximum 9) Prerequisites, 403, and either 417, 418 or 419, and permission.	Lounsbury
519 Lighting Research and Development (3, maximum 9) Prerequisites, 414 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
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 or statisticians.

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 five 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), 255 (Basic Accounting Analysis); and one of the following courses: Business Statistics 201 (Statistical Analysis), Mathematics 281 (Elements of Statistical Method), Psychology 301 (Statistical Methods), or Sociology 223 (Social Statistics). Students who specialize in international trade must take Foreign Trade 301 (Principles of Foreign Trade).

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 Constitu-

tional 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 an advanced degree in economics include work in some of these fields of specialization: economic theory; history of economic thought; money, banking, and cycles; government regulation and public utilities, and transportation (students may be permitted to concentrate their work in two of these three sub-fields); labor economics; public finance and taxation; economic history; international trade; national economics; 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 courses for graduate students only (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 courses for graduate students only (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 courses approved for graduate credit will be required, candidates with an adequate background may offer less. In any case, a minimum of 12 credits in graduate courses, including 9 credits in economic theory, must be offered; in special cases a minimum of 6 credits in theory may be offered.

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) | Buechel, 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)** **Staff**
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**
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, AND TRANSPORTATION

- 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 systems. The policy of preserving competition as a means of regulating private business. Prerequisite, 200.
- 336 Economics of Transportation I (5)** **Staff**
Domestic and international transport: economic principles and development; public policy and special problems. 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.
- 437 Economics of Transportation II (5)** **Staff**
Economic problems and trends in domestic and international transport, including effects on regional development. Prerequisites, 201 and 336 or Transportation 301.

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)** **Lampman**
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**
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 Advanced Labor Economics (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, Lampman**
Principles of taxation, tax forms and practices, public expenditure, public credit, and public budgetary policy.
- 451 Public Finance and Taxation II (5)** **Hall, Lampman**
Fiscal policy, tax systems, incidence and effects of taxation, and management of the public credit.

ECONOMIC HISTORY

- 461 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.
- 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.
- 481 Economic Statistical Analysis (5)** **Zellner**

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)** **Chang**
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)** **Chang**
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 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.

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.

HISTORY OF ECONOMIC THOUGHT

- 507 Neo-Classical Economics and Its Critics (3)** **Gordon**
Prerequisite, permission.
- 515 History of Economic Thought (3)** **Gordon, North**

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, AND TRANSPORTATION

- 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.
- 536 Transportation (3)** **Staff**
Economic aspects of current transportation problems. Prerequisite, permission.

LABOR ECONOMICS

- 541 Theory of Trade-Unionism (3)** **Gillingham**
Prerequisite, permission.
- 542 Labor Economics (3)** **Hopkins**
Prerequisite, permission.
- 543 Labor Law (3)** **Lampman**
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.

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*.

ENGLISH**Executive Officer: ROBERT B. HEILMAN, 115 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 113). 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 English literature courses numbered 400. Those who wish to take a minor may include in the total credit requirements a maximum of 10 credits in a related field, which, with the permission of the Department, may be in 300 courses. 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 English literature courses numbered 400. 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. Advanced writing may not be used as a major subject, but candidates are allowed 10 credits in advanced writing and with permission 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.

The oral examination consists of questions based on (1) the written examination and related topics, and (2) 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 excused from so doing 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 113).

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 <i>Evening Classes Bulletin</i> . | |
| 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 | English for Foreign Students (3) | Marquardt |
| 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) | Roethke |
| | 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) | Marquardt |
| 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, Kaufman, 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 1958-59.) | |

- 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, Kaufman, 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, 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 1958-59.)
- 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)** Harris, Redford
Prerequisites, 277, 278, or permission.
- 440, 441 Social Ideals in Literature (5,5)** Adams
Model commonwealths; literature and society. (Offered alternate years; offered 1957-58.)
- 447, 448, 449 The English Novel (5,5,5)** W. Burns, 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)** Harris, Redford
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
- 507, 508 Literary Criticism (5,5)** Brown, H. Burns, Winther
- 509 Methods of Contemporary Criticism (5)** Bostetter, 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, Stirling
517: comedies; 518: tragedies; 519: histories.
- 521, 522, 523 Seventeenth-Century Literature (5,5,5)** Stein
- 524, 525, 526 American Literature (5, maximum 10, 5, maximum 10)** Blankenship, Davis, Eby, Hilen

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, Winther
544, 545 Eighteenth-Century Literature (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)	Staff
600 Research (*)	Staff
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 a part of the degree program offered through the Department of Far Eastern and Slavic Languages and Literature (see page 104). 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 has established two 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.

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)** **Janson, Staff**
A survey of political, economic, social, intellectual, literary, and artistic developments in Japan from earliest times to the present. Offered jointly with the Department of History. Not open to students who have taken 241 or 291.
- 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 Civilization of Southeastern Asia (3)** **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.
- 323 Survey of the Soviet Union (5)** **Treadgold**
A survey of the social, economic, and political problems, past and present, of the U.S.S.R. Primarily for nonspecialists.
- 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.
- 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)** **Staff**
Relations of tsarist Russia and the Soviet Union with eastern Asia. (Offered alternate years; offered 1958-59.)
- 422J Early Russian History (5)** **Treadgold**
Survey of the development of Russia from the earliest times to the reign of Nicholas II (1894-1917). Offered jointly with the Department of History.
- 423J Recent Russian History (5)** **Treadgold**
Survey of Russia and the U.S.S.R. from the reign of Nicholas II (1894-1917) to the present. (Offered jointly, in alternate years, with the Department of History; offered 1958-59.)
- 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 1958-59.)
- 443 Chinese Social Institutions (5)** **Hsiao**
- 444 Chinese History: Earliest Times to 221 B.C. (5)** **Wilhelm**
History of pre-imperial China. (Offered alternate years; offered 1958-59.)
- 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 1958-59.)

- 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 1958-59.)
- 447 Modern Chinese History (5)** **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 102, or permission.
- 451J History of Chinese-Japanese Relations (3)** **Jansen**
Cultural, political, economic influence in the nineteenth and twentieth centuries. Offered jointly with the Department of History.
- 452J Early Japanese History (5)** **Jansen**
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)** **Jansen**
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)** **Jansen**
The development of Japan from feudal to modern state; effects of war and occupation. Offered jointly with the Department of History.
- 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.

Geography courses offered jointly with the Department of Geography:

- 303J Asia (5)** **Earle, Eyre, Murphey**
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.
- 432J 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.
- 433J The Soviet Union (5)** **Jackson**
Natural resources with particular reference to current and potential developments in the extractive and manufacturing industries and trade; status and problems of transportation; trends in the distribution of population.
- 434J Southeast Asia (5)** **Earle**
An analysis of regional and political structures; resources, economic activities, and problems of development, overseas and internal relationships.
- 435J China: Topical Analysis (3)** **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.
- 436J China: Regional Analysis (3)** **Murphey**
The regional concept as it applies to China; China Proper and the outer areas of Chinese dominance, their distinction and interaction; the problem of China's unity and regional coherence; recurrent political, cultural, and economic areal patterns, interactions, and nuclei; regional analysis of Tibet, Sinkiang, Inner Mongolia, Manchuria, and the geographic regions of China Proper.
- 437J Japan (5)** **Eyre**
Regional structure of Japanese urban, industrial, and agricultural geography. The analysis of contemporary geographic patterns considers both cultural and physical factors and selected aspects of historical development.

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 413 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)

- Foreign Trade 450 Trade Problems of the Far East (5)
 Philosophy 428 Chinese Philosophy (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

- 510 Methodology in Far Eastern Studies (3) Maki
 519J Seminar on Asia (3) Wilhelm
 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 1958-59.)
 521, 522, 523 Seminar on Eastern Asia (4,4,4) Maki, Taylor
 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 1958-59.) 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.
 540J Seminar on the Soviet Union: Government and Diplomacy (4, maximum 8) Staff
 Offered jointly with the Department of Political Science. Prerequisite, permission.
 543 Seminar on Russia in Asia (3) Staff
 Selected topics on relations of Russia and the Soviet Union with Asia. (Offered alternate years; offered 1957-58.) 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) Jansen
 Field course in Japanese history. Offered jointly with the Department of History.
 550J-551J-552J Seminar in Japanese History (3-6)-(3-6)-(3-6) Jansen
 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. Chang, Li, Poppe, Staff
 599 Colloquium on Chinese History Research (5, maximum 15) C. L. Chang, Hsiao, Michael, Shih, 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.
 Thesis (*) Staff
Graduate geography courses offered jointly with the Department of Geography:
 503J Seminar: Southeast Asia (3, maximum 6) Earle
 504J Seminar: Japan and Northeast Asia (3, maximum 6) Eyre
 505J Seminar: China and Northeast Asia (3, maximum 6) Murphey
 507J Seminar: Soviet Union (3, maximum 6) Jackson
The following courses may be used for credit toward a Far Eastern major:
 Anthropology 542 Personality Patterns in Japanese Culture (3)
 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.

In addition, the Department offers a second teaching area for students in the College of Education.

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; 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.

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 (10-credit courses) must obtain the written approval of the head of the Department, should their program call for more than 15 credits.

MASTER OF ARTS. The Department 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. The 20 credits needed for the language and literature degree must be in advanced language and literature courses.

A candidate for regional studies is 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 offers courses leading to a Doctor of Philosophy degree in the following fields:

CHINESE LANGUAGE AND LITERATURE. Candidates for this degree must be able to read and translate literary Chinese and must know the history, phonology, and structural features of the written and spoken language. Familiarity with the history

and types of Chinese literature is required; candidates must specialize in two of the following: a period of Chinese literature; a school; an author; the phonology of any period or text; the grammatical features of any period or text; historical or comparative studies; and epigraphy. All candidates must acquire a knowledge of general Chinese history and philosophy. Adequate knowledge of another Far Eastern language and at least one European language is required.

SLAVIC LANGUAGES AND LITERATURE. Candidates for this degree must be familiar with Russian literature, history, and political and social institutions, in addition to having a thorough knowledge of the Russian language. The candidate may emphasize linguistics or literature. In either case, he will be required to do advanced work in the following: Russian literature; Russian linguistics, descriptive and historical; and comparative Slavic philology (phonetic and morphological structure of Slavic languages). All candidates must acquire a basic knowledge of a Slavic language and literature other than Russian, preferably Polish. Adequate knowledge of at least one other European language is required.

A candidate for the Ph.D. degree in the field of Slavic studies also will be expected to satisfy certain minimum requirements in one of the following cognate areas: comparative literature, general linguistics, and Russian area studies.

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: simple Chinese stories, selections from modern authors. 403: newspaper Chinese. 404: modern essays, editorials, etc. To be taken in sequence only. Prerequisite, 301.
- 405, 406, 407 Classical and Documentary Chinese (5,5,5)** **Roifler**
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 1958-59.) Prerequisite, 301 or equivalent.
- 430 Readings in Chinese Philosophical Texts (5)** **Shih**
Prerequisite, permission.
- 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 1957-58.) 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.
- 151, 152, 153 First-Year Reading Japanese (5,5,5)** **McKinnon**
Reading and translation of modern Japanese. Prerequisites, 101-102 or permission for 151, or this series may be taken concurrently with 101-102, 103; 151 for 152; 152 for 153.
- 201, 202, 203 Intermediate Japanese (5,5,5)** **Tatsumi**
Advanced conversation, grammar, and composition; introduction to literary and epistolary styles; introduction to calligraphy. Not open to students who have taken 402, 403, and 404.
- 351, 352, 353 Reading in Japanese (5,5,5)** **McKinnon**
Reading and translation of primary and secondary source materials in Japanese. Not open to students who have taken 405, 406, and 407. Prerequisites, 153 or equivalent for 351; 351 for 352; 352 for 353.
- 499 Undergraduate Research (3-5, maximum 15)** **Staff**
For Far Eastern majors. Prerequisite, permission.

KOREAN

- 302-303 Elementary Spoken Korean Language (5-5)** **Staff**
- 304 Intermediate Korean (5)** **Staff**
Prerequisite, -303 or equivalent.
- 405 Korean Grammar (5)** **Staff**
Prerequisite, 304 or equivalent.
- 406, 407 Advanced Korean Reading (5,5)** **Staff**
Korean composition, literature, and advanced reading. Prerequisite, permission.
- 499 Undergraduate Research (3-5, maximum 15)** **Staff**
For Far Eastern majors. Prerequisite, permission.

MONGOLIAN

- 302 Introduction to Mongolian (5)** **Poppe**
- 303 Modern Mongolian Literary Language (5)** **Poppe**
Grammar, syntax, and styles of modern Mongolian language based on colloquial. Prerequisite, 302.
- 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.
- 305 Classical Mongolian (5)** **Poppe**
Grammar, syntax, and styles of the Mongolian written language of the seventeenth to twentieth centuries. Prerequisite, 304.
- 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.
- 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.

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)** **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)** **Micklesen**
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)** **Gershevsky**
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.

- 407, 408, 409 Advanced Russian Reading (5,5,5)** **Shaw**
Grammatical and stylistic analysis of representative samples of Russian imaginative literature and journalism, from the early nineteenth century to the present. Prerequisite, 302 or permission.
- 410, 411 Advanced Russian Grammar and Composition (5,5)** **Erlich, Micklesen**
Structural description of the Russian noun and verb. Prerequisites, 302 and 303.
- 455 Modern Russian Poetry (3)** **Erlich**
A study of Russian poetry in its renaissance, from 1890 to 1925. (Offered alternate years; offered 1957-58.) Prerequisite, 409 or equivalent.
- 458 Contemporary Russian Literary Criticism (3)** **Erlich**
Survey of the recent trends in the Russian study of literature. (Offered alternate years; offered 1958-59.)
- 475 Soviet Press Translations (5)** **Staff**
Designed to give intensive training in translating articles from current Soviet publications, with emphasis on political and industrial terminology. Prerequisites, 410, 411, or permission.
- 485 History of Russian Standard Language (5)** **Micklesen**
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)** **Micklesen**
A comprehensive introduction to both spoken and written literary Serbo-Croatian.

SLAVIC

- 491 Introduction to Slavic Philology (3)** **Micklesen**
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

- 402 Introduction to Literary Tibetan (5)** **K. Chang**
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)** **K. Chang**
Reading of Buddhist Tibetan translations and historical documents. Students should have some knowledge of Chinese and Sanskrit. Prerequisite, 402.
- 404 Tibetan Historical Works (5)** **K. Chang, Li**
Treaties, edicts, annals, and selections from other historical composition will be read and analyzed. Prerequisite, 403.

TURKISH

- 301, 302, 303 Introduction to Central Asian Turkish (3,3,3)** **Posch**
Turkish as spoken and written in Central Asia. Recommended to students of the Mongolian, Russian, or Chinese areas. Prerequisite, any foreign language.
- 401, 402, 403 Comparative Grammar of Central Asian Turkic (3,3,3)** **Posch**
Comparative phonology, morphology, and syntax of the Turkic languages (Uighur, Kazakh, Tatar, Kirghiz, Uzbek, Eastern Turki). History of the Turkic languages. Prerequisite, any language course of the Far Eastern Department.

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.
- Japanese 320 Japanese Literature in English (5)** **McKinnon**
Introductory survey of Japanese literature from antiquity to the modern period.
- 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)** **Poppe**
(Offered alternate years; offered 1958-59.)
- 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 423 The Russian Novel in English (5)** **Erllich**
Discussion of the major works of the nineteenth-century Russian novel in translation.
- Russian 424 The Russian Symbolist 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 1958-59.)
- Russian 425 Dostoevski in English (4)** **Spector**
Open only to majors in a language or literature.
- 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 1958-59.)

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 1957-58.)
- 529 Chinese Phonology (3)** **Li**
- 530 Studies in Chinese Prose (5)** **Wilhelm**
(Offered alternate years; offered 1957-58.)
- 531 Studies in Chinese Poetry (5)** **Shih, Wilhelm**
(Offered alternate years; offered 1958-59.)
- 532 Studies in Chinese Drama and Novel (5)** **Shih**
(Offered alternate years; offered 1958-59.)
- 535 Chinese Epigraphy (3, maximum 6)** **Reifler**
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 1958-59.) Prerequisite, 301 or permission.
- 550 Seminar on Chinese Literature (4, maximum 8)** **Shih, Wilhelm**
(Offered alternate years; offered 1958-59.)
- 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.
- Thesis (*)** **Staff**

JAPANESE

- 510 Morphology and Syntax of the Japanese Language (5)** **Tatsumi**
- 521 Japanese Reference Works and Bibliography (3)** **Staff**
- 522, 523, 524 Readings in Documentary Japanese (5,5,5)** **McKinnon**
(Offered when demand is sufficient.) Prerequisite, permission.
- 525, 526 Advanced Composition in Documentary Japanese (5,5)** **Tatsumi**
- Thesis (*)** **Staff**

MONGOLIAN

- 521 Ancient Mongol: hPhagspa Script (3)** **Poppe**
Script and grammar of hPhagspa texts; reading and translation. Prerequisite, 304.
- 522 Mongol Ancient Texts (3)** **Poppe**
Grammar and reading of Mongol texts of the fourteenth to seventeenth centuries. Historical texts are emphasized.
- 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 1958-59.)

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 1957-58.)

- 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 1957-58.) Prerequisites, 320 and 409, or permission.
- 526 Pushkin (4)** **Erlich**
Analysis of the works of Alexander Pushkin. (Offered alternate years; offered 1958-59.)
- 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 1957-58.)
- 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 1959-60.)
- 560 Studies in Early Russian Literature (3)** **Staff**
(Offered alternate years; offered 1958-59.)
- 590 Seminar in Russian Literary History (4)** **Erlich**
Close examination of selected periods or figures in Russian literature. (Offered alternate years; offered 1957-58.) Prerequisite, 10 graduate credits in Russian literature.
- 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 1957-58.)
- 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 1957-58.)
- 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 1958-59.)
- 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 1958-59.)

TIBETAN

- 502, 503, 504 Comparative Study of Chinese, Mongolian, Tibetan, and Sanskrit Texts (5,5,5)** **K. Chang, Li, Poppe**

FISHERIES

Director: RICHARD VAN CLEVE, Fisheries Center

The School of Fisheries offers courses leading to the degrees of Bachelor of Science in Fisheries, Bachelor of Science, Master of Science, and Doctor of Philosophy. For undergraduate students, the School offers both a prescribed and an elective curriculum. Students with a grade-point average of 2.50 may receive their bachelor's degree in either curriculum; those whose grade-point average is below 2.50 are eligible only for the elective curriculum. Students in both curricula choose options in (A) marine fisheries biology, (B) fresh-water fisheries biology, or (C) fisheries technology.

Most fisheries courses are presented in sequence beginning in Autumn Quarter. Students planning to enter a fisheries curriculum at any other time should communicate with the Director of the School to have their schedules prepared.

Required courses for all fisheries students during their first two years include English 101, 102, 103 (Composition); Zoology 111, 112 (General); Chemistry 100 or 110, 150, 160 (General), 170 (Qualitative Analysis); Mathematics 104 (Plane Trigonometry), 105 (College Algebra); and Fisheries 108, 109, 110. Students specializing in fisheries biology will take 10 credits in French, German, or a Scandinavian language in addition to making up any entrance deficiency in foreign language. A year of physics is required in fisheries technology and is strongly recommended for students in fisheries biology. Electives and additional requirements vary according to the option chosen.

Some of the courses listed below will have been taken during the sophomore year; most of the others will be completed during the junior and senior years. Any course in fisheries, zoology, or oceanography may be used as an elective in a fisheries major.

OPTION A. MARINE FISHERIES BIOLOGY. Chemistry 120 (General and Organic) or 221 (Quantitative Analysis); Fisheries 401, 402, 405, 406, 425, 426, 427, and 6 credits (three quarters) in 495; Mathematics 153 (Analytic Geometry and Calculus), 281 (Elements of Statistical Method), 382, 383 (Statistical Inference in Applied Research); Oceanography 203 (Introduction), 390 (General), 403 (Biological); Zoology 456 (Vertebrate Embryology).

OPTION B. FRESH-WATER FISHERIES BIOLOGY. Biochemistry 361 (Biochemistry), 363 (Biochemistry Laboratory); Biology 473 (Limnology); Chemistry 221 (Quantitative Analysis), 231, 232 (Organic), 241, 242 (Organic Chemistry Laboratory); Fisheries 401, 402, 405 or 406, 451, 452, 453, 460, 461, and 6 credits (three quarters) in 495; Mathematics 281 (Elements of Statistical Method); Microbiology 301 (General); Zoology 456 (Vertebrate Embryology).

OPTION C. FISHERIES TECHNOLOGY. Biochemistry 361 (Biochemistry), 363 (Biochemistry Laboratory); Chemistry 221 (Quantitative Analysis), 231, 232 (Organic), 241, 242 (Organic Chemistry Laboratory), 355, 356 (Physical), 358 (Physical Chemistry Laboratory); Fisheries 401, 405 or 406, 480, 481, 482, 483, 484, 485, 486, and 6 credits (three quarters) in 495, and 498; General Engineering 111 (Engineering Problems); Home Economics 300 (Nutrition); Mathematics 153 (Analytic Geometry and Calculus), 281 (Elements of Statistical Method), 382, 383 (Statistical Inference in Applied Research); Mechanical Engineering 220 (Heat Engines), 428 (Refrigeration); Microbiology 301 (General).

BACHELOR OF SCIENCE IN FISHERIES

In the prescribed curriculum, all options require a cumulative grade-point average of 2.50, and 10 credits in the social sciences. No more than 102 credits may be taken in any two departments.

BACHELOR OF SCIENCE

In the elective curriculum, 39 credits in fisheries are required. Courses must include Fisheries 108, 109, 110, 401, 405 or 406, and 6 credits (three quarters) in 495. The course of study must meet the approval of the department.

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*. Candidates must complete 6 credits (three quarters) in Fisheries 520.

COURSES FOR UNDERGRADUATES

- | | |
|--|-----------------|
| 108, 109, 110 General Survey of Fisheries Work (1,1,1) | Staff |
| Vocational orientation lectures by eminent speakers from game and fish agencies, commercial fisheries agencies, and the commercial fishing industry. | |
| 401 Comparative Anatomy and Physiology of Fishes (5) | Welander |
| Survey of the morphology and bodily functions of fishes. Prerequisite, Zoology 112. | |
| 402 Phylogeny of Fishes (5) | Welander |
| Survey of the system of fish classification; distribution of fishes. Prerequisite, 401. | |
| 403 Identification of Fishes (5) | Welander |
| Introduction to research methods and techniques of ichthyological systematics. Prerequisite, 402. | |
| 405 Economically Important Mollusca (5) | Lynch |
| 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)** **Lynch**
Classification, 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.
- 407 Aquatic Invertebrates of Minor Economic Importance (5)** **Lynch**
Classification, life histories, occurrence, and utilization of sponges, corals, annelid worms, echinoderms, and other aquatic invertebrates fished or cultivated on a commercial scale. 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 fresh-water 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 Fresh-Water 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)** **Lynch**
Organisms causing diseases in fishes; prevention and known treatments of fish diseases. Prerequisites, 402 and Microbiology 301.
- 460 Water Management and Fish Resources (5)** **M. C. Bell**
Stream flows and mechanics of fresh-water 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. Bell**
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, 481 Introduction to Commercial Fishing Industry (4,4)** **F. H. Bell**
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.
- 482, 483 Analysis of Fisheries Products (2,2)** **Stern**
Analysis of fishery products by chemical, colorimetric, spectrophotometric, and microbiological techniques. Prerequisites, Chemistry 232 and 242.
- 484 Processing of Edible Fisheries Products (5)** **Stern**
Principles, methods, and practices in canning, freezing, drying, and curing edible fisheries products. Prerequisite, 483.
- 485 Fish By-Products and Spoilage (5)** **Stern**
Utilization of fish waste in preparation of industrial oils, meals, pharmaceutical, and miscellaneous products; study of the microbiological, enzymatic, and chemical spoilage of fish and fishery products. Prerequisite, 484.
- 486 Research Problems in Fisheries Technology (5)** **Stern**
Group and individual problems in the development of new processes and products; plant design and layout; packaging; sanitation. Prerequisite, 485.
- 495 Introduction to Fisheries 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 School of Fisheries or on-the-job training in governmental or industrial fisheries organizations. Prerequisite, permission.

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.
- 520 Graduate Seminar (2, maximum 6)** **Van Cleve**
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. Prerequisites, 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**
Thesis (*) **Staff**

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
Chem. 100 or 110 General	4-3
Engl. 101 Composition	3
Math. 103 Intermed. Alg. & Trig.	3
Health Educ. 110 or 175	
Health	2
Phys. Educ. activity	1
ROTC	2-3

15-16

SECOND QUARTER	CREDITS
Chem. 150 General	4
Engl. 102 Composition	3
Math. 105 College Alg.	5
Approved electives	2
Phys. Educ. activity	1
ROTC	2-3

17-18

THIRD QUARTER	CREDITS
Chem. 160 General	3
Chem. 170 Qual. Anal.	3
Engl. 103 Composition	3
Math. 153 Anal. Geom. and Calculus	5
Phys. Educ. activity	1
ROTC	2-3

17-18

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Chem. 231 Organic	3	Chem. 232 Organic	3	Chem. 325 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		Zool. 112 General or		ROTC	2-3
Bot. 111 Elementary	5	Bot. 112 Elementary	5		
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.			
Approved electives	6	Lab.	3		15
	14	Chem. 356 Physical	3		
		Approved electives	6		
			15		

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Micro. 300 Fund. of		Bot. 461 Yeasts & Molds	5	Micro. 499 Research	5
Bacteriol.	6	Micro. 430 Industrial	5	Approved electives	10
Approved electives	9	Approved electives	5		15
	15		15		

GENERAL AND COMPARATIVE LITERATURE

Chairman: FRANK W. JONES, 119A Parrington Hall

This program is administered by 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

This program is administered by 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 through courses in foreign literature in translation. Candidates must present an undergraduate major in English 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.

DOCTOR OF PHILOSOPHY. This degree is offered with a major in comparative literature. Candidates are usually concerned with problems common to English or American literature and one or more foreign 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; 40 credits in English, including 505, 507, and 509; and 40 credits in other fields. No more than 10 credits are allowed in English courses numbered below 500.

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 two of three major English writers, Chaucer, Shakespeare, and Milton, and one major figure of foreign literature; (2) on a comparative problem in the field of the candidate's concentration; (3) examination by the department of the candidate's foreign language.

The oral examination is the same as for the doctorate in English (see page 97).

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) | Staff |
| French literature from Baudelaire to Proust and Valéry; manifestations of the movement outside France, both in Europe and America. | |

COURSES FOR GRADUATES ONLY

- 510, 511 Studies in General and Comparative Literature (5, maximum 10, 5, maximum 10)**
Jones

LITERATURE COURSES IN OTHER DEPARTMENTS

CLASSICS

- 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)**
Japanese 320 Japanese Literature in English (5)
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 423 The Russian Novel in English (5)
Russian 424 The Russian Symbolists in English (3)
Russian 425 Dostoevski in English (4)
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 Prose 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)
Spanish 315 Latin-American Authors in English (5)
Spanish 318 Don Quijote 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)

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)

380 Ibsen and His Major Plays in English (2)

381 Strindberg and His Major Plays in English (2)

382 Twentieth-Century Scandinavian Drama 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 provides 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. Comp. 101
2. Hum. 102 The Arts	Soc. Sci. 102 Hist. of Civilization	Phys. Sci. 101 The Universe	Engl. Comp. 102
3. Hum. 103 Philos.	Soc. Sci. 103 Hist. of Civilization	Science elective	Engl. Comp. 103

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
Engl. 101 Composition . . .	3
Hum. 101 Literature . . .	5
Phys. Sci. 101 The Universe . . .	5
Soc. Sci. 101 Hist. Civ. . .	5
Phys. Educ. activity . . .	1
ROTC . . .	2-3
	<hr/> 19-22

SECOND QUARTER	CREDITS
Chem. 100 or 110 General . . .	4-3
Hum. 102 The Arts . . .	5
Soc. Sci. 102 Hist. Civ. . .	5
Engl. 102 Composition . . .	3
Phys. Educ. activity . . .	1
ROTC . . .	2-3
	<hr/> 17-21

THIRD QUARTER	CREDITS
Engl. 103 Composition . . .	3
Health Educ. 110 or 175 . . .	
Health . . .	2
Hum. 103 Philosophy . . .	5
Math. 120 Math. Thinking . . .	2
Soc. Sci. 103 Hist. Civ. . .	5
Phys. Educ. activity . . .	1
ROTC . . .	2-3
	<hr/> 18-21

Second Year

FIRST QUARTER	CREDITS
Hum. 201 Literature . . .	5
Soc. Sci. 201 Mod. Soc. . .	5
Biol. 101J- Gen. Biol. . .	5
ROTC . . .	2-3
	<hr/> 15-18

SECOND QUARTER	CREDITS
Hum. 202 Masterpieces of Art . . .	5
Soc. Sci. 202 Mod. Soc. . .	5
Biol. 102J Gen. Biol. . .	5
ROTC . . .	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Hum. 203 Philosophy . . .	5
Soc. Sci. 203 Mod. Soc. . .	5
Math. 121 Basic Algebra . . .	3
ROTC . . .	2-3
	<hr/> 13-16

COURSES FOR UNDERGRADUATES

BIOLOGICAL SCIENCE

Biology 101J-102J General Biology (5-5)

Fernald, Illg

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. (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.)

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, 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.

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. (Formerly 100.) 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.

SOCIAL SCIENCE**101 History of Civilization: The Great Cultural Traditions (5)****Burke, Giesey, Jansen, Kaminsky, Katz, 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)**Burke,****Giesey, Jansen, Kaminsky, Katz, 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)**Burke, Giesey, Jansen, Kaminsky, Katz, 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, 205 Lewis 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 Graduate School of Social Work, 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.

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, eco-

nomics, 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 the 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.

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, 102, 207, 258, and 426; (2) 30 credits drawn from upper-division courses in geography; (3) emphasis on a field of specialization in geography; and (4) the inclusion of appropriate supporting courses offered in other departments.

Fields of specialization in the Department include Anglo-America, the Far East, economic geography, and cartography. Fields from which appropriate courses should be drawn include anthropology, economics, geology, history, mathematics, meteorology, political science, and sociology.

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.

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

INTRODUCTORY COURSES

- 100 Introductory Human Geography (5)** Earle, Jackson, Kakiuchi
Principles of human geography and their application to the analysis of selected problems and world regions.
- 102 Introductory Physical Geography (5)** Staff
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.
- 115 Mountain Geography (2)** Marts
Agricultural, industrial, and recreational features characteristic of highland areas.

SYSTEMATIC GEOGRAPHY

- 207 Introductory Economic Geography (5)** Garrison, Martin, Ullman
World survey of extractive, manufacturing, and distributing activities with emphasis on regional characteristics relating to the availability of resources and markets and the utilization of technological skills.
- 275 Introductory Political Geography (3)** Jackson
An analysis of the geographic foundations of the major national states, their possessions and associated territories: location, size, boundaries, communications, human and natural resources, and space relations.
- 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.
- 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)** Marts
Geographic principles related to the distribution, resources, and products of agriculture, mining, and lumbering.
- 441 Industrial Geography (3 or 5)** Garrison
Geographic principles related to the development, distribution, and problems of manufacturing industries; case studies of industrial regions. Lectures (3 credits); field work (2 credits) optional with permission of instructor.
- 442 Commercial Geography (3 or 5)** Garrison
Geographic principles related to the localization of world, national, and city commercial areas; case studies including extra- and inter-city commercial patterns. Lectures (3 credits); field work (2 credits) optional with permission of instructor.
- 444 Geography of Water Resources (3 or 5)** Marts
An analysis and appraisal of water resources in land and industrial developments; problems and policies of river basin planning with emphasis on the Pacific Northwest. Two Saturday field trips are required.
- 448 Geography of Transportation (5)** Ullman
An analysis of the nature and distribution of rail, highway, water and air transport facilities and their role in area development.
- 475 Political Geography (5)** Jackson
A study of the principles of political geography based on an analysis of selected case studies, past and present, of regional, national and world political organizations and development.
- 477 Urban Geography (3 or 5)** Ullman
A geographic analysis of urban settlements in terms of their nature, distribution, principal functions, supporting areas, and internal structure.

REGIONAL GEOGRAPHY

- 202 Anglo-America (3)** Hudson
A survey of the natural resources, their utilization, and the regional structure of Alaska, Canada, and the United States.
- 210 The Pacific Northwest (3)** Marts
A regional survey emphasizing natural resources, their use and role in rural and urban developments.
- 300 Advanced Regional Geography (3)** Hudson
An analysis of the principles and concepts of regional geography.

- 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)** **Staff**
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.
- 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. Prerequisite, 304 or permission.
- 407 Australia and New Zealand (5)** **Earle**
Pastoral and agricultural development; industrial potential; urbanization; immigration and trade policies; external economic and political relations.
- 408 Canada and Alaska (3)** **Marts**
An analysis of present and potential developments chiefly in terms of resource occupancy and interregional and international relations.
- 432J 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.
- 433J The Soviet Union (5)** **Jackson**
Natural resources with particular reference to current and potential developments in the extractive and manufacturing industries and trade; status and problems of transportation; trends in the distribution of population. Offered jointly with the Far Eastern and Russian Institute.
- 434J 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 China: Topical Analysis (3)** **Staff**
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.
- 436J China: Regional Analysis (3)** **Staff**
The regional concept as it applies to China; China Proper and the outer areas of Chinese dominance, their distinction and interaction; the problem of China's unity and regional coherence; recurrent political, cultural, and economic areal patterns, interactions, and nuclei; regional analysis of Tibet, Sinkiang, Inner Mongolia, Manchuria, and the geographic regions of China Proper. Offered jointly with the Far Eastern and Russian Institute.
- 437J Japan (5)** **Kakiuchi**
Regional structure of Japanese urban, industrial, and agricultural geography. The analysis of contemporary geographic patterns considers both cultural and physical factors and selected aspects of historical development. Offered jointly with the Far Eastern and Russian Institute.

GEOGRAPHIC TECHNIQUES

- 258 Maps and Map Reading (2)** **Heath, Sherman**
Categories of maps and aerial photographs and their special uses; map reading and interpretation.
- 360 Introductory Cartography (5)** **Heath, Sherman**
Theory and principles of map scales, grid systems, symbolism, color, lettering, and map reproduction. Practical laboratory experience in using drafting instruments and cartographic materials.
- 361 Intermediate 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 Photograph Interpretation (2)** **Marts**
A study of the techniques of identifying and interpreting features of the land and land use from aerial photographs.
- 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 approved equivalent.
- 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. Prerequisites, 360 or 425J, and an introductory course in statistics or permission.
- 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 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 Map Reproduction (3)** **Heath, Sherman**
Reproduction processes and methods of photographic projection as applied to cartography. Prerequisite, 360.
- 490 Field Research (6, maximum 12)** **Marts**
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. (Formerly 499.)

COURSES FOR GRADUATES ONLY

- N500 Seminar (0)** **Graduate Students, Faculty**
- 501 Seminar: Source Materials in Geographic Research (3)** **Staff**
- 502 Seminar: Writing and Critique (*, maximum 6)** **Hudson, Martin**
- 503J Seminar: Southeast Asia (3, maximum 6)** **Earle**
Offered jointly with the Far Eastern and Russian Institute.
- 504J Seminar: Japan and Northeast Asia (3, maximum 6)** **Kakiuchi**
Offered jointly with the Far Eastern and Russian Institute.
- 505J Seminar: China and Northeast Asia (3, maximum 6)** **Staff**
Offered jointly with the Far Eastern and Russian Institute.
- 506 Seminar: Anglo-America (3, maximum 6)** **Hudson, Marts**
- 507J Seminar: Soviet Union (3, maximum 6)** **Jackson**
Offered jointly with the Far Eastern and Russian Institute.
- 510 Seminar: Settlement and Urban Geography (3, maximum 9)** **Ullman**
- 520 Seminar: Cartography (3, maximum 6)** **Sherman**
- 537 Seminar: Quantitative Methods in Economic Geography (3, maximum 6)** **Garrison**
- 538 Seminar: Geography of Transportation (3, maximum 6)** **Ullman**
- 539 Seminar: Utilization of Water Resources (3, maximum 6)** **Marts**
- 551 Seminar: Recent Trends in Geographic Research (3, maximum 9)** **Staff**
- 555 Seminar: History and Theory of Geography (*, maximum 6)** **Staff**
- 600 Research (*)** **Staff**
- 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.

For undergraduate students, the Department offers two curricula leading to

bachelor's degrees. Both provide a study of geology and related sciences in preparation for graduate study or for a professional career. The prescribed curriculum sets a definite sequence for all courses; the elective curriculum is more flexible.

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. In addition, students majoring in geology are required each quarter to read two books of outstanding merit from a list prepared by the Department.

BACHELOR OF SCIENCE

In the elective curriculum, students must complete the background courses in mathematics, chemistry, physics, and general engineering that are listed in the prescribed curriculum below in addition to Geology 205, 206, 207, 221, 308, 323, 330, 344, 361, 412, 424, 443, and 480.

For students interested in paleontology, stratigraphy, or oil geology, Geology 426 and 436 are recommended. Those interested in ore deposits should take Mining Engineering 201J (Introduction to the Mineral Industries), 325 (Mineral Land Valuation), 426 (Exploration and Development of Mineral Deposits); and Geology 425, 427, and 429.

BACHELOR OF SCIENCE IN GEOLOGY

In the prescribed curriculum, a summer field course (Geology 400) is required. Students who adhere to the prescribed program, and who take the field course between their junior and senior years, may graduate at the end of Winter Quarter in the fourth year. Those who plan to do graduate work should take their social science and humanities electives in Summer School, to allow time for additional professional geology courses.

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 one of the undergraduate curricula. 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 Geology 400 or other field experience which is approved by the Department. In addition, all candidates for advanced degrees must have Geology 481.

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 either a M.S. or M.A. degree.

First Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Geol. 100 Introduction . . .	2	Chem. 150 General	4
Chem. 100 or 110		Engl. 102 Composition . . .	3
General	4-3	Gen. Engr. 103 Descript. . .	
Engl. 101 Composition . . .	3	Geom.	3
Gen. Engr. 101 Engr. . . .		Math. 105 College Algebra .	5
Drawing	3	Phys. Educ. activity	1
Math. 103 Plane Trig. or .		ROTC	2-3
104 Intermed. Alg. and .			16-19
Trig.	3		
Phys. Educ. activity	1		
ROTC	2-3		
	16-19		
		THIRD QUARTER	CREDITS
		Chem. 160 General	3
		Engl. 103 Composition . . .	3
		Gen. Engr. 121 Plane . . .	
		Surveying	3
		Health Educ. 110 or 175 . .	
		Health	2
		Math. 153 Anal. Geom. . . .	
		& Calc.	5
		Phys. Educ. activity	1
		ROTC	2-3
			17-20

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Geol. 205 Rocks & Min.	5	Geol. 206 Elem. Physiog.	5	Geol. 207 Historical Geol.	5
Physics 101 and 107		Physics 102 and 108		Geol. 221 Mineralogy	3 or 5
General	5	General	5	Physics 103 and 109	
Approved electives	5	Approved electives	5	General	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
Geol. 308 Struct. Geol.	5	Geol. 330 Gen. Paleon.	5	Geol. 344 Field Methods	5
Geol. 323 Optical Min.	5	Geol. 424 Petrography	5	Geol. 432 Adv. Paleon.	
Approved electives	5	and Petrology	5	or 436 Micro. Paleon.	5
	15	Geol. 480 Hist. of Geol.	3	Approved electives	5
		Approved electives	2		15
			15		

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Geol. 361 Stratigraphy	5	Geol. 427 Ore Deposits	5	Geol. 414 Map Interpret.	5
Geol. 412 Physiog. of U.S.	5	Geol. 443 Adv. Structural.	5	Foreign language	5
Foreign language	5	Foreign language	5	Approved electives	5
	15		15		15

COURSES FOR UNDERGRADUATES

- 101 Survey of Geology (5)** Barksdale, Coombs, Mallory
- 102 Geology in World Affairs (5)** Barksdale
Geological occurrence, world distribution, and production of coal, petroleum, and the important industrial materials. Prerequisite, 101 or 205.
- 103 Earth History (5)** Wheeler
Geology from a chronological standpoint, including the elements of stratigraphy and paleontology. Prerequisite, 101 or 205.
- 205 Rocks and Minerals (5)** Staff
Prerequisite, high school chemistry.
- 206 Elements of Physiography (5)** Mackin
Processes and agencies affecting the earth's surface; relationship of topography to structure, etc. 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 Mineralogy (3 or 5)** Staff
Determinative crystallography and blowpipe analysis. Prerequisites, high school chemistry and 205. Only 3 credits can be obtained in extension; 3 credits (Mineral Engineering students) or 5 credits (Geology majors), in residence.
- 308 Structural Geology (5)** Barksdale
Interpretation of rock structures and their genesis. Prerequisites, 205, 206, 207, and General Engineering 101, 103.
- 310 Engineering Geology (5)** Staff
Elements of geology for civil engineers. Prerequisite, civil engineering major or permission.
- 323 Optical Mineralogy (5)** Coombs, Staff
Petrographic microscope and recognition of common minerals in thin section. Prerequisites, 205 and 221.
- 330 General Paleontology (5)** Mallory
Systematic study of fossils. Prerequisite, 207 or permission.
- 344 Field Methods (5)** Barksdale
Geologic and topographic surveying and recording. Prerequisites, 308 and General Engineering 121.
- 361 Stratigraphy (5)** Wheeler
Sedimentation and facies; rock and time units; evaluation of boundaries; principles of correlation. Prerequisites, 205, 206, and 207. Recommended courses for 330 and 432.
- 400 Advanced or Field Work in General Geology (*)** Staff
An approved summer field course or approved field experience. (Offered Summer Quarter only.)
- 412 Physiography of the United States (5)** Mackin
Prerequisites, 205, 206, and 207.
- 414 Map Interpretation (5)** Mackin
Prerequisites, 205, 206, and 207.

424 Petrography and Petrology (5)	Coombs
Systematic study of rocks with the petrographic microscope. Prerequisite, 323.	
425 Petrography and Petrology (5)	Misch
Metamorphic rocks, petrogenesis. Prerequisite, 424.	
426 Sedimentary Petrography (5)	Staff
Prerequisite, 425.	
427 Ore Deposits (5)	Staff
Form, structure, mineralogy, petrology, and mode of origin. Prerequisites, 221 and 424.	
429 Advanced Ore Deposits (3)	Staff
Prerequisite, 427.	
432 Advanced Paleontology (5)	Mallory
Principles of biostratigraphy; invertebrate faunas in space and time. Prerequisites, 207, 330 or permission.	
436 Micropaleontology (5)	Mallory
Prerequisite, 330.	
443 Advanced Structural Geology (5)	Misch
Prerequisite, 308.	
450 Elements of Seismology (5)	Neumann
480 History of Geology (3)	Barksdale
Prerequisite, 15 credits in geology.	
481 Preparation of Geologic Reports and Publications (3)	Coombs
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

501 Advanced Petrography and Petrology of Igneous Rocks (*)	Staff
503 Advanced Petrography and Petrology of Sedimentary Rocks (*)	Coombs
510 Advanced Studies in Physiography (*, maximum 10)	Mackin
515 Fluvial Morphology (*, maximum 5)	Mackin
Prerequisite, permission.	
516 Glacial Geology (5)	Mackin
520 Seminar (*)	Staff
521 Metamorphic Minerals (5)	Misch
522 Regional Metamorphism and Granitization (5)	Misch
523 Static Granitization (5)	Staff
530 Advanced Studies in Paleontology (*)	Mallory, Wheeler
532 Stratigraphic Paleontology (3)	Wheeler
540 Advanced Studies in Structural Geology (*)	Barksdale, Misch
545 Structure of Eurasia (5)	Misch
546 Structure of the Pacific Rim (5)	Misch
550 Advanced Studies in Geophysics (*, maximum 9)	Neumann
560 Advanced Studies in Stratigraphy (*)	Mallory, Wheeler
565 Paleozoic Stratigraphy (3)	Wheeler
568 Mesozoic Stratigraphy (3)	Wheeler
570 Advanced Studies in Mineralogy, Petrography, and Petrology (*)	Coombs, Misch
580 Advanced Studies in Economic Geology (*)	Coombs
600 Research (*)	Staff
Thesis (*)	Staff

GERMANIC LANGUAGES AND LITERATURE

Executive Officer: CURTIS C. D. VAIL, 229 Lewis 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 encouraged, and the Department offers a summer session in Germany in conjunction with the University of Munich.

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 German 410, 411, 412, 415, 416, 417, 500, 501, 502, 503, 550, 552, 556, and 557 (or equivalents) as they are offered. German 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 FOR UNDERGRADUATES

- 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.
- 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.
- 112 First-Year Reading (5)** **Staff**
Continuation of 110-111. Prerequisites, 110-111 or one year of high school German. Not open to those who have taken 103.
- 121, 122 First-Year Reading German (5,5)** **Staff**
A special course devoted exclusively to the reading objective. Primarily for upper-division and graduate students.
- 204 Second-Year Reading (5)** **Staff**
Prerequisite, 103 or 112, or two years of high school German.
- 205, 206 Second-Year Reading (3,2)** **Staff**
Prerequisite, as for 204; not open to those who have taken 204.
- 207 Second-Year Grammar Review (3)** **Staff**
Prerequisite, 103 or 112, or two years of high school German.
- 210 Advanced Second-Year Reading (3)** **Staff**
Prerequisite, 204 or 205, or 206.
- 230 Conversation (3)** **Staff**
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 1958-59.)
- 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, 8 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, 8 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)** **Vail, 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 1957-58.)
- 410, 411, 412 History of German Literature (3,3,3)** **Buck, Wilkie, Kahn**
From the beginnings to the Classical period. (Offered 1958-59.)
- 415, 416, 417 Nineteenth-Century Literature (3,3,3)** **Sommerfeld, Sauerlander, Roy**
(Offered 1957-58.)

GERMANIC LANGUAGES

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418, 419	Naturalism, Expressionism, and Twentieth-Century Realism (3,3) (Offered 1958-59.)	Roy
422	Analysis of German Poetry (3) (Offered 1958-59.)	Sommerfeld
431	Lessing's Life and Dramatic Works (3) (Offered 1959-60.)	Vail
433	Goethe: The Early Years (3) (Offered 1957-58.)	Vail
434	Goethe: Life and Works, 1775-88 (3) (Offered 1957-58.)	Buck
436	Goethe's Faust I (3) (Offered 1959-60.)	Sommerfeld
437	Goethe's Faust II (3) (Offered 1959-60.)	Vail
438	Schiller's Historical Dramas (3) (Offered 1958-59.)	Kahn
450J	Introduction to General Linguistics (5) Descriptive and historical techniques in the analysis of languages. Offered jointly with the Department of Anthropology.	Jacobs, Reed
497	Studies in German Literature (1-5, maximum 15) Prerequisite, 310 or equivalent.	Staff
498	Studies in the German Language (1-5, maximum 15) Prerequisite, 310 or equivalent.	Staff

COURSES IN ENGLISH

350	Masterpieces of German Literature in English (3)	Sommerfeld
351	Contemporary German Literature in English (3) Trends in German thought and letters in the twentieth century; social and economic backgrounds.	Roy
462	Goethe in English (3)	Sauerlander
464	Thomas Mann in English (3)	Roy

COURSES FOR GRADUATES ONLY

LITERATURE COURSES

500	Bibliography and Methodology (2) (Offered 1957-58.)	Sommerfeld
510	Literature of the Middle Ages (5) (Offered 1958-59.)	Buck
511	Reformation and Renaissance (3) (Offered 1958-59.)	Wilkie
512	Baroque (3) (Offered 1958-59.)	Wilkie
513	Eighteenth-Century Movements (3) (Offered 1958-59.)	Kahn
515	The Romantic Movement (4) (Offered 1957-58.)	Sommerfeld
516	The Drama of the Nineteenth Century (4) (Offered 1957-58.)	Sauerlander
517	The Literature of the Later Nineteenth Century (4) (Offered 1957-58.)	Roy
518, 519	The Literature of the Twentieth Century (3,3) (Offered 1958-59.)	Roy
531	Lessing (3) (Offered 1959-60.)	Vail
534	Goethe: Life and Works, 1775-88 (4) (Offered 1957-58.)	Buck
535	Goethe: Life and Works, 1788-1832 (4) (Offered 1957-58.)	Sommerfeld
538	Schiller (4) (Offered 1958-59.)	Kahn
590, 591, 592	Seminar in Literary History (1-5,1-5,1-5)	Staff
600	Research (*)	Staff
	Thesis (*)	Staff

PHILOLOGY COURSES

501, 502, 503 Advanced Syntax and Synonymy (2,2,2)	Staff
505 Introduction to Linguistics (3) (Offered 1959-60.)	Reed
550 Gothic (5) (Offered 1957-58.)	Meyer
552 Old High German (5) (Offered 1957-58.)	Reed
555 Old Saxon (5) (Offered 1960-61.)	Reed
556 Middle High German (5) (Offered 1958-59.)	Meyer
557 Middle High German Literature in the Original (5) (Offered 1958-59.)	Reed
560 Modern Dialects (3) (Offered 1957-58.)	Reed
570 Sanskrit (3-5) (Offered 1959-60.)	Reed
595, 596, 597 Seminar in Germanic Philology (1-5, 1-5, 1-5)	Staff
600 Research (*)	Staff
Thesis (*)	Staff

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 history of modern Europe, England, or the United States. The chosen area of concentration should be studied as intensively as time will permit.

In this curriculum 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 World 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. Related electives totaling 20-25 credits should be included in a program leading to the Bachelor of Arts 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*. 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; the subject within the third division is American history; subjects within a fourth division, Far Eastern history, may be selected by arrangement with the Department of History and the Far Eastern and Russian Institute. Fields in the history of science may be located within any of the four divisions of history.

MASTER OF ARTS. There are two programs leading to the Master of Arts degree. 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 a Ph.D. degree. 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 candidate should select one field from a subject in each of three 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 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, and are examined in only two fields of special study within the first three divisions named above. The third 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 History 501 or 502.

DOCTOR OF PHILOSOPHY. Candidates must complete History 501 and 502, at least two years of seminar work, participate in the work of the advanced seminar, and prepare at least four fields from subjects in each of three divisions of history described above. 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 take History 501 and 502, to complete one year of seminar work, and to prepare for examinations in two fields of special study within the first three divisions named above. The remaining 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 at least two of the first three divisions of history named above.

COURSES FOR UNDERGRADUATES**INTRODUCTORY COURSES****Social Science 101, 102, 103 History of Civilization (5,5,5)****Burke, Gieseey, Jansen,
Kaminsky, Katz, Woolf**

See the General Education program, page 115, for description.

101 Medieval European History (5)**Gieseey, Lytle, Woolf**

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, Saville**

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)**Staff**

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)**Janson**

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**

A study of the political, institutional, and cultural history of classical Greece, with special emphasis on the legacy of Greece to western civilization. (Offered every four years; offered 1958-59.)

402 Alexander the Great and the Hellenistic Age (5)**Katz**

(Not offered 1957-59.)

403 The Roman Republic (3)**Katz**

(Not offered 1957-59.)

404 The Roman Empire (3)**Katz**

A study of the political, social, economic, and cultural history, with special emphasis on the decline of ancient civilization. (Offered every four years; offered 1957-58.)

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)****Gieseey, Lytle, Woolf**

See Introductory Courses above.

410 The Byzantine Empire (5)**Katz**

See Ancient History above.

411 Medieval Civilization (5)**Lucas**

(Not offered 1957-59.)

412 Medieval Civilization (5)**Kaminsky, Lucas**

The Dark Ages from the barbarian invasions to the Age of Feudalism.

413 Medieval Civilization (5)**Lucas**

Arts, letters, religion, science, and thought in Europe outside Italy from 1200 to 1500.

Early Modern Period**305 Early Modern European History (5)****Emerson, Gieseey, 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)** **Lucas**
Art, literature, politics, philosophy, science, and religion in Italy from 1300 to the death of Michelangelo.
- 415 The Reformation (5)** **Lucas**
Political and religious crisis; Lutheranism, Zwinglianism, Anglicanism, Anabaptism, Calvinism, Catholic reform; beginnings of Baroque art.
- 416 Monarchy in Europe, 1250-1750 (5)** **Giesey**
The development of monarchy from feudalism to absolutism: theories of rulership; the cult of the king; conflict with representative institutions.
- 422J Early Russian History (5)** **Treadgold**
Survey of the development of Russia from the earliest times to the reign of Nicholas II (1894-1917). Offered jointly with the Far Eastern and Russian Institute.
- 429 France from the Reformation to the French Revolution (5)** **Lytle**
The reformation in France and the wars of religion. Richelieu, Louis XIV, and the century of genius. The "philosophes" and the decay of the old regime. (Offered alternate years; offered 1958-59.)

Modern Period

- 102 Modern European History (5)** **Emerson, Lytle, Treadgold**
See Introductory Courses above.
- 306 Europe since the French Revolution (5)** **Emerson, Lytle, 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.
- 423J Recent Russian History (5)** **Treadgold**
Survey of Russia and the U.S.S.R. from the reign of Nicholas II (1894-1917) 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. (Not offered 1957-58.)
- 427 History of Eastern Europe, 1918-55 (5)** **Staff**
The history of Eastern Europe (Poland, Czechoslovakia, Hungary, Rumania, Yugoslavia, Bulgaria, and Albania) from the end of World War I to the present. (Not offered 1957-59.)
- 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**
The development of Europe during the age of Metternich, the revolutions of 1848, and the emergence of new national states. (Not offered 1957-58.)
- 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. (Not offered 1957-58.)
- 433 Europe, 1914-15 (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 1958-59.)
- 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 1957-58.)

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)** **Giesey**
The development of legal and governmental institutions of the English people from the Tudors to the present time.
- 381 History of India, 1607 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.
- 470 England in the Seventeenth Century (5)** **Staff**
Political, constitutional, social and cultural development in the Age of the Stuarts. (Not offered 1957-59.)
- 471 England in the Eighteenth Century (5)** **Costigan**
Political, social, and cultural developments in England from the reign of Queen Anne to the American Revolution. (Not offered 1957-59.)
- 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. (Offered 1958-59.)

- 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. (Offered 1958-59.)
- 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. (Offered 1957-58.)
- 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.
- 480 History of the British Empire since 1783 (5)** **Mackirdy**
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.
- 481 History of the Commonwealth of Nations (5)** **Mackirdy**
The advancement of dependencies of Great Britain to the status of independent nations associated with Great Britain.

AMERICAN HISTORY

- 241 Survey of the History of the United States (5)** **Holt, Pressly, Savalle**
See Introductory Courses above.
- 291, 292 Latin American History (5,5)** **Staff**
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 Foundations of American Civilization (5)** **Savalle**
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)** **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)** **Savalle**
(Not offered 1957-59.)
- 442 The Colonial Mind (5)** **Savalle**
Lectures and discussion on the various aspects of thought of the Americans of the eighteenth century: economic, social, and political thought, religion, science, literature, and philosophy, and the beginnings of American national feeling. (Offered 1958-59.)
- 443 The Intellectual History of the United States (5)** **Savalle**
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 1957-58.)
- 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)** **Savalle**
(Not offered 1957-59.)
- 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)** **Pressly**
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)** **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)** **Jansen**
See Introductory Courses above.
- 451J History of Chinese-Japanese Relations (3)** **Jansen**
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)** **Jansen**
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)** **Jansen**
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)** **Jansen**
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)** **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 examination in the fields selected.

- 510 Greek, Roman or Byzantine History (3-6)** **Katz**
- 514 Medieval and Renaissance History (3-6)** **Lucas**
- 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, alternate years, with the Far Eastern and Russian Institute; offered 1958-59.)
- 541 American History: Early (3-6)** **Saville**
- 542 American History: Western (3-6)** **Gates**
- 543 American History: Civil War (3-6)** **Pressly**
- 544 American History: National Period (3-6)** **Holt**
- 545 American History: Twentieth Century (3-6)** **Pressly**
- 549J Japanese History (3-6)** **Jansen**
Offered jointly with the Far Eastern and Russian Institute.
- 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 1957-58.)	Costigan
517-518-519 Seminar in Ancient or Medieval History (3-6)-(3-6)-(3-5)	Katz, Lucas
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, alternate years, with the Far Eastern and Russian Institute; offered 1958-59.) 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.	Jansen
553-554-555 Seminar in American History: Early (3-6)-(3-6)-(3-6)	Saville
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

RESEARCH

600 Research (*)	Staff
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 early to be sure of completing the curriculum in four years.

First Year

CREDITS

Home Ec. 101 Introduction	1
Home Ec. 115 Food Preparation	3
Home Ec. 125 Textiles	3
Home Ec. 134 Clothing Construction	5
Art 109 Design	3
Chem. 100 or 110 General	4-3
Chem. 120 General and Organic	5
Engl. 101, 102, 103 Composition	9
Health Educ. 110 Health	2
Speech 100 Basic Improvement	5
Approved electives	5-6
Phys. Educ. activity	3

48

Third Year

CREDITS

Home Ec. 307 Nutrition	5
Home Ec. 315 Adv. Food Selection	5
Home Ec. 347 Home Furnishing	5
Home Ec. 354 Family Economics	5
Home Ec. 356 Family Relationships	3
Educ. 332 Teachers' Course in Home Ec.	3
Educ. 370E Elementary School Methods	5
Educ. 373 State Manual	2
Educ. 390 Evaluation	3
Micro. 301 General	5
Psych. 306 Child Psych. or Educ. 402	
Child Study	5-3
Approved electives	0-2

46

Second Year

CREDITS

Home Ec. 215 Meal Planning	3
Home Ec. 234 Costume Design	3
Home Ec. 248 The House	3
Econ. 200 Introduction	5
Educ. 209 Educ. Psychol.	3
Educ. 370 Intro. to Teach. Procedures	5
Music Appreciation	2-5
Nursing 100 Home Nursing	3
Psychol. 100 General	5
Sociol. 110 Survey	5
Zool. 208 or 118 Physiology	5

42-45

Fourth Year

CREDITS

Home Ec. 338 Family Clothing	3
Home Ec. 348 Home-Management House	3
Home Ec. 407 Adv. Nutrition or	
434 Costume Design or 447 Adv.	
Home Furnishing or 495 Special	
Problems	3
Home Ec. 457 Child Nutrition	3
Educ. 360 Principles	3
Educ. 371S Directed Teaching	8
Educ. 372E Professional Lab.	
Experiences	3
Educ. 374 Fund. of Reading Instruct.	5
Hist. 464 Wash. and Pac. N.W.	5
Psychol. 320 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

CREDITS

Home Ec. 101 Introduction	1
Home Ec. 115 Food Preparation	3
Home Ec. 125 Textiles	3
Art 109 Design	3
Chem. 100 or 110 General	4-3
Chem. 120 General and Organic	5
Engl. 101, 102, 103 Composition	9
Health Educ. 110 Health	2
Math. 101 Intermediate Algebra	5
Psych. 100 General	5
Approved electives	5-6
Phys. Educ. activity	3

48

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 Obs. of Child Behavior	
in Nurs. School	2
Approved electives	10

45

Second Year

CREDITS

Home Ec. 134 Clothing Construction or	
231 Clothing Selection	5-2
Home Ec. 215 Meal Planning	3
Home Ec. 248 The House	3
Econ. 200 Introduction	5
Chem. 150 General	4
Physics 170 For Nurses	5
Sociol. 110 Survey	5
Zool. 208 Physiology	5
Approved electives	10-13

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

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		Second Year	
	CREDITS		CREDITS
Home Ec. 101 Introduction	1	Home Ec. 134 Clothing Construction	5
Home Ec. 125 Textiles	3	Home Ec. 248 The House	3
Home Ec. 110 Foods & Nutrition or		Art 109 Design	3
300 Nutrition	5-2	Econ. 200 Introduction	5
Chem. 100 or 110 General	4-3	Nurs. 100 Home Nursing	3
Chem. 120 General and Organic	5	Physics 170 Hlth. Sciences Physics	5
Engl. 101,102,103 Composition	9	Psychol. 100 General	5
Health Educ. 110 Health	2	Speech 100 Basic Improvement	5
Sociol. 110 Survey	5	Approved electives	12
Approved electives	10-12		46
Phys. Educ. activity	3		
	46		

Third Year		Fourth Year	
	CREDITS		CREDITS
Home Ec. 347 Home Furnishing	5	Home Ec. 457 Child Nutrition	3
Home Ec. 354 Family Economics	5	Home Ec. 473 Institution Mgmt.	5
Home Ec. 356 Family Relationships	3	Home Ec. 474 Institution Management	
Micro. 301 General	5	(Accounting)	5
Pers. 310 Personnel Management	5	Home Ec. 475 Institution Equip.	3
Prod. 355 Purchasing & Material Mgmt.	5	Educ. 333 Methods of Teach. for Inst.	
Psychol. 320 Obs. of Child Behavior		Admin. Students	5
in Nurs. School	2	Hum. Rel. 460 Human Relations in	
Speech 332 Principles of Group		Business and Industry	5
Discussion	5	Mech. Engr. 418 Work Simplification	2
Zool. 118 Physiology	5	Pub. Health 451 Indust. Hygiene	3
Approved electives	5	Sociol. 466 Indust. Sociol. (should	
	45	precede Hum. Rel. 460)	5
		Approved electives	10
			46

Recommended electives: Journalism 200 (5), Speech 230 (5), Personnel 345 and 346 (3,3), Policy and Administration 463 (3).

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		HOME ECONOMICS AND JOURNALISM	
	CREDITS		CREDITS
Home Ec. 316 Demonst. Cookery	3	Home Ec. 457 Child Nutrition	3
Home Ec. 408 Diet Therapy, and 415		Adver. 226 Intro. to Advertising	3
Exper. Cook., or Biochem. 361 and		Commun. 100 Communications Today	2
363 Biochem.	6-5	Journ. 200 News Writing	5
Home Ec. 457 Child Nutrition	3	Journ. 301 Copy Editing	3
Commun. 100 Communications Today	2	Commun. 303 Public Relations	3
Journ. 200 News Writing	5	Journ. 404 Mag. Article Writing	3
Speech 120 Public Speaking	5	Radio-TV 352 Radio and Television	
Approved electives	21-22	Advertising	5
	45	Approved electives	21
			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 Principles of Pub.	
Hlth. I	2
Pub. Health 423 Principles of Pub.	
Hlth. IV	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, 301, 302,	
304, 305, with 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**CREDITS**

Home Ec. 101 Introduction	1
Home Ec. 125 Textiles	3
Home Ec. 134 Clothing Construction	5
Art 105 Drawing	3
Art 109, 110 Design	6
Chem. 100 or 110 General	4-3
Chem. 120 General and Organic	5
Engl. 101, 102, 103 Composition	9
Health Educ. 110 Health	2
Approved electives	7-8
Phys. Educ. activity	3

48**Second Year****CREDITS**

Home Ec. 110 Food & Nutrition or 115 Food Prep. or 300 Nutrition	2-5
Home Ec. 234 Costume Design	3
Art 106 Drawing	3
Art 111 Design	3
Art 151 Figure Sketching	1
Econ. 200 Introduction	5
Psychol. 100 General	5
Soc. Sci. 101, 102 Hist. of Civilization	10
Sociol. 110 Survey	5
Approved electives	8-5

45**Third Year****CREDITS**

Home Ec. 334, 434 Costume Design	6
Home Ec. 347 Home Furnishing	5
Home Ec. 354 Family Economics	5
Home Ec. 356 Family Relationships	3
Art. 369, 370, 371 Costume Design	6
Philos. 100 Introduction	5
Approved electives	15

45**Fourth Year****CREDITS**

Home Ec. 425 Advanced Textiles	3
Home Ec. 432, 433 Hist. of Costume & Textiles	8
Home Ec. 435, 436 Adv. Costume Design	10
Art electives	8
Approved electives	16

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 Production 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**CREDITS**

Home Ec. 334, 434 Costume Design	6
Home Ec. 347 Home Furnishing	5
Home Ec. 354 Family Economics	5
Home Ec. 356 Family Relationships	3
Acctg. 150 Fundamentals	4
Art 369, 370, 371 Costume Design	6
Gen. Bus. 101 Introduction	5
Mktg. 301 Principles	5
Approved electives	6

45**Fourth Year****CREDITS**

Home Ec. 425 Adv. Textiles	3
Home Ec. 432, 433 History of Costume and Textiles	8
Home Ec. 435, 436 Adv. Costume Design	10
Business Administration electives	10-15
Chosen from:	
Personnel 310 Pers. Mgmt. (5), Hum. Rel. 460 (5), Marketing 381 Retailing (5), Production 301 Principles (5), and other approved courses	
Production 380 Field Work	6
Approved electives	8-3

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 (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		Fourth Year	
	CREDITS		CREDITS
Home Ec. 334, 434 Costume Design	6	Home Ec. 425 Adv. Textiles	3
Home Ec. 347 Home Furnishing	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		45
Approved electives	17		
	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 353 (Social Factors in Marriage); and courses in education, journalism, nursery school, and in the General Education program.

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	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		45
Approved electives	10-11		
Phys. Educ. activity	3		
	48		

Third Year		Fourth Year	
	CREDITS		CREDITS
Home Ec. 307 Nutrition	5	Home Ec. 457 Child Nutrition	3
Home Ec. 347 Home Furnishing	5	Approved electives	42
Home Ec. 348 Home-Management House	2		45
Home Ec. 354 Family Economics	5		
Home Ec. 356 Family Relationships	3		
Psychol. 320 Obs. 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 institutional management the following sequence is recommended: Home Economics 115, 125, 215, 240, 307, 372, 472, 473, and 474; Chemistry 100 or 110 (General) and 120 (General and Organic); and 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 2- or 3-credit elective in home economics, plus pre-

requisite 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 Nursery School).

ADVANCED DEGREES AND GRADUATE WORK

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.

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 12 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.

COURSES FOR UNDERGRADUATES

- | | |
|--|---|
| 101 Introduction to Home Economics (1) | Staff |
| Orientation to college; women's educational needs and opportunities in the professional fields. | |
| 110 Food and Nutrition (5) | Moreman |
| Food selection and preparation, and family meal planning and service, with emphasis on nutritive and economic values. For nonmajors interested in homemaking. | |
| 115 Food Preparation (3) | Sylvester, Moreman |
| Cookery techniques presented in lecture-demonstration, followed by laboratory experience. Food selection, basic cookery, simple meal planning service, and cost calculation. No credit to those who have taken 110 or 119. | |
| 119 Nutrition and Food Preparation (3) | Crum |
| Demonstrations in preparing food, planning and serving meals; nutritive needs of different age groups and types. For student nurses. | |
| 125 Textiles (3) | Brockway |
| 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. | |
| 134 Clothing Construction and Selection (3-5) | Nelson, Shigaya, Williams, Wybourn |
| 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) | Lawton |
| Factors in food purchasing. Preparation and service of nutritious and attractive meals for families on different economic levels. Prerequisite, 115 or permission. | |
| 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) | Nelson, Payne, Williams, Wybourn |
| 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, 134 and Art 102. | |

- 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)** **Crum, Johnson**
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)** **Sylvester**
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)** **Sylvester**
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, Wybourn**
Design by draping. Study of clothing production at all price levels. Silk and rayon technique. Prerequisite, 234.
- 338 Clothing for the Family (3)** **Wybourn**
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)** **Lawton**
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.
- 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)** **Goold**
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.
- 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)** **Johnson**
Nutrition as a curative and preventive factor in disease. Primarily journal readings. Prerequisite, 407.

- 415 Experimental Cookery (3)** **Sylvester, Moreman**
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.
- 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, Wybourn**
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 designing 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)** **Deisher, 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. Prerequisite, 315.
- 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)** **Parks**
Food and food service accounting problems. Recording financial transactions; cost controls; profit and loss statements. Prerequisite, 215.
- 475 Institution Equipment (3)** **Terrell**
Institution kitchens and serving units; routing of work; equipment selection, operation, and care; repair and depreciation records. Prerequisite, 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 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 (*)** **Sylvester**
Professional literature on recent developments. Prerequisite, 315 or equivalent, or permission.
- 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**

Twelve months 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 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

Thesis (*)**Staff****JOURNALISM**

(See Communications, Page 82)

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 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 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); 3 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), 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, 205 Lewis 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

- 101 Introduction to Modern Thought (5)** **Lutey**
Man's place in the universe; cosmic origins; origin and nature of life; mind and behavior; values.
- 111 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 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 117) 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**
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 undergraduates and nonlibrary school students Autumn Quarter only; for School of Librarianship students, Spring Quarter.
- 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; 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. Primarily for teacher-librarians.
- 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.

MATHEMATICS

Executive Officer: C. B. ALLENDOERFER, 243 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 or a mathematical statistics 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 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 Mathematics 104 or 105 must take a qualifying test before they can register for either 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 Mathematics 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 special sections of Mathematics 153.

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 Mathematics 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 Mathematics 105, 153, 251, 252, 253, and 22 credits in approved

electives. The only approved lower-division electives are Mathematics 120, 121, and 281.

BACHELOR OF SCIENCE

In the prescribed curriculum, a grade-point average of 2.50 is required in all mathematics courses. For both 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. Fifty-seven credits in mathematics are required, including Mathematics 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 categories: algebra, analysis, geometry, and statistics. The only approved lower-division electives are Mathematics 120, 121, and 281.

This sequence of courses is recommended but not prescribed: freshman year, Mathematics 105, 120, 153, and 251; sophomore year, Mathematics 252, 253, and 417; junior year, Mathematics 401, 402, and 403; 418, 421, and 422; and senior year, Mathematics 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, Mathematics 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.

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.

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.

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 three of the four categories: algebra, analysis, geometry, and statistics. 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 three of the four categories: algebra, analysis, geometry, and statistics. 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 FOR UNDERGRADUATES

- XA, XB Survey of Algebra ($\frac{1}{2}$ 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 ($\frac{1}{2}$ 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. 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. 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.
- 112 Mathematics of Business (5)** **Staff**
Discounts, simple interest, installment buying, binomial theorem, annuities, bonds, probability, and insurance mathematics. (Credit may be applied toward a major in mathematics in the College of Education, but not in the College of Arts and Sciences.) Prerequisites, 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. Differentials, indefinite integrals. 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.
- 251 Analytic Geometry and Calculus (5)** **Staff**
Definite integrals, integration of simple algebraic functions, applications. Conic sections, polar coordinates, and differentiation of transcendental functions. Prerequisite, 153.

- 252 Analytic Geometry and Calculus (5)** **Staff**
Parametric equations, curvature, integration of algebraic and transcendental functions, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251.
- 253 Analytic Geometry and Calculus (3)** **Staff**
Solid analytic geometry, multiple integrals, partial derivatives. Prerequisite, 252.
- 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.
- 351, 352 Analytic Geometry and Calculus (5,5)** **Staff**
Honors sections of 251, 252 covering material equivalent to that in 251, 252, and 253. Prerequisites, 153 and permission for 351; 351 and permission for 352.
- 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, 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.
- 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.
- 417 Advanced Calculus I (3)** **Staff**
Continuous functions, infinite series, series expansions, gamma function, transformations of coordinates and Jacobians. Prerequisite, 253.
- 418 Advanced Calculus II (3)** **Staff**
Implicit function theorems, integrals in several dimensions, vector analysis, theorems of Stokes, Gauss, and Green. (Formerly Mathematics 423.) Prerequisite, 253, and 417 (desirable but not essential).
- 421, 422 Differential Equations (3,3)** **Staff**
Elementary methods of solution, linear differential equations, systems of differential equations, series solutions. Prerequisites, 253 for 421; 421 for 422.
- 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 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, 417 or 423.
428: Laplace transforms, boundary value problems, Fourier series, Bessel functions. Prerequisites, 417 or 423, and 421.
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 309.
- 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 309, and 401 or permission.
- 443 Differential Geometry (3)** **Staff**
Elementary differential geometry of curves and surfaces. Prerequisites, 421 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, 421.
- 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 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.
- 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 (3,3,3)** **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.
- 521, 522, 523 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 521; 521 for 522; 522 for 523.
- 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 (3,3,3)** **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 Complex Variable (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.
- 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 1958-59.)
- 544, 545, 546 Differential Geometry (3,3,3)** **Staff**
Differential geometry and curves and surfaces in ordinary space and in n-space. Riemannian geometry. (Offered alternate years; offered 1957-58.)
- 550 Seminar in Geometry (*, maximum 5)** **Staff**
- 551, 552, 553 Special Topics in Geometry (3,3,3)** **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, 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.
- 591, 592, 593 Special Topics in Statistics (3, maximum 9, 3, maximum 9, 3, maximum 9)** **Staff**
 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.
- Thesis (*)** **Staff**
- Mathematics courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington:
- R436 Applied Complex Variable (5)**
R437 Advanced Mathematics for Science and Engineering Students (5)
R438 Advanced Calculus (5)
R439 Functions of a Complex Variable (5)
R440 Differential Equations (5)
R460 Vector Analysis (5)
R467 Numerical Analysis and Digital Computers (5)
R481 Calculus of Probabilities (5)
R482 Classical Methods of Statistical Inference (5)
R491 Mathematical Statistics I (5)
R492 Mathematical Statistics II (5)
R493 Design and Analysis of Experiments (5)

MEDICAL TECHNOLOGY

Supervisor: LESTER D. ELLERBROOK, D511 Health Sciences Building

The medical technology program, which leads to a bachelor's degree, is designed to train young men and women to be technicians in laboratories of hospitals or clinics and in research laboratories. It consists of three years of training in chemistry, zoology, physics, physiology, anatomy, histology, and microbiology, followed by eighteen months of full-time theoretical and practical work under supervision in University and hospital laboratories. This prescribed curriculum is supervised by the Department of Pathology in the School of Medicine. (Courses in biochemistry, microbiology, and pathology are listed with those of other departments in the *Schools of Medicine and Dentistry 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
Chem. 221 Quant. Anal.	5
Engl. 103 Composition	3
Zool. 381 Microtechnique	4
Approved electives	3
ROTC	2-3
	<hr/> 15-18

SECOND QUARTER	CREDITS
Chem. 231 Organic	3
Chem. 241 Lab.	2
Approved electives	10
ROTC	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Chem. 232 Organic	3
Chem. 242 Lab.	2
Zool. 208 Physiology	5
Approved electives	5
ROTC	2-3
	<hr/> 15-18

Third Year

FIRST QUARTER	CREDITS
Micro. 441- Med. Bacteriol.	5
Psychol. 100 General	5
Speech 120 Public Speaking	5
	<hr/> 15

SECOND QUARTER	CREDITS
Micro. -442 Med. Bacteriol.	5
Approved electives	10
	<hr/> 15

THIRD QUARTER	CREDITS
Biochem. 361 Biochem.	3
Biochem. 363 Lab.	2
Micro. 443 Mycology	2
Micro. 444 Parasit.	4
Approved electives	4
	<hr/> 15

Third-year students register for biochemistry and microbiology courses at the School of Medicine Office. Permission is required.

At the conclusion of the third year, students must receive permission to register for the eighteen-month period of instruction in medical technology. Enrollment is limited. During this period, they take the full-time courses Pathology 321, 322-, -323-, -424-, -425, and 426 (Medical Technology). In order to make the fees comparable to those of many schools of medical technology, the University grants only 5 credits for Pathology 321 and 6 credits for Pathology 322- through -425. In order to meet graduation requirements, 16 credits are granted for Pathology 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 71), at the end of the fourth year.

During the second year, the premedical adviser should be consulted about taking a medical aptitude test and applying for admission to medical school. Students must arrange for the medical aptitude 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 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, 350, 442, and 445 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*.

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 421 (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 FOR UNDERGRADUATES

101 Survey of the Atmosphere (5)

Staff

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.

321 Physical Climatology (5)

Church

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.

- 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)** **Church**
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)** **Fleagle**
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 Meteorology Instruments and Observations (5)** **Badgley**
Accuracy and sensitivity of meteorological instruments and representativeness 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, Mathematics 251 or permission.
- 441, 442 Introduction to Atmospheric Motions (5,5)** **Fleagle, Reed**
411: 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 414, 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 Climatology (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 processes of the upper atmosphere; photochemical process. Upper atmospheric phenomena—sound propagation, auroral and night sky radiation, ionosphere, electrical currents, and magnetic variations. Role of the sun. Prerequisites, Physics 320 and Mathematics 422.

- 532 Atmospheric Electricity (3)** **Buettner**
Separation of charge in precipitation; lightning and the electrostatic field; formation and recombination of ions; Maxwell's equations; paths followed by charged particles. Prerequisites, 531, Mathematics 422, or permission.
- 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 423 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 422, 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 Atmospheric Turbulence (3,3)** **Badgley**
546: distinction between laminar and turbulent flow; analogy between kinetic theory of gases and turbulence theory; Reynolds method of averaging; mean and eddy motion; mixing-length theory; wind profiles in the lower atmosphere. Prerequisite, 442 or permission. 547: recent "statistical" theories of turbulence applied to the atmosphere. Diffusion of heat and matter in the atmosphere. Prerequisite, 546.
- 551 Special Methods of Atmospheric Analysis (5, maximum 10)** **Reed**
Preparation of data and the techniques required for selected advanced nonroutine types of analysis. Analysis of special synoptic situations. Prerequisite, 452 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)** **Badgley**
The physical processes in the formation and modification of clouds and the formation of precipitation in the atmosphere are examined. Prerequisite, permission.
- 571 Seminar on Atmospheric Radiation (3)** **Buettner**
Study and critical discussion of a selected reading list devoted to radiation theory, spectra of water vapor and carbon dioxide; actinometric observations and the effects of radiation on other phenomena. A critical review of each topic is required. Prerequisites, Physics 320 and Mathematics 422.
- 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; thermally induced air drainage; flow over obstacles; wave motion; surface of discontinuity; atmospheric circulation. Prerequisite, 542.
- 600 Research (*)** **Staff**
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 School of Medicine 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, 170 (General), 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 (General 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, 510; Zoology 400 (General Physiology); 423 (General Protozoology).

MEDICAL. Microbiology 322, 443, 444; Anatomy 301 (General), 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)** **Zahler**
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 microbiology. 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**
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.
- 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 bacteriology. 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, 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. For medical students, 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.) For medical students, upper-division undergraduates, and graduate students. Prerequisites, 10 credits in organic chemistry, 10 credits in botany or zoology, 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.) For medical students, upper-division undergraduates, and graduate students. Prerequisites, 10 credits in organic chemistry, 10 credits in botany or zoology, and permission.
- 499 Undergraduate Research (*)** **Staff**
Specific problems in industrial, medical, and general microbiology.

COURSES FOR GRADUATES ONLY

- 510 Physiology of Bacteria (3)** **Douglas, Groman, Ordal, Rickenberg, Whiteley, Zahler**
Fundamental physiological and metabolic processes of bacteria. (Offered alternate years; offered 1958-59.) Prerequisites, 300, a 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, Caryophanaeae, and Borcelomycetaceae. (Offered alternate years; offered 1957-58.) Prerequisite, permission.
- 540 Filterable Viruses (*, maximum 4)** **Evans, Groman**
(Offered alternate years; offered 1957-58.) Prerequisites, 442 and permission; histology is recommended.
- 550 Advanced Immunology (*, maximum 4)** **Weiser**
(Offered alternate years; offered 1958-59.) Prerequisites, 441- and permission.
- 600 Research (*)** **Staff**
- 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 58) are: 19 credits in first- and second-year theory and literature; 12 credits in vocal or instrumental instruction (Music 130, 330); 18 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 58), the completion of one of the four music curricula is required.

CURRICULUM IN COMPOSITION

First Year		Second Year	
	CREDITS		CREDITS
Music 101, 102, 103 Theory	6	Music 124, 125 Orch. Instruments 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 224, 225, 226 Orch. Instruments Lab.	3	Music 322, 422 Tonal Counterpoint	6
Music 301, 401 Contemp. Idioms	6	Music 353, 453 Orchestration	6
Music 304 Choral Lit.	1	Music 408, 409 Music Hist. & Lit.	6
Music 321, 421 Modal Counterpoint	6	Music 484, 485, 486 Conducting	4
Music 384, 385, 386 Conducting	4	Music 491 Composer's Lab.	9
Music 491 Composer's Lab.	6	Music Ensemble	3
Music Ensemble	3	Approved electives	11
Music History, upper-division	4		45
Approved electives	12		
	45		

CURRICULUM IN VOCAL OR INSTRUMENTAL MUSIC. The student must take 30 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 accompaniment; 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 331, 332, 333 Keyboard Transposition	6
Music 334, 335 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	8

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 History, upper-division	4
Music Theory, upper-division	6
Approved electives	14
Senior Recital	0

45

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 337, 338, 339 Repertoire	6
Music 350 Vocal or Instrumental Instr.	9
Music 360 Univ. Symphony Orch.	3
Music 380 Adv. Chamber Music	3
Music 386 Conducting	1
Music Theory, upper-division	6
Approved electives	17

45

Fourth Year**CREDITS**

Music 334 Accompanying	3
Music 350 Vocal or Instrumental Instr.	9
Music 360 Univ. Symphony Orch.	3
Music 380 Adv. Chamber Music	3
Music History, upper-division	4
Music Theory, upper-division	6
Approved electives	17
Senior Recital	0

45

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
Ensl. 101, 102, 103 Composition	9
Health Educ. 110 or 175 Health	2
Science or Social Science	13
Phys. Educ. activity	3
ROTC	6-9
	<hr/> 48-57

Third Year

	CREDITS
Music 304 Choral Lit.	1
Music 322, 422 Tonal Counterpoint	6
Music 337, 338, 339 Repertoire	6
Music 350 Vocal or Instrumental Instr.	9
Music 385 Conducting	2
Music Ensemble	3
Music Theory, upper-division	6
Approved electives	12
	<hr/> 45

Second Year

	CREDITS
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	9
ROTC	6-9
	<hr/> 45-54

Fourth Year

	CREDITS
Music 350 Vocal or Instrumental Instr.	9
Music 357 Church Music	3
Music Ensemble	3
Music History, upper-division	4
Music Theory, upper-division	6
Approved electives	20
Senior Recital	0
	<hr/> 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
Ensl. 101, 102, 103 Composition	9
Health Educ. 110 or 175 Health	2
Science or Social Science	13
Phys. Educ. activity	3
ROTC	6-9
	<hr/> 48-57

Third Year

	CREDITS
Music 304 Choral Lit.	1
Music 337, 338, 339 Repertoire	6
Music 350 Vocal or Instrumental Instr.	9
Music 385 Conducting	2
Music Ensemble	3
Music Theory, upper-division	6
Ensl. 257 or 320 Poetry	5
Science or Social Science	10
Approved electives	3
	<hr/> 45

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
	<hr/> 47-56

Fourth Year

	CREDITS
Music 334 Accompanying	3
Music 350 Vocal or Instrumental Instr.	9
Music Ensemble	6
Music History, upper-division	4
Music Theory, upper-division	6
Approved electives	15
Senior Recital	0
	<hr/> 43

CURRICULUM IN MUSIC EDUCATION. Students majoring in music education must pass an examination in piano and voice before registering in Music 344 or 346J.

PIANO. The requirements are: (1) play ten traditional community songs from memory; (2) improvise a suitable accompaniment to a melody in any given key; (3) play singly or in combination parts of a choral or instrumental composition suitable for use in the public schools; (4) transpose simple melodies; (5) play a group of short compositions suitable for use in the elementary-grade school program.

VOICE. The requirements are: (1) demonstrate an understanding of the elements of good voice production by singing from memory a repertoire of folk and art songs; (2) sing at sight one part in two- and four-part songs; (3) evaluate constructively the vocal performances of other students.

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).

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
Psychol. 100 General	5
Science (Group III)	5
Speech 100 Basic Improvement	5
Approved electives	4
Phys. Educ. activity	3
ROTC	6-9
	<hr/> 48-57

Second Year

	CREDITS
Music 124, 125, 224 Orch. Instruments Lab.	3
Music 202, 203 Theory	6
Music 207, 208 Music Lit.	4
Music Ensemble	0
Vocal or Instrumental Instruction	6
Art elective	2
Educ. 209 Educ. Psychol.	3
Science or Social Science	10
Psychol. 306 Child Psychol.	5
Approved electives	2
ROTC	6-9
	<hr/> 41-50

Third Year

	CREDITS
Music 225, 226 Orch. Instruments Lab.	2
Music Theory, upper-division	6
Music 304 Choral Lit.	1
Music 344 Elementary School Music	4
Music 384, 385 Conducting	3
Music 386 or 495 Conducting	1 or 3
Music Ensemble	3
Music History, upper-division	4
Vocal or Instrumental Instruction	6
Educ. 370 Introduction to Teaching Procedures	5
Educ. 370E Elementary School Methods	5
Educ. 373 State Manual	2
Educ. 374 Reading Instruction	5
Educ. 390 Evaluation	3
	<hr/> 50-52

Fourth Year

	CREDITS
Music 244 Orch. Lab.	1
Music 346J Teachers Course in Secondary School Music	4
Music Ensemble	3
Music Theory, upper-division	6
Vocal or Instrumental Instruction	6
Educ. 360 Principles	3
Educ. 371S Directed Teaching	8
Educ. 372E Prof. Lab. Experiences	3
History 464 Wash. & Pacific NW	5
Public Health 461 School and Community Programs	5
	<hr/> 44

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
	<hr/> 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
	<hr/> 46-55

Upper-division minimum requirements are: 21 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, 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 547, 568, 569, 577, 578, and 579) 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

- | | |
|---|-------------------------|
| 100 University Singers (1-1-1, maximum 6) | Kechley |
| Study, preparation, and performance of oratorios, cantatas, and other large choral works. | |
| 101, 102, 103 First-Year Theory (2,2,2) | Staff |
| Intensive training in basic musicianship; sight reading, ear training, keyboard harmony, creative harmony; elements of counterpoint, analysis, and form. Primarily for majors. Prerequisite, permission. | |
| 104 Sight Singing (1, maximum 3) | Staff |
| 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. | |
| 107 Survey of Music (5) | Kinscella |
| 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) | Kinscella, Sokol |
| The development of the orchestra and its literature. For nonmajors. | |
| 110A Class Instruction: Piano (1-1-1, maximum 3) | Staff |
| Primarily for majors who cannot meet the entrance requirements in piano. Fee, \$5.00. Prerequisite, permission. | |
| 110C Class Instruction: Voice (1-1-1, maximum 3) | Staff |
| Primarily for majors. Fee, \$5.00. Prerequisite, permission. | |
| 110Y Class Instruction: Piano (1) | Staff |
| For elementary education students. Fee, \$5.00. Prerequisite for Education 377X-377Y. | |
| 110Z Class Instruction: Voice (1) | Staff |
| For elementary education students. Fee, \$5.00. Prerequisite for Education 377X-377Y. | |
| 111, 112, 113 Rhythmic Movement (1,1,1) | Rosinbum |
| Muscular coordination with musical rhythms. | |

- 117 Music Appreciation: Symphonic Music, Nineteenth Century (2)** Hokanson, Kinscella, Sokol
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)** Hokanson, Kinscella, Sokol
For nonmajors. Prerequisite, 107 or 108.
- 119 Music Appreciation: Symphonic Music, Contemporary (2)** Hokanson, Kinscella, Sokol
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 Orchestral Instruments Laboratory (1,1)** Kirchner, Sokol
Class instruction in violin and viola. Primarily for majors.
- 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)** Moore
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), Ringold (A2), Bostwick (A3), Normann (A4), Geissmar (A5), Moore (A6), Hokanson (A7)
B. VIOLIN or VIOLA. Zetlin (B1), Sokol (B2)
C. VOICE. Werner (C1), Lawrence (C2), Jones (C4), Harris (C5)
D. VIOLONCELLO. Kirchner (D1), Heinitz (D2), Martin (double bass, D3).
E. ORGAN. Eichinger (E)
F. WOODWIND. Rutherford (flute, F1), Allport (oboe, F2), Phillips (clarinet, F3), Jussila (bassoon, F4), Dolan (oboe, F6), Welke (clarinet, F7)
G. BRASS. Richards (horn, G1), Welke (trumpet, G2), Cloud (trombone, G3), Welke (G4), Cole (G5)
H. HARP. Graf (H1), Lundgren (H2)
J. PERCUSSION. Barth (J)
K. HARPSICORD. 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
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 (3,3)** Staff
For majors. Prerequisite, 103.
- 207, 208 Music Literature (Second Year) (2,2)** Staff
Periods of music history as exemplified in the works of important composers. 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.
- 217, 218, 219 Music Appreciation: Opera (2,2,2)** Werner
Survey of opera. For nonmajors.
- 224, 225, 226 Orchestral Instruments Laboratory (1,1,1)** Kirchner, Normann, Sokol, Welke
Class instruction in violoncello and bass; woodwind; brass. Primarily for majors.
- 244 Orchestra Laboratory (1)** Normann
May count as ensemble credit. Prerequisite, five quarters of instrumental classes.
- 254, 255 Advanced Orchestral Instruments (2,2)** Kirchner, Normann, Sokol, Welke
Class instruction in strings, winds, and percussion. Primarily for majors.

- 386 Conducting (1)** Kirchner
Transposition, score analysis, and baton technique. Prerequisite, 203.
- 401 Contemporary Idioms (3)** McKay
Continuation of 301.
- 407, 408, 409 Music History and Literature (3,3,3)** Irvine, Terry, McKay
407: renaissance; 408: baroque; 409: contemporary. Prerequisites, 203 and 208, or permission.
- 417 Music of the Middle Ages (3)** Irvine
Prerequisites, 203 and 208, or permission.
- 421 Model Counterpoint (3)** Babb
Continuation of 321.
- 422 Tonal Counterpoint (3)** Verrall
Continuation of 322.
- 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 208, or permission.
- 440 Wind Sinfonietta (2, maximum 6)** Welke
(Offered Summer Quarter only.)
- 447 Schumann (3)** Woodcock
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)** Verrall
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)** Kinscella
Development of organ, clavichord, harpsichord, and piano; idioms of corresponding types of keyboard music and styles of performance. Prerequisites, 203 and 208, or permission.
- 474 The Curriculum in Music Education (3)** Normann
- 480 Opera Theatre (2, maximum 6)** Chapple, Rosinbum, Babb
Preparation for participation in public performance of roles in chamber opera. Prerequisite, permission.
- 481 Harmonic Analysis (3)** Beale
Prerequisite, 203 or permission.
- 484, 485, 486 Conducting (2,1,1)** Munro, Chapple
Experience with choral and instrumental ensembles.
- 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; 488: since Mozart. Prerequisites, 203 and 208, or permission.
- 490 Collegium Musicum (1-2, maximum 6)** Bostwick, 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 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 208, 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, evaluation of attitudes and achievement, prognosis of musical talent, musical learning, and factors related to musical performance.
- 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)** **Kinsella**
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 Seminar in Theory and Notation (3,3)** **Irvine**
Readings in theory and problems in notation. 577: middle ages to 1450; 578: renaissance through preclassical.
- 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**
Rehearsal and preparation of musical groups for public performance.
- 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.
- Thesis (*)** **Staff**

OCEANOGRAPHY

Executive Officer: RICHARD H. FLEMING, 202 Oceanographic Laboratories

The Department of Oceanography offers courses leading to the degrees of Bachelor of Science, Bachelor of Science in Oceanography, 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.

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.

BACHELOR OF SCIENCE

In the elective curriculum, at least 36 credits in upper-division courses in oceanography are required. 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 OCEANOGRAPHY

In order to complete the program for the degree of Bachelor of Science in Oceanography 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. The Summer Quarter between the third and fourth years will normally be spent in study at the Friday Harbor Laboratories.

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.		Math. 251 Anal. Geom.		Math. 252 Anal. Geom.	
& Calc.	5	& Calc.	5	& 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		Phys. Educ. activity.....	1	Phys. Educ. activity.....	1
110 Health.....	2	ROTC	2-3	ROTC	2-3
Phys. Educ. activity.....	1				
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.		Science electives	8	Math. 281 Elem. of Stat.	
& Calc.	3	ROTC	2-3	Method	5
Science electives	6		16-19	Science electives	3
ROTC	2-3			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, 403, 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 their 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).

CHEMICAL OCEANOGRAPHY OPTION. Oceanography 401, 452, and 453; or 401 and 431; or 410, 411, and 412; Chemistry 335, 336, 337 (Organic Chemistry), 345, 346 (Organic Chemistry Laboratory), 355, 356, 357 (Physical Chemistry), 358 (Physical Chemistry Laboratory), and 426 (Instrumental Analysis).

GEOLOGICAL OCEANOGRAPHY OPTION. Oceanography 401, 452, and 453; Geology 205 (Rocks and Minerals), 206 (Elements of Physiography), 207 (Historical Geology), 221 (Mineralogy), 308 (Structural Geology), 330 (General Paleontology), and 361 (Stratigraphy).

PHYSICAL OCEANOGRAPHY OPTION. Oceanography 410, 411, and 412; Meteorology 340, 341 (Physical Meteorology), 442 (Introduction to Atmospheric Motions), and 462 (Oceanographic Meteorology); Mathematics 417, 418 (Advanced Calculus I and II), and 421 (Differential Equations); Physics 221, 222 (Mechanics).

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 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.

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) | Staff |
| | 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. | |
| 361 | Field Experience in Oceanography (6) | Barnes |
| | 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) | Fleming |
| | 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) | Frolander |
| | 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) | Staff |
| | Methods of marine geological exploration; physiography and structure of the ocean basins; processes of sedimentation and sediments in the marine environment. Prerequisite, 390. | |
| 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)** **Thompson**
Physical and chemical properties of sea water and sea products; methods of quantitative analysis. Prerequisite, Chemistry 221 or graduate standing; Oceanography 360 is recommended.
- 431 Biological Oceanography of the Plankton (4)** **Frolander**
Floating plant and animal life of the sea; factors controlling population and production; regional distribution; methods of sampling, identification, and analysis; nuisance forms. Prerequisite, 403 and Zoology 112.
- 433 Plankton Ecology (6)** **Frolander**
Problems and methods of marine plankton investigations. Practical experience at sea and in the laboratory. (Offered Summer Quarter only; offered alternate years starting 1955.) Prerequisite, 431 or Zoology 330.
- 440, 441, 442 Undergraduate Seminar (2,2,2)** **Thompson**
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)** **Staff**
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)** **Staff**
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 and Geology 221.
- 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, or equivalent.
- 516 Ocean Circulation (2)** **Rattray**
Hydrodynamic theories concerning the origin and characteristics of the major ocean currents. Prerequisites, 511, 512, or equivalent.
- 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, 440, 441, 442, 511, 512, and 513, or permission.
- 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)** **Thompson**
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisite, 421-422.
- 531 Seminar in Biological Oceanography (3, maximum 9)** **Frolander**
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) | Staff |
| Lectures, discussions, and field and laboratory work on selected problems of current interest. | |
| Prerequisites, 452 and 453. | |
| 600 Research (*) | Staff |
| Thesis (*) | Staff |

PHILOSOPHY

Executive Officer: ARTHUR E. MURPHY, 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 those who have had Humanities 103.) | |
| 110 Introduction to Social Ethics (5) | Rader, Sesonsko |
| 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) | 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 Problems of Philosophy (5) | Miller |
| An introduction to the problems of metaphysics and theory of knowledge. A study of the opposing views of the contemporary philosophers J. E. M. Joad, A. J. Ayer, and Bertrand Russell. Prerequisite, 100 or Humanities 103. | |
| 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 |
| (Not offered 1957-58.) | |
| 267 Introduction to Philosophy of Religion (5) | Dietrichson |
| Main features in the development of contemporary Western religious thought. Philosophical problems inherent in the nature and basis of religious belief. | |
| 320 History of Ancient and Medieval Philosophy (5) | Keyt |
| History of ancient and medieval philosophy from the sixth century B.C. to the thirteenth century. Readings in the works of the great philosophers with attention to their historical and cultural settings. | |
| 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) | Murphy |
| History of philosophy from Kant to Bergson. | |
| 347 Philosophy in Literature (5) | Sesonsko |
| Study of philosophical ideas expressed in great works of literature. | |

- 424 Recent American Philosophy (3)** **Murphy**
The philosophies of Peirce, Royce, Dewey, G. H. Mead, and Santayana. Recent developments in analytic and speculative philosophy. Current issues and problems. (Offered 1958-59.)
- 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**
The social, political, educational, ethical, and metaphysical doctrines in a representative selection of Plato's dialogues. (Offered alternate years; offered 1958-59.) Prerequisite, 100 or 320, or Humanities 103 or 203, or permission.
- 433 Philosophy of Aristotle (3)** **Keyt**
Survey of the Aristotelian writings, with emphasis on the *Metaphysics* and *Ethics*; the influence of Aristotle on modern thought. (Offered alternate years; offered 1957-58.) Prerequisite, one course in philosophy or Humanities 103.
- 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. (Not offered 1957-58.) 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 1957-58.) Prerequisite, 321 or permission.
- 438 Philosophy of Kant (3)** **Smullyan**
A systematic study of *The Critique of Pure Reason*. (Offered alternate years; offered 1957-58.) 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 bad, and the relationship between ethical and aesthetic value. Prerequisite, 215 or permission.
- 445 Philosophy of Art (5)** **Rader, Sossosko**
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. (Not offered 1957-58.)
- 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)** **Murphy**
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. Prerequisite, 100 or 120, or Humanities 103. (Offered alternate years; offered 1958-59.)
- 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 1957-58.) 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. (Not offered 1957-58.)
- 467 Philosophy of Religion (5)** **Dietrichson**
Origin, nature, and types of religion. The grounds of religious belief: mysticism, faith, reason, and evidence. The main religious problems: free will, immortality, the existence and nature of God, the problem of evil, religion as a basis of ethics, and the social implications of religion. (Offered 1958-59.)

- 469 Existentialist Philosophy (3)** **Dietrichson**
Critical examination of some fundamental concepts in the existentialist philosophies of Kierkegaard, Jaspers, Heidegger, Marcel, and Sartre. The non-rational elements of existence, man's radical freedom, philosophy as edifying wisdom. (Offered 1957-58.)
- 470 Advanced Logic (5)** **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.
- 490 Philosophy of Leibniz (3)** **Melden**
(Offered 1957-58.)

COURSES FOR GRADUATES ONLY

- 520 Seminar in Ancient Philosophy (2)** **Staff**
- 521 Seminar in Modern Philosophy (2)** **Miller**
(Not offered 1957-58.)
- 522 Seminar in Recent Philosophy (2)** **Murphy**
- 540 Seminar in Ethics (2)** **Melden**
(Offered 1957-58.)
- 545 Seminar in Philosophy of Art (2)** **Rader**
(Offered 1958-59.)
- 550 Seminar in Epistemology (2)** **Smullyan**
Topic for 1957: memory.
- 556 Seminar in Metaphysics (2)** **Dietrichson**
(Offered 1957-58.)
- 565 Seminar in Philosophy of History (2)** **Rader**
(Not offered 1957-58.)
- 567 Seminar in Philosophy of Religion (2)** **Dietrichson**
(Offered 1957-58.)
- 570 Seminar in Logic (2)** **Smullyan**
(Offered alternate years; offered 1958-59.)
- 584 Reading in Philosophy (1-4)** **Staff**
Intensive reading in the philosophical literature. Prerequisite, permission of Executive Officer.
- 587 Contemporary Analytic Philosophy (3)** **Melden**
(Offered 1957-58.)
- 600 Research (1-6)** **Staff**
Prerequisite, permission.
- 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 functions in three main areas: the physical education activity and health instruction programs, which provide courses required of undergraduate University students (see page 50); 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 (for women only), 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	4
Engl. 101, 102, 103 Composition	9
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 & 118L, or 208 Physiology	6-5
(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,	3
Bowling, Canoeing	3
Phys. Educ. 181, 182, 183, 281, 282,	7
283, 284 Backgrounds	7
Anat. 301 General	4
Chem. 100 General (or one year of	4
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 & 118L or 208 Physiology	6-5
(or approved substitute)	6-5
Approved electives	41-42
	96

MEN	CREDITS
Health Educ. 291 Hygiene	3
Health Educ. 292 First Aid & Safety	3
Health Educ. 465 School Health Educ.	3
Program	3
Phys. Educ. 190 Introduction	2
Phys. Educ. 293 Physiol. of Muscular	3
Exercise	3
Phys. Educ. 309 School Dance Program	2
Phys. Educ. 340 Admin. of Intramural	3
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.	3
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. 292 First Aid & Safety	3
Health Educ. 465 School Health Educ.	3
Program	3
Phys. Educ. 190 Introduction	2
Phys. Educ. 293 Physiol. of Muscular	3
Exercise	3
Phys. Educ. 311 Rhythmic Activities for	2
Small Children	2
Phys. Educ. 312 Elem. School Athletic	3
Program	3
Phys. Educ. 318 Analysis of Rhythm	3
Phys. Educ. 345 Principles	3
Phys. Educ. 301 Methods & Materials	3
in Gymnastics, Stunts & Tumbling	3
Phys. Educ. 356 Teaching Modern Dance	2
Phys. Educ. 362 Teaching Folk, Tap &	2
Clog Dancing	2
Phys. Educ. 363 Teaching Sports	3
Phys. Educ. 364 Teaching Aquatics	3
Rec. Educ. 344 Camp Programs	3
Home Ec. 300 Nutrition	2
	40

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	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Educ. 161 Aquatics	2	Phys. Educ. 265 Low-Organized Games	2	Phys. Educ. 163 Team Sports	2
Phys. Educ. activity	1	Phys. Educ. activity	1	Phys. Educ. activity	1
Engl. 101 Composition	3	Engl. 102 Composition	3	Music 107 Survey	5
Science electives	5	Science electives	5	Psychol. 100 General	5
Sociol. 110 Survey	5	Speech 100 Basic Speech Improvement	5	ROTC	2-3
ROTC	2-3	ROTC	2-3		
	18-19		18-19		18-19

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Health Educ. 292 First Aid & Safety	3	Phys. Educ. 162 Gymnastics	2	Phys. Educ. 266 Individual Sports	2
Rec. Educ. 254 Resources	1	Phys. Educ. 290 Officiating	2	Rec. Educ. 334 Recreation Management	2
Rec. Educ. 294 Intro. to Recreation	2	Rec. Educ. 324 Recreation Programs	3	Art 292 Art Education	2
Art 100 Introduction	5	Drama 437 Creative	3	Drama electives	3
Sociol. electives	5	Hist. or gov. 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
Librshp. 452 Storytelling	3	Phys. Educ. electives	2-3	Phys. Educ. electives	3-5
Communications electives	3-5	Rec. Educ. 374 Social Recreation	2	Rec. Educ. 344 Camp Programs	3
Speech 332 Group Discussion	5	Cultural skills electives	3	Bus. Adm. electives	5
	14-17	Psychol. electives	5		16-18

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Rec. Educ. 454 Field Work	3	Phys. Educ. electives	2-3	Phys. Educ. 295 or 364 Teaching Aquatics	2
Educ. electives	5	Approved electives	15	Approved electives	15
Approved electives	8		17-18		17

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, 14-17; recreational theory, 13; social work and sociology, 17; and two areas of specialization to be selected from art, dance, drama, music, outdoor education, sports, 20-25. 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	4-7
Phys. Educ. 190 Introduction	2
Engl. 101, 102, 103 Composition	9
Psychol. 100 General	5
Science or elective	10
Sociol. 110 Survey	5
Speech 100 Basic Speech Improvement	5
Approved electives and/or area specialization	4

49-52

Second Year

	CREDITS
Health Educ. 292 First Aid & 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
Art 100 Introduction	5
Art 290 or 291, or 292 Art Educ.	2
Anat. 301 General or elective	4
Psychol. 101 Adjustment or 306 Child	5
Sociol. 240 Group Behavior	5
Approved electives and/or area specialization	10-11

46-47

* Dependent upon area of specialization

Third Year

CREDITS

Phys. Educ. 311 Rhythmic Activities for Small Children or Educ. 378D	2-3
Phys. Educ. 312 Elem. School Athletic Prog. or Educ. 378C Phys. Educ. for the Elem. School	3
Phys. Educ. 363 Teaching Sports	3
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	19-20
	44-46

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
Librarianship 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, 300, 302, 303, 357 or Home Economics 329.

Dance, 13 credits—Physical Education 318, 355, 356, 362, 459-460.

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, 12 credits—Physical Education 157, 181, 183, 284 or equivalent; 293; 301; 304, 305, or 306; 364.

CURRICULUM IN PREPHYSICAL THERAPY FOR WOMEN. The requirements are:

First Year

CREDITS

Health Educ. 110 Health	2
Phys. Educ. 115, 121, 157 Archery, Bowling, Canoeing	3
Phys. Educ. 190 Introduction	2
Biol. 101J, 102J General	10
Engl. 101, 102, 103 Composition	9
Physics 170 & 170L Intro. to Health Sciences Physics and Lab.	6
Psychol. 100 General	5
Speech 100 Basic Speech Improvement	5
Approved electives	3-6
	45-48

Second Year

CREDITS

Health Educ. 292 First Aid & Safety	3
Phys. Educ. 284 Backgrounds (or 162, 263, 267 Swimming)	1
Phys. Educ. 293 Physiol. of Muscular Exercise	3
*Anat. 301 General	4
Chem. 100 or 110 General and 120 Organic and General	8-9
Psychol. 101 Adjustment and 306 Child	10
Sociol. 110 Survey	5
*Zool. 118 & 118L or 208 Physiology	6-5
Approved electives	5
	44-46

*Or Conjoint 317-318 Elem. Anat. and Physiol. 12

Effective through Summer Quarter, 1958:

Third Year

CREDITS

Phys. Educ. 301 Methods & Materials in Gymnastics, Stunts & Tumbling	3
Phys. Educ. 311 Rhythmic Activities for Small Children	2
Phys. Educ. 318 Analysis of Rhythm	3
Phys. Educ. 322 Kinesiology	3
Phys. Educ. 362 Teaching Folk, Tap & Clog Dancing	2
Phys. Educ. 363 Teaching Sports	3
Phys. Educ. 364 Teaching Aquatics	3
Micro. 301 General (or approved substitute)	5
Psychol. 305 Abnormal or 309 Exceptional Child	5-3
Approved electives	16-18
	45

Fourth Year

CREDITS

Health Educ. 465 School Health Educ. Program	3
Phys. Educ. 345 Principles	3
Phys. Educ. 435 Adapted Activities	3
Phys. Educ. N466 (3 quarters) Coaching	0
Phys. Educ. 480 Principles of Movement	3
Pub. Health 461 School & Commun. Health	5
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 40) 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	Engl. 103 Composition . . .	3
Engl. 101 Composition . . .	3	Speech 120 Public Speak-		Psychol. 100 General . . .	5
Sociol. 110 Survey	5	ing or humanities elective. 5		Speech 100 Basic Speech	
Zool. 111 or Biol. 101J-		Zool. 112 or Biol. -102J		Improvement	5
General	5	General	5	ROTC	2-3
ROTC	2-3	ROTC	2-3		18-19
	20-21		18-19		

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Health Educ. 292 First		Health Educ. 291 Hygiene. 3		Phys. Educ. 266 Individ-	
Aid & Safety	3	Phys. Educ. 265 Low-		ual Sports	2
Phys. Educ. 264 Boxing		Organized Games	2	Phys. Educ. 293 Physiol.	
& Wrestling	2	Educ. 209 Educ. Psychol. 3		of Muscular Exercise . . .	3
Rec. Educ. 294 Intro-		Music 108 Orchestra or 217		Anat. 301 General	4
duction	2	or 218 or 219 Apprecia-		Art 129, 261 or 300 Design	
Zool. 118 & 118L Physiol.		tion: Opera	2	or 291 or 292 Art Educ. 2	
& Lab.	6	Psychol. 306 Child Psychol.		Educ. 370 Teaching	
Approved electives (second		or Educ. 402 Child		Procedures	5
area of concentration) . . .	2	Study	3-5	ROTC	2-3
ROTC	2-3	Approved elective or Phys.			18-19
	17-18	Educ. 290 Officiating . . .	2		
		ROTC	2-3		
			17-20		

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Educ. 309 School		Phys. Educ. 370 Coaching		Phys. Educ. 340 Admin.	
Dance Program	2	of Football	2	of Intramural Sports . . .	3
Phys. Educ. 322 Kinesi-		Rec. Educ. 324 Recreation		Phys. Educ. 363 Teaching	
ology	3	Programs	3	Sports	2
Phys. Educ. 345 Principles		Educ. 370E Elem. Methods 5		Educ. 339 Teachers' Course	
Phys. Educ. 361 Teaching		Educ. 390 Evaluation . . .	3	in Phys. Educ.	2
Boxing & Wrestling	2	Approved electives from:		Educ. 374 Reading Instr. .	5
Phys. Educ. 371 Coaching		Phys. Educ. 373, Coach-		Approved electives (second	
of Basketball	2	ing of Baseball, Rec.		area of concentration) . .	4
Educ. 373 Wash. State		Educ. 374 Social		Approved electives from:	
Manual	2	Leadership	2-3	Phys. Educ. 336 Training	
Approved electives from:			15-16	& Conditioning, 373	
Educ. 339 Teachers'				Coaching of Baseball, Rec.	
Course in Phys. Educ.,				Educ. 334 Management	
Rec. Educ. 254 Recrea-				and Operation of Recrea-	
tion Resources, 354 Rec-				ation, 344 Camp Programs .	2
reation Practicum, 454					18
Recreation Field Work . . .	4				
	18				

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Educ. 360 Principles	3	Health Educ. 465 School		Phys. Educ. 364 Teaching	
Educ. 371E, X, or S		Health Educ. Program . . . 3		Aquatics	2
Directed Teaching (may		Phys. Educ. 358 Teaching		Phys. Educ. 493 Problems	
be taken Autumn, Winter,		Gymnastics	2	in Athletics	3
or Spring.)	8	Phys. Educ. 447 Tests		Hist. 464 Wash. &	
Public Health 461 School		& Measurements	3	Pac. NW.	5
& Commun. Health	5	Phys. Educ. 450 School		Approved electives from:	
Approved elective	1	Phys. Educ. Program . . . 3		Health Educ. 429 Teaching	
	17	Educ. 372E, X, or S		First Aid and Safety,	
		Professional Lab.		Phys. Educ. 295 Swimming	
		Experiences	3	& Water Safety,	
		Approved electives (second		Phys. Educ. 435 Adapted	
		area of concentration) . . . 3		Activities	7
			17		17

WOMEN

First Year

	CREDITS
Health Educ. 110 Health Education	2
Phys. Educ. 115, 121, 157 Archery, Bow-	
ling, Canoeing	3
Phys. Educ. 181, 182, 183, 281 or 284,	
283 Backgrounds	5
Phys. Educ. 190 Introduction	2
Chem. 100 General (or 1 yr. high school	
chem.)	4
Engl. 101, 102, 103 Composition	9
Physics 170 & 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	7
	48

Second Year

	CREDITS
Health Educ. 292 First Aid & Safety.	3
Phys. Educ. 282 and 281 or 284	
Backgrounds	2
Phys. Educ. 304, 305, or 306 Officiating. .	2
Phys. Educ. 312 Elem. School	
Athletic Program	3
Phys. Educ. 318 Analysis of Rhythm.	3
Rec. Educ. 344 Camp Programs.	3
Anat. 301 General	4
Psychol. 100 General	5
Approved electives and professional	
education requirements	20
	45

Third Year

	CREDITS
Phys. Educ. 293 Physiol. of Muscular	
Exercise	3
Phys. Educ. 301 Methods & Materials in	
Gymnastics, Stunts & Tumbling	3
Phys. Educ. 311 Rhythmic Activities	
for Small Children	2
Phys. Educ. 362 Teaching Folk, Tap	
& Clog Dancing	2
Phys. Educ. 363 Teaching Sports	3
Phys. Educ. 364 Teaching Aquatics	3
Phys. Educ. N466 (2 quarters) Coaching .	0
Home Ec. 300 Nutrition	2
Public Health 301 Communicable Dis-	
eases (if not accompanied by health	
educ. area)	3
Zool. 118 & 118L Physiology & Lab.	6
Approved electives and professional	
education requirements	18
	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. 356 Teaching Modern Dance .	3
Phys. Educ. 435 Adapted Activities	3
Phys. Educ. 450 School Phys. Educ.	
Program	2
Phys. Educ. N466 Coaching (1 quarter) .	10
Phys. Educ. 480 Principles of Movement. .	3
Approved electives and professional	
education requirements	26
	45

CURRICULUM FOR TEACHER TRAINING IN HEALTH EDUCATION. Students who wish to emphasize school health education may follow this curriculum, which meets preprofessional and professional 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 173), 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 195).

MEN AND WOMEN

First Year		Second Year	
	CREDITS		CREDITS
Health Educ. 110 or 175 Health	2	Health Educ. 291 Hygiene	3
Phys. Educ. activities	3	Health Educ. 292 First Aid & Safety	3
Biol. 101J-102J General	10	Anat. 301 General	4
Chem. 100 or 110 General and 120		Educ. 209 Educ. Psychol.	3
Organic and General	8-9	Psychol. 100 General	5
Engl. 101, 102, 103 Composition	9	Zool. 118 & 118L or 208 Physiol.	6-5
Sociol. 110 Survey	5	Approved electives	22-23
Speech 100 Basic Speech Improvement	5	ROTC	6-9
Approved electives	3-5		46-55
ROTC	6-9		
	48-57		
Third Year		Fourth Year	
	CREDITS		CREDITS
Educ. 370 Teaching Procedures	5	Health Educ. 453 Health Teaching	3
Educ. 370E Elem. Methods	5	Conjoint 496 Concept of the Child or	
Educ. 373 Wash. State Manual	2	Educ. 402 Child Study	3
Educ. 374 Reading Instr.	5	Educ. 340 Teachers' Course in Health	
Educ. 390 Evaluation	3	and Phys. Educ. for Women	2
Home Ec. 300 Nutrition	2	Educ. 360 Principles	3
Micro. 301 (or approved substitute)	5	Educ. 371 E, X, or S Directed Teaching	8
Psychiatry 267 Introduction to Mental		Educ. 372 E, X, or S Professional Lab.	
Hygiene or 450 Personality Develop.,		Experiences	3
or Educ. 408 Mental Hygiene for		Hist. 464 Wash. & Pac. NW	5
Teachers	2-3	Public Health 421, 422, 423,	
Public Health 420 Principles I	2	Principles II, III, IV	9
Sociol. 353 Social Factors in Marriage,		Public Health 461 School & Commun.	
or Home Ec. 356 Family Relationships	3	Health	5
Approved electives	11-12	Public Health 464 Commun. Health Educ.	3
	45-47	Approved electives	3
			47

Recommended electives are:

MEN AND WOMEN

	CREDITS		CREDITS
Health Educ. 429 Teaching First Aid		Physics 100 Survey or 170 & 170L Intro.	
and Safety	2	to Health Sciences Physics & Lab.	5-6
Phys. Educ. 293 Physiol. of Muscular		Pol. Sci. 201 Modern Government or	
Exercise	3	328 United Nations & Special Agencies	5
Phys. Educ. 322 Kinesiology	3	Psychol. 245 Individual Differences,	
Phys. Educ. 435 Adapted Activities	3	306 Child, 307 Adolescence	2-5
Anthro. 102 Social Customs or		Public Health 426 Biostatistics, 450	
390 Introduction	5	Measure. & Control Air Pollution,	
Art 100 Introduction, or 205 Lettering		463 Commun. Organ. for Health Educ.	2-3
or 290 Art Education	2-5	Radio-TV 373 Television Writing or	
Commun. 480 Propaganda	5	450 Television Programming	3
Journ. 200 Newswriting or 404		Sociol. 240 Group Behavior, 352	
Magazine Article Writing	5-3	Family, 371 Criminology, 472 Juvenile	
Music 107 Survey	5	Delinquency	5
Pharmacy 115 Home Remedies	2	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 freshmen; exemption without credit by examination. See page 50.
- 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 freshmen; exemption without credit by examination. See page 50.

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, 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 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); 222, advance 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.

PROFESSIONAL COURSES

HEALTH EDUCATION

- 291 Personal and General Hygiene (Men and Women) (3)** **Gunn, Mills**
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) (2)** **MacLean, Reeves, Stevens**
The student may meet requirements for American Red Cross Instructor's First Aid Certification. Prerequisite, 292.
- 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 The School Health Education Program (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. Prerequisite, 345.

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)** **Donham**

- 181, 182, 183, 281, 282, 283, 284 Physical Education Backgrounds (Women) (1,1,1,1,1,1)**
Horne, Kidwell, MacLean, Rulifson
 Fundamental information for methods and materials in the presentation of field hockey, soccer, speedball, basketball, badminton, tennis, stunts, tumbling, gymnastics, tap dance, folk dance, social dance, modern dance, swimming, and lifesaving. 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.
- 301 Methods and Materials in Gymnastics, Stunts, and Tumbling (Women) (3)** **Broer, MacLean**
 Methods and opportunities for presentation of these activities, including marching tactics. Prerequisites, 183, 281, Anatomy 301, and Physics 170 and 170L, or permission.
- 304, 305, 306 Officiating (Women) (2,2,2)** **Fox, Horne, Kidwell**
 Techniques for officiating in field hockey, volleyball, aquatics, basketball, badminton, softball, and tennis; opportunity for national and local ratings. Prerequisite, junior standing or permission.
- 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)** **de Vries**
 Activities suited to the kindergarten and primary child. Educational value, significance in child growth and development, and methods of presentation. Prerequisite, junior standing.
- 312 Elementary School Athletic Program (Women) (3)** **Rulifson**
 Program planning, small group play, and team game activities for elementary grades.
- 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.)
- 318 Analysis of Rhythm (Women) (3)** **de Vries, Wilson**
 Rhythmic form and analysis; relationship to the physical education program; principles of building rhythmic patterns to be used in teaching dancing; relationship of musical form to dance form. Prerequisites, 281, which may be taken concurrently, and 283 or permission.
- 322 Kinesiology (Men and Women) (3)** **Cutler**
 Analysis of leverage in body movement 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)** **Clark**
 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 (Women) (2, maximum 6)** **de Vries**
 Practice in modern dance; analysis of choreography; creative work. Prerequisites, 151 and 318, or permission.
- 356 Methods and Materials in Teaching Modern Dance (Women) (2)** **de Vries**
 Sources of materials; their selection and organization; methods of presentation; music and types of accompaniment. Prerequisites, 283 and 318, or permission.
- 358 Methods of Teaching Gymnastics (Men) (2)** **Hughes**
 Prerequisite, 162 or permission.
- 361 Methods of Teaching Boxing and Wrestling (Men) (2)** **Mills, Stevens**
 Prerequisite, 264 or permission.

- 362 Methods and Materials in Teaching Folk, Tap, and Clog Dancing (Women) (2)** **Wilson**
Methods and materials and opportunities for presentation of these activities as well as social dancing. Prerequisites, 281, 282, and 318, which may be taken concurrently.
- 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.
- 363 Methods and Materials in Teaching Sports (Women) (3)** **MacLean, Rulifson**
Program planning; methods in teaching team and individual sports, including volleyball, basketball, field hockey, soccer, speedball and other field games, softball, tennis, and badminton. Prerequisites, 181, 182, 183, and 312 or permission.
- 364 Methods of Teaching Aquatics (Men and Women) (men, 2; women, 3)** **MacLean, Torney**
Diving, lifesaving, and direction of camp waterfront program. Prerequisites for men, 161, 162, 163, 264, 265, and 266, or permission; for women, 157 and 284, or permission.
- 370 Coaching of Football (Men) (2)** **Staff**
- 371 Coaching of Basketball (Men) (2)** **Dye**
- 372 Coaching of Track and Field (Men) (2)** **Hiserman**
- 373 Coaching of Baseball (Men) (2)** **Staff**
- 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, 362, 363, 364, and senior standing.
- 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 experience. 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.

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.

- 426 Field Work in Recreation (Women) (5)** **Kidwell**
Practice in planning programs; supervised work experiences in recreational fields such as hospital, industrial, public, and semiprivate agencies, etc. 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.
- 600 (See Physical Education 600)**
- Thesis (Men and Women) (*)**

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, Reeves, Torney, Staff**
A. Health education
B. Physical education
C. Physiology of exercise
D. Recreation education
E. Tests and measurements

Thesis (Men and Women) (*)

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)**
- Thesis (Men and Women) (*)**

PHYSICS

Acting 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 Physics, Bachelor of Science in Engineering Physics, Master of Science, and Doctor of Philosophy. For undergraduate students it offers an elective curriculum, which provides a basic introduction to physics and allows a wide choice of electives in other fields; a prescribed curriculum in physics, which provides intensive study in preparation for a professional career; and, in collaboration with the College of Engineering, a prescribed curriculum in engineering physics, 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 should take Physics 121, 122, 123 with concurrent registration in Physics 131, 132, 133. Other students should enroll in Physics 101, 102, 103 and, concurrently, Physics 107, 108, 109.

Students without high school physics, plane geometry, and trigonometry will be required to register for Physics 50 along with Physics 101.

No grade less than C in any required physics course is acceptable toward a major.

Entrance requirements for physics majors are 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 three 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

For this elective 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.

BACHELOR OF SCIENCE IN PHYSICS

This prescribed curriculum is recommended for those students who wish to continue with graduate training. 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. At least one foreign language is strongly recommended with particular emphasis on German, Russian, or French.

In order to qualify for this degree a student must maintain an over-all grade-point average of at least 2.50.

An outline of the prescribed curriculum is as follows:

First Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
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
Chem. 110 General	3	Chem. 150 General	3	Chem. 160 General	3
Math. 153 Anal. Geom. & Calc.	5	Engl. 101 Composition	3	Math. 252 Anal. Geom. & Calc.	5
Approved electives	2	Math. 251 Anal. Geom. & Calc.	5	Engl. 102 Composition	3
Phys. Educ. activity	1	Phys. Educ. activity	1	Phys. Educ. activity	1
ROTC	2-3	ROTC	2-3	ROTC	2-3
	16-19		17-20		17-20

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Physics 221 Mechanics	3	Physics 222 Mechanics	3	Physics 226 Electric Circuits	4
Engl. 103 Composition	3	Physics 225 Electric Circuits	4	Health Educ. 110 or 175	2
Math. 253 Anal. Geom. & Calc.	3	Math. 421 Differential Equations	3	Math. 417 Adv. Calc. I	3
Approved electives	7	Approved electives	6	Approved electives	7
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
Physics 325 Electricity & Magnetism	3	Physics 326 Electricity & Magnetism	3	Physics 327 Electricity & Magnetism	4
Math. 418 Adv. Calc. II	3	Physics 371 Properties of Matter	3	Physics 372 Properties of Matter	3
Math. 427 Applied Anal.	3	Math. 428 Applied Anal.	3	Math. 429 Applied Anal.	3
Approved electives	7	Approved electives	7	Approved electives	6
	16		16		16

Fourth Year					
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Physics 461 Atomic & Nuclear	3	Physics 462 Atomic & Nuclear	3	Physics 463 Atomic & Nuclear	3
Physics 471 Atomic Lab.	3	Physics 472 Atomic Lab.	3	Physics 473 Atomic Lab.	3
Physics 481 Math. Physics	3	Physics 482 Math. Physics	3	Physics 483 Math. Physics	3
Approved electives	7	Approved electives	7	Approved electives	7
	16		16		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 in Physics outlined previously, 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 in Physics.

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 Electrical Engineering 301 (Electrical Machinery). Likewise, two fourth-year engineering electives are to be chosen from among Electrical Engineering 460, 461 (Vacuum Tube Circuits), Chemical Engineering 484 (Nuclear Engineering), or approved electives.

A student who has completed one of 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. General University requirements are 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. The department requires candidates for this degree to take four courses selected from those in the 500 series. A grade-point average of less than 3.00, unless there are compensating qualifications, will prevent the student from becoming a candidate for the degree. A thesis describing the results of a research investigation must be submitted. Each candidate will take the yearly departmental comprehensive examination until he has passed his oral master's examination.

Students in other fields desiring a minor in physics for a master's degree must submit 18 credits in undergraduate courses selected from those numbered above 300, and one graduate course.

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

- 50 General Physics (0)** **Staff**
Mechanics and sound; methods for handling problems in physics. For students concurrently registered in 101 with deficiencies. Prerequisite, concurrent registration in 101.
- 100 Survey of Physics (5)** **Clark**
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**
101: mechanics and sound. Concurrent registration in 107 required. Prerequisites, plane geometry, trigonometry, and one year of high school physics. A deficiency in any one or all of these prerequisites must be satisfied by concurrent registration in 50. 102: electricity and magnetism. No credit in 102 if 112 has been taken. Prerequisites, 101 and concurrent registration in 108. 103: heat, light, and modern physics. No credit in 103 if 113 has been taken. Prerequisites, 101, 102 and concurrent registration in 109. No credit for 101, 102, 103 without credit in 107, 108, 109, respectively.
- 107, 108, 109 General Physics Laboratory (1,1,1)** **Sanderman**
107: mechanics and sound laboratory to be taken concurrently with 101. 108: 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)** **Bodansky**
For physical science students. Development of the basic principles of physics with special emphasis on mechanics, electricity and magnetism, and modern physics. Prerequisites for 121, one year of high school physics 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 students. Prerequisite for 131, concurrent registration in 121; for 132, 131 and concurrent registration in 122; for 133, 132 and concurrent registration in 123.
- 154 Elementary Photography (4)** **Higgs**
Principles and practice of elementary photographic processes. Laboratory experience in fundamental photographic procedures. Prerequisite, high school physics or chemistry.
- 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 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, and Mathematics 251.
- 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, and Mathematics 251.
- 315 Photography (4)** **Higgs**
Photographic processes; photographic optics; lighting, and color photography. Application of photography to the sciences and arts. Laboratory. Prerequisites, 154 or equivalent, and permission.
- 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)** **Streib**
Charges at rest and in motion; dielectric and magnetic media; electromagnetic waves; optics and radiation. Prerequisites, 123 and Mathematics 253.
- 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. Laboratory. Prerequisites, 103, with concurrent registration in 109, 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 and Mathematics 253. (Offered first time Autumn, 1958.)
- 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.
- 471, 472, 473 Laboratory in Atomic and Nuclear Physics (3,3,3)** **Higgs, Farwell**
Measurements of phenomena representative of modern experimental atomic physics, beta and gamma ray energies, mean life of beta decay, and meson and proton mass ratio. Prerequisite, 30 credits in physics.
- 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. (Offered first time Autumn, 1958.)
- 491, 492, 493 Introduction to Theoretical Mechanics (3,3,3)** **Staff**
491, 492: emphasis on particle mechanics, Lagrange and Hamilton equations, harmonic motion, coupled vibrations, damped vibrations and rigid body dynamics. 493: vibrations of continuous media and methods of quantum mechanics with applications to atomic physics. Prerequisites, Mathematics 422, 423, and 30 credits in physics. (This sequence is being withdrawn; 493 will be offered for the last time Spring, 1958.)
- 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 phenomenologic 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.
- 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 for 560; 560 for 561.
- 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**
- 574 Atomic and Molecular Interactions (3)** **Staff**
- 576 Selected Topics in Experimental Physics (*, maximum 6)** **Staff**
- 578 Selected Topics in Theoretical Physics (*, maximum 6)** **Staff**
- 600 Research (*)** **Staff**
Research currently 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.
- Thesis (*)** **Staff**
Prerequisite, permission.

Courses 550, 562, 564, 566, 570, 572 and 574 may not be offered 1957-59.

Physics courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

R321 Introduction to Modern Physics (3)

R322 Introduction to Modern Physics (3)

R337 Radiation and Shielding (3)

R488 Introduction to Pile Physics (3)

R493 Theoretical Physics I (3)

- R494 Theoretical Physics II (3)
- R498 Statistical Thermodynamics (3)
- R501 Nuclear Physics I (3)
- R502 Nuclear Physics II (3)
- R513 Electricity and Magnetism (4)
- R517 Quantum Mechanics I (5)
- R518 Quantum Mechanics II (5)
- R525 Statistical Mechanics (3)

POLITICAL SCIENCE

Executive Officer: KENNETH C. COLE, 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 also cooperates with other departments and schools in a program leading to the degree of Master of Arts in Urban Planning and offers first and second teaching areas for students in the College of Education.

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 142.

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 through the Quarterly Symposium on World Affairs, the Annual Summer Institute of International Affairs, and the Northwest International Law Seminar.

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.

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: Political Science 202; 201 or 203; 328, 336, or 427; 411, 412, or 418; any three of 445, 450, 460, and 470; and 15 credits in political science electives.

CURRICULUM IN INTERNATIONAL RELATIONS. Recommended courses are: Political Science 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 (Introductory Human Geography); and Sociology 110 (Survey of Sociology).

A reading and translating knowledge of at least one modern foreign language is essential. 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, 376, and 475; Accounting 150 (Fundamentals of Accounting); Economics 200 (Introduction to Economics), 201 (Principles 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); 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 fields: the administrative process, the development of American institutions, the economics of public activity, public law, public management, and administrative problems. Three fields are studied each year, and students undertake the analysis of various problems in each field. 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**
The nature and function of political institutions in the major national systems.
- 202 American Government and Politics (5)** **Bone, Gottfried, Shipman**
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.
- 415 Analytical Political Theory (5)** **Harbold**
Analysis of the major concepts of political theory, such as state, authority, sovereignty, law, liberty, rights, and equality, from a nonhistorical viewpoint.
- 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**
Nationalization and federalism; regionalism; the presidency; the representative system; judicial institutions; reconciliation of policy and administration.
- 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 general business, public utilities, agriculture, banking, investments, and social welfare.
- 376 State and Local Government and Administration (5)** **Webster**
Structure, functions, procedures, and suggested reorganization, with special reference to the state of Washington and its units of local government.

- 378 Rural Government (5)** **Staff**
Structure of rural local government: nature and legal status of counties, townships, special districts, and other governmental units. Problems of metropolitan areas: powers and functions; relationship to state and federal governments; revenue; analysis of proposals for reform and reorganization.
- 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)** **Staff**
Basic relationship of administration to other agencies of government.
- 471 Administrative Management (5)** **Staff**
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**
Creation of administrative authorities, scope of limitations on their powers, remedies, and judicial control of administrative action.
- 475 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.

INTERNATIONAL LAW, ORGANIZATION, AND RELATIONS

- 321 American Foreign Policy (3)** **Gottfried**
Major policies as modified by recent developments; constitutional framework; principal factors in formulation and execution of foreign policy; major policies as modified by recent developments.
- 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.
- 324 Contemporary International Relations in Europe (5)** **Hitchner**
European diplomacy and international relations between the two world wars; recent and 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.
- 335 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**
Nature and objectives of Soviet foreign policy; ideological and strategic factors; bolshevism versus fascism; Comintern and Cominform; League of Nations and United Nations; East-West conflict.
- 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**
Egypt, Turkey, and Afghanistan; mandates; critical problems today.
- 432 American Foreign Policy in the Far East (5)** **Michael**
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.
- 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, Germany, and Switzerland.
- 347 Governments of Eastern Europe (5)** **Reshetar**
Survey of the Soviet model and the East European satellites: Hungary, Rumania, Bulgaria, Albania, Czechoslovakia, Poland, Yugoslavia, and Eastern Germany.
- 441 Political Institutions of the Soviet Union (5)** **Reshetar**
Dynamics of Soviet political theory; Leninism and Stalinism; forms and functions of governmental and party institutions; Soviet constitutionalism, federalism, and legal and administrative agencies.
- 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.
- 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.
- 528, 530 Seminar in Regional Foreign Policy (3,3)** **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.
- 540J Seminar on the Soviet Union: Government and Diplomacy (4, maximum 8)** **Reshetar**
Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.
- 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)**Shipman**

Forms and characteristics of administrative activity, organization, and function; the executive; administrative discretion; administrative legislation and adjudication; responsibility and control.

573-574-575 Public Management (3-3-3)**Shipman**

Methods and problems of managing public activities, emphasizing work supervision and control, management-staff problems, personnel administration, budgetary and fiscal administration, organization and methods analysis, reporting techniques, program planning and control. Prerequisite, admission to graduate curriculum in public administration or special approval.

576-577-578 Administrative Problems (3-3-3)**Staff**

Supervised analysis of selected administrative problems in local, state, and national government and the preparation of action reports. Prerequisite, admission to graduate curriculum in public administration.

580 Seminar in State and Local Government (3)**Webster**

Critical analysis of governmental structure: areas of administration, functions, limitations on state and local authority, regionalism, and forms of regional control.

581 Seminar in Public Policy in Planning (5)**Webster**

Planning theory; law and administration; legal basis of governmental planning, with emphasis upon state, local, and regional government; the planning agency in government; general scope and limitations of powers and functions; policy determination and public relations; coordination with administrative departments; drafting enabling legislation, planning regulations, and zoning and subdivision ordinances.

600 Research (*)**Staff****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 57) 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**Executive Officer: ROGER B. LOUCKS, 335 Savery Hall**

The Department of Psychology offers courses leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy. In addition, it offers first and second teaching areas for students in the College of Education.

The Department includes the 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. Courses must include: Psychology 100, 200, 301; one course from 400, 416, 427; one course from 406, 426, 441, 484, 499; and 11 credits in psychology electives, preferably chosen from 308, 345, 401, 402, 405, 407-408. Students majoring in psychology are required to maintain a grade-point average of 2.50 in all psychology courses.

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

- | | |
|--|-------------------------|
| 100 General Psychology (5) | Staff |
| Introduction to the principles of human behavior. | |
| 101 Psychology of Adjustment (5) | Wilson |
| Application of psychological principles to the problems of everyday life. Prerequisite, 100. | |
| 200 Advanced General Psychology (5) | Hermans |
| Fundamental principles and experimental methods of psychology, with laboratory demonstrations. For majors only. Prerequisite, 100. | |
| 245 Individual Differences (2) | Edwards |
| The interrelationships and patternings of human traits and capacities. Prerequisite, 100. | |
| 301 Statistical Methods (5) | Heathers, Smith |
| 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, 200 and Mathematics 101, or permission. | |
| 305 Abnormal Psychology (5) | Strother |
| 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. | |
| 306 Child Psychology (5) | Bijou, Baer |
| The psychological development of the child and the antecedent conditions from infancy to adolescence. Not open to students who have taken 308. Prerequisite, 100. | |
| 307 Psychology of Adolescence (3) | Baer |
| A survey of the physical and personality development of the adolescent. Prerequisite, 306. | |
| 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. Prerequisites, 100 and a major in psychology or sociology. | |
| 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 equivalent. | |
| 320 Directed Observation of Child Behavior in the Nursery School (2) | 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. | |
| 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. | |
| 323 Advanced Practicum in the Nursery School (10) | Staff |
| Program organization, teacher guidance of children in groups. Study of individual children through record-making. Use of research data in child development for oral presentation to adult groups. Attendance at monthly parent meetings, visits to day nurseries. Prerequisite, 322. | |
| 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) | McKeever |
| 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.
- 406 Experimental Psychology (5)** **Loucks**
Practice in planning, conducting, and reporting laboratory research. Prerequisite, 301.
- 407-408 History of Psychology (3-3)** **Espor**
Experimental and theoretical backgrounds of modern psychology, especially in the nineteenth century. Prerequisites, 100 and permission.
- 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)** **Bijou**
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.
- 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.
- 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)** **Loucks**
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. Prerequisite, 200 or 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.
- 446 Research Methods in Social Psychology (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)** **Espor**
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.
- 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.
- 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.
- 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 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**
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.
- 581 Individual Testing (Children) (5)** **Sarason**
Construction, administration, and scoring of individual mental tests used with children. Prerequisites, 306, 413, and permission.
- 582 Individual Testing (Adults) (5)** **Heathers**
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 in deviant behavior. Prerequisite, permission.
- 587 Clinical Pro-Seminar I: Personality (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 Graduate School of Social Work.
- 600 Research (*)** **Staff**
The name of the staff member with whom research will be done should be indicated in registration. Prerequisite, permission.
- 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 175); 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 *Schools of Medicine and 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 58. 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
Engl. 101 Composition . . .	3	Chem. 100 or 110 . . .	
Math. 104 Plane Trig. . .	3	General . . .	4-3
Psychol. 100 General . . .	5	Engl. 102 Composition . . .	3
Sociol. 110 Survey . . .	5	Math. 105 College Algebra. 5	
Phys. Educ. activity . . .	1	Math. 120 Intro. to Math. .	2
ROTC . . .	2-3	Thinking . . .	2
	17-20	Phys. Educ. activity . . .	1
		ROTC . . .	2-3
			14-18
Second Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Math. 251 Anal. Geom. . .	5	Math. 252 Anal. Geom. . .	5
& Calc. . .	5	& Calc. . .	5
Physics 101 General . . .	4	Physics 102 General . . .	4
Physics 107 Lab. . .	1	Physics 108 Lab. . .	1
Zool. 111 General . . .	5	Zool. 112 General . . .	5
ROTC . . .	2-3	ROTC . . .	2-3
	15-18		15-18
Third Year			
FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS
Math. 253 Anal. Geom. . .	3	Math. 253 Anal. Geom. . .	3
& Calc. . .	3	& Calc. . .	3
Physics 103 General . . .	4	Physics 103 General . . .	4
Physics 109 Lab. . .	1	Physics 109 Lab. . .	1
Zool. 208 Elem. Human .	5	Zool. 208 Elem. Human .	5
Physiol. . .	5	Physiol. . .	5
Approved electives . . .	3	Approved electives . . .	3
ROTC . . .	2-3	ROTC . . .	2-3
	16-19		16-19

Third Year

FIRST QUARTER	CREDITS
Math. 401 Linear Algebra . . .	5
Math. 481 Calc. of Probabilities . . .	5
Speech 120 Public Speaking . . .	5
	<hr/> 15

SECOND QUARTER	CREDITS
Math. 482 Class. Meth. of Stat. Inf.	5
Approved electives . . .	10
	<hr/> 15

THIRD QUARTER	CREDITS
Public Health 420 Principles I	2
Micro. 301 General . . .	5
Approved electives . . .	8
	<hr/> 15

Fourth Year

FIRST QUARTER	CREDITS
Public Health 421 Principles II	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
	<hr/> 16-20

SECOND QUARTER	CREDITS
Public Health 422 Principles III	3
Public Health 472 Applied Stat. in Health Sci.	4
Public Health 480 Problems	2-6
Approved electives . . .	6
	<hr/> 15-19

THIRD QUARTER	CREDITS
Public Health 423 Principles IV	3
Public Health 476 Advanced Biometry . . .	5
Public Health 480 Problems	2-6
Public Health 482 Field Practice	5
	<hr/> 15-19

ENVIRONMENTAL HEALTH: (Basic Option)

First Year

FIRST QUARTER	CREDITS
Chem. 100 or 110 General	4 or 3
Engl. 101 Composition . .	3
Health Educ. 110 or 175 . .	4
Physics 101 General	1
Physics 107 Lab.	1
Phys. Educ. activity	1
Approved electives	3
ROTC	2-3
	<hr/> 17-21

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
	<hr/> 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
	<hr/> 15-18

Second Year

FIRST QUARTER	CREDITS
Chem. 221 Quant. Analysis .	5
Math. 104 Plane Trig. . . .	3
Zool. 111 General	5
Approved electives	3
ROTC	2-3
	<hr/> 16-19

SECOND QUARTER	CREDITS
Math. 105 College Algebra .	5
Sociol. 110 Survey	5
Zool. 112 General	5
ROTC	2-3
	<hr/> 15-18

THIRD QUARTER	CREDITS
Chem. 120 Gen. & Organic .	5
Math. 153 Anal. Geom. & Calc.	5
Zool. 208 Elem. Human Physiol.	5
ROTC	2-3
	<hr/> 15-18

Third Year

FIRST QUARTER	CREDITS
Educ. 180 Drawing	3
Speech 120 Public Speaking	5
Approved electives	8
	<hr/> 16

SECOND QUARTER	CREDITS
Micro. 301 General	5
Psychol. 100 General	5
Approved electives	5
	<hr/> 15

THIRD QUARTER	CREDITS
Public Health 420 Principles I	2
Public Health 470 Intro. to Biometry	3
Biochem. 361 Biochem. Lab.	3
Biochem. 363 Biochem. Lab.	2
Micro. 204 Parasitol. for Sanitarians	4
Approved electives	2
	<hr/> 16

Fourth Year

FIRST QUARTER	CREDITS
Public Health 421 Principles II	3
Public Health 440 Environ. Health I	3
Public Health 450 Meas. & Control of Air Pollution	2
Public Health 480 Problems	2-6
Approved electives	5
	<hr/> 15-19

SECOND QUARTER	CREDITS
Public Health 422 Principles III	3
Public Health 441 Environ. Health II . . .	3
Public Health 453 Indust. Hygiene	3
Public Health 480 Problems	2-6
Civil Engr. 350 Intro. to San. Engr.	3
	<hr/> 14-18

THIRD QUARTER	CREDITS
Public Health 423 Principles IV	3
Public Health 442 Environ. Health III . . .	3
Public Health 480 Problems	2
Public Health 482 Field Practice	3
Approved electives	5
	<hr/> 16

Summer

Recommended: 15 hours Field Practice—Public Health 482, 483, 484.

ENVIRONMENTAL HEALTH: (Technical Option)

First Year

FIRST QUARTER	CREDITS
Chem. 100 or 110	
General	4-3
Engl. 101 Composition	3
Health Educ. 110 or 175	
Health	2
Physics 101 General	4
Physics 107 Lab.	1
Phys. Educ. activity	1
Approved electives	2
ROTC	2-3
	16-20

SECOND QUARTER	CREDITS
Chem. 150 General	4
Engl. 102 Composition	3
Math. 104 Plane Trig.	3
Physics 102 General	4
Physics 108 Lab.	1
Phys. Educ. activity	1
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. 120 Gen. & Organic	5
Chem. 221 Quant. Analysis	5
Math. 105 College Algebra	5
ROTC	2-3
	15-18

SECOND QUARTER	CREDITS
Math. 153 Anal. Geom. & Calc.	5
Sociol. 110 Survey	5
Zool. 111 General	5
ROTC	2-3
	15-18

THIRD QUARTER	CREDITS
Math. 251 Anal. Geom. & Calc.	5
Zool. 112 General	5
Zool. 208 Elem. Human Physiol.	5
ROTC	2-3
	15-18

Third Year

FIRST QUARTER	CREDITS
Educ. 180 Drawing	3
Math. 253 Anal. Geom. & Calc.	5
Physics 320 Intro. to Mod. Physics	3
Speech 120 Public Speaking	5
	16

SECOND QUARTER	CREDITS
Micro. 301 General	5
Physics 323 Intro. to Mod. Physics	3
Psychol. 100 General	5
Approved electives	3
	16

THIRD QUARTER	CREDITS
Public Health 420 Principles I	2
Biochem. 361 Biochem.	3
Biochem. 363 Biochem. Lab.	2
Micro. 204 Parasitol. for Sanitarians	4
Approved electives	5
	16

Fourth Year

FIRST QUARTER	CREDITS
Public Health 421 Principles II	3
Public Health 440 Environ. Health I	3
Public Health 450 Meas. & Control of Air Pollution	2
Public Health 470 Intro. to Biometry	2
Public Health 480 Problems	2-6
Approved electives	3
	15-19

SECOND QUARTER	CREDITS
Public Health 422 Principles III	3
Public Health 441 Environ. Health II	3
Public Health 453 Indust. Hygiene	3
Public Health 480 Problems	2-6
Civil Engr. 350 Intro. to San. Engr.	3
	14-18

THIRD QUARTER	CREDITS
Public Health 423 Principles IV	3
Public Health 442 Environmental Health III	3
Public Health 480 Problems	2-6
Public Health 482 Field Practice	3
Approved electives	3
	14-18

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
Health Educ. 110 or 175 Health	2
Biol. 101J—General	5
Engl. 101 Composition	3
Speech 100 Basic Speech Improvement	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
Phys. Educ. activity	1
Approved electives	2
ROTC	2-3
	16-19

THIRD QUARTER	CREDITS
Engl. 103 Composition	3
Physics 100 Survey	5
Psychol. 100 General	5
Phys. Educ. activity	1
Approved electives	2
ROTC	2-3
	16-19

Second Year

FIRST QUARTER	CREDITS
Health Educ. 292 First Aid & Safety	3
Anthro. 390 Intro. to Anthro. or 102 Principles	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. 352 Family	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 & 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. 301 General	5
	15

THIRD QUARTER	CREDITS
Public Health 420 Principles I	2
Public Health 423 Principles IV	3
Conjoint 496 Concept of the Child or Educ. 402 Child Study & Develop.	3
Educ. 374 Reading Instr.	5
Approved electives	2
	15

Fourth Year

FIRST QUARTER	CREDITS
Health Educ. 453 Methods & Materials	3
Public Health 421 Principles II	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 Principles III	3
Public Health 474 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 Emphases)

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. 292 First Aid & Safety	3
Anthro. 390 Intro. to Anthro. or 102 Principles	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. & 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 & Community Health Prog.	5
Public Health 470 Intro. to Biometry	3
Speech 332 Group Discussion	5
Approved electives	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 Principles I	2
Public Health 423 Principles IV	3
Public Health 492 International Health	2
Conjoint 496 Concept of the Child or Educ. 402 Child Study & Develop.	3
Approved electives	5
	15

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Health Educ. 453 Methods & Materials	3	Public Health 422 Principles III	3	Public Health 482 Field Practice	6
Public Health 421 Principles II	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		16
	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 Principles of Public Health I (2)** **Reynolds**
The principles of epidemiology applied to the control of communicable diseases of man. For public health majors and students of nursing and dental hygiene; others by permission. Prerequisite, Microbiology 301.
- 421 Principles of Public Health II (3)** **Staff**
Introduction to public health; physical agents of disease; diseases of occupation; industrial hygiene; sanitary control of water supplies; sewage and refuse disposal; vector and rodent control. For public health majors; others by permission.
- 422 Principles of Public Health III (3)** **Staff**
Introduction to public health: nutrition and deficiency diseases; food and milk sanitation; maternal and child health services; chronic diseases; mental health. For public health majors and students of nursing and dental hygiene; others by permission.
- 423 Principles of Public Health IV (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.
- 440 Environmental Health I (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, and schools. Prerequisite, 420 or permission.
- 441 Environmental Health II (3)** **Hatlen**
Advanced study of the sanitary control of water supplies, sewage, and refuse disposal. Prerequisite, 421 or permission.
- 442 Environmental Health III (3)** **Hatlen**
Advanced study of the sanitary control of food and milk. Prerequisite, 422 or permission.
- 450 Measurement and Control of Air Pollution (2)** **Kusian, Pate, Bovee**
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, Pate, Bovee**
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, Vavra**
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.
- 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.
- 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 82.)

ROMANCE LANGUAGES AND LITERATURE

Executive Officer: HOWARD L. NOSTRAND, 110 Lewis 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 either in this Department (under the College of Arts and Sciences) or in 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 117).

The Department offers a group of courses in English, for which no knowledge of a foreign language is necessary. These courses (see page 206) 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-).
2. With two semesters (1 unit) a student would enter:
French or Italian -102 (2½ 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 115).

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; 341; 358; 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; 358; 12 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. For Graduate School and departmental requirements, see the *Graduate School Bulletin*.

COURSES

(For courses in English translation, see page 206.)

ROMANCE LINGUISTICS AND LITERATURE, General and Comparative

401, 402 Introduction to Romance Linguistics (2,2)

Dorfman

Principles of descriptive and historical linguistics with special reference to their application to the study of the Romance languages. 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. (Offered 1957-58.)
- 521, 522, 523 Phonemic Analysis and Description (2,2,2)** **Dorfman**
The bases of phonology; 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 Problems and Methods of Literary History (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**
- 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 1957-58.)

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 A or B, or third high school semester.
- 130 Conversational French (2½-4, maximum 8)** **Staff**
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.
- 210, 211 Elementary French Conversation (2,2)** **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 for 210; 210 or permission for 211.
- 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 (2½-4, maximum 12)** **Staff**
For participants in the Living-Language Group program only. (Offered Summer Quarter only.) Prerequisite, 203 or permission.
- 341 Phonetics (3)** **Creore, David**
Analysis of sounds, intonation, rhythm; training in correct and natural pronunciation. Prerequisite, 103 or equivalent.
- 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.

- 421, 422, 423 Prose (3,3,3)** Keller, Hanzeli, Simpson
 421: Classical prose. (Offered 1958-59.)
 422: Eighteenth-century prose. (Offered 1958-59.)
 423: Contemporary prose. (Offered 1957-58.)
- 424, 425, 426 Modern Prose Fiction (3,3,3)** Simpson, C. Wilson, Weiner
 424: The novel, 1800-1850. (Offered 1957-58.)
 425: The novel, 1850-1900. (Offered 1959-60.)
 426: The novel, 1900-1950. (Offered 1959-60.)
- 430 Advanced Conversational French (1-3, maximum 6)** Staff
 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 1958-59.)
 432: Romantic poetry. (Offered 1957-58.)
 433: Parnassians, symbolists, and contemporary poetry. (Offered 1959-60.)
- 441, 442, 443 Drama (3,3,3)** Chessex, Creore
 441: Classical tragedy. (Offered 1958-59.)
 442: Romantic drama. (Offered 1958-59.)
 443: Modern drama. (Offered 1959-60.)
- 444, 445, 446 Drama (3,3,3)** Chessex, Hanzeli, Creore
 444: Molière. (Offered 1958-59.)
 445: Eighteenth-century comedy. (Offered 1957-58.)
 446: Modern comedy. (Offered 1957-58.)
- 451, 452, 453 Moralists and Essayists (3,3,3)** Keller, Hanzeli, David
 451: Montaigne. (Offered 1957-58.)
 452: From Montesquieu to Comte. (Offered 1959-60.)
 453: Essayists of the twentieth century. (Offered 1959-60.)

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 1958-59.)
- 502 Studies in Renaissance Poetry (5)** Creore
 The Pléiade. (Offered 1957-58.)
- 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 1958-59.)
- 513 Old French Literature (5)** Simpson
 Literary backgrounds; reading and discussion of selected texts. (Offered 1957-58.)
- 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 1958-59.)
- 571, 572 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 1957-58.)
- 600 Research (2-5, maximum 20)** Staff
 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**
La Vita Nuova and the *dolce stil nuovo*; the Dante of the *Divina Commedia*; Dante's literary esthetics (*De vulgari eloquentia*, *Il Convivio*).
- 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 Renaissance Prose and Poetry (3,3,3)** **Budel**
551: Early Renaissance: Pulci, Poliziano, Lorenzo il Magnifico, Boiardo, Sannazaro, Marsilio Ficino, Pico della Mirandola. (Offered 1957-58.)
552: High Renaissance: Castiglione, Ariosto, Machiavelli, Folengo, Bembo, Trissino. (Offered 1957-58.)
553: Late Renaissance: Michelangelo, Tasso, Bandello, Pietro Aretino. (Offered 1957-58.)
- 561, 562, 563 Italian Literature of the Nineteenth and Twentieth Centuries (3,3,3)** **Budel**
(Offered 1958-59.)
- 600 Research (2-5, maximum 20)** **Staff**
- 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.

PROVENÇAL

Course for Graduates Only

- 534 Old Provençal** **Simpson**
(Offered 1958-59.)

RUMANIAN

Courses for Graduates Only

- 536 Rumanian Language (5)** **Staff**
Rumanian grammar; readings in the language and lectures on its history. (Not offered 1957-58.)
- 537 Rumanian Literature (5)** **Staff**
History of Rumanian literature from the sixteenth century; the contemporary novel; the poetry of Mihail Eminescu. (Not offered 1957-58.)

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 second high school semester, or any passing grade in 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.
- 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, 202 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.
- 358, 359 Advanced Syntax (2,2)** **Staff**
Elementary principles of philology and their application to teaching; difficulties of Spanish grammar from the teacher's point of view. Prerequisite, 302 or equivalent.
- 390 Supervised Study (2-5, maximum 20)** **Staff**
Prerequisite, permission of Executive Officer.
- 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**
Historical development of the drama in Spain from its beginnings down to the present time. Selected texts; collateral reading and reports. (Offered 1958-59.) Prerequisite, 203 or equivalent.
- 451, 452, 453 Spanish Literature since 1700 (3,3,3)** **McDonald**
(Offered 1957-58.) 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 1957-58.) Prerequisite, 203 or equivalent.
- 471, 472, 473 Individual Spanish Authors (3,3,3)** **Staff**
Each course is devoted to one representative Spanish author of any period, according to the needs of the students. (Offered 1958-59.) Prerequisite, 203 or equivalent.
- 481, 482, 483 Spanish-American Literature (3,3,3)** **Bary, 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.
(Offered 1957-58.) Prerequisite, 203 or equivalent.
- 484 The Colonial Period in Spanish-American Literature (3)** **Vargas-Baron**
A study of colonial authors in the fields of the chronicle, poetry, and drama (1500-1810). (Offered 1958-59.) Prerequisite, 203 or equivalent.
- 485 The Romantic and Costumbrista Movements in Spanish-American Literature (3)** **Vargas-Baron**
A study of leading Romantic and Costumbrista authors (1810-1890). (Not offered 1957-59.)
- 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 1958-59.)
- 487 The Contemporary Spanish-American Novel (3)** **Vargas-Baron**
(Offered 1958-59.)

Courses for Graduates Only

- 511 The Poema de Mio Cid (3)** **W. Wilson**
(Offered 1958-59.)
- 512 Epic Poetry (3)** **W. Wilson**
The epic material in old Spanish literature and its later treatment in poetry and drama. Special investigations and reports. (Offered 1958-59.)
- 513 The Spanish Ballad (3)** **W. Wilson**
The origin and evolution of the Spanish ballad. (Offered 1958-59.)
- 521 The Renaissance in Spain (5)** **Ayllon**
(Offered 1957-58.)
- 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)** Dorfman
A survey of the phonological, morphological, and syntactical development of the Spanish language from its origins to the present. (Offered 1957-58.)
- 571 The Modern Essay (3)** Vargas-Baron
Leading essayists of Spain and Spanish America. (Offered 1957-58.)
- 572 Modern Poetry (3)** Vargas-Baron
Romanticism and later movements in Spanish and Spanish-American poetry. (Offered 1957-58.)
- 600 Research (2-5, maximum 20)** Staff
- Thesis (*)** Staff

COURSES IN ENGLISH TRANSLATION

FRENCH

- 319 Nineteenth-Century Prose in English (3)** Keller
- 320 Contemporary Novel in English (3)** Weiner
- 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 (5)** McDonald

SCANDINAVIAN LANGUAGES AND LITERATURE

Executive Officer: SVERRE ARESTAD, 226 Lewis 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
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
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.

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| 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

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| 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. | |
| 380 Ibsen and His Major Plays in English (2) | Arestad |
| 381 Strindberg and His Major Plays in English (2) | Johnson |
| 382 Twentieth-Century Scandinavian Drama in English (2) | Johnson |
| Outstanding twentieth-century plays, with introductory consideration of Ibsen and Strindberg. | |

COURSES FOR GRADUATES ONLY

- | | |
|---|-------------------------|
| 500, 501, 502 Old Icelandic (2,2,2) | Johnson |
| 503 Problems in Scandinavian Literature (*, maximum 5) | Arestad, Johnson |
| 507 Ibsen (*, maximum 3) | Arestad |
| 508 The Scandinavian Novel (*, maximum 5) | Arestad |
| 510, 511, 512 Strindberg (2,2,2) | Johnson |
| Thesis (*) | Staff |

SOCIAL WORK, PREPROFESSIONAL PROGRAM

Adviser: JACK R. PARSONS, 107 Social Work Hall

Students interested in the field of social work should confer with an adviser at the time of entry to the University. A well-rounded preparatory course which embraces the social sciences, certain biological sciences, the humanities, and courses in the communication skills is recommended and should be worked out with the adviser as soon as possible.

A number of social work courses are available to upper-division students. These courses, together with suggested courses of study, are intended for students who wish (1) to prepare for advanced professional education; (2) to go into employment in social agencies which require only a bachelor's degree for entrance into employment; and (3) to include social welfare content in their liberal education for citizenship.

Seniors planning to enter the Graduate School of Social Work should make application early in the Winter preceding the Autumn in which they wish to begin their professional education. (See the *Graduate School Bulletin* for a complete statement of admission requirements.)

COURSES FOR UNDERGRADUATES

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|--|---|
| 300 Field of Social Work (3) | Lawrence, Parsons, Staff Lecturers |
| Principles and practices in the field of social work, with a comprehensive picture of available services and future needs. Prerequisite, upper-division standing. | |
| 302 Introduction to Child Welfare (2) | Lawrence, Parsons |
| A survey of social welfare programs relating to the well-being of children, including standards and objectives of foster-home care, adoption, day care, institutional care, and special services for the exceptional child. Prerequisite, upper-division standing. | |

304 Case Work 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 influence its nature and course. Prerequisite, upper-division standing.

306 Public Welfare Programs in the United States (3)**Casey, Parsons**

Origins, development, and present status of public welfare programs enacted by state and federal government since 1900. Prerequisite, upper-division standing.

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 admission 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 of at least 27 credits of course work, plus a thesis. At least 9 of the sociology credits must be in courses numbered 500 and above. A reading knowledge of a foreign language is a University requirement. 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 a University requirement.

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

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| 110 | Survey of Sociology (5)
Basic principles of social relationships. Primarily for freshmen and sophomores. Not open to students who have taken 310. | Larsen, Staff |
| 223 | Social Statistics (5)
Methods and sources for quantitative investigation. Prerequisite, 110 or 310. | Camilleri, Miyamoto |
| 230 | Introduction to Human Ecology (5)
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. | Cohen, Schmid |
| 240 | Group Behavior (5)
Socialization of the individual; social processes; and interactions of persons in groups. Prerequisites, 110 or 310, and Psychology 100. | Miyamoto |
| 270 | Survey of Contemporary Social Problems (5)
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. | Staff |
| 310 | General Sociology (5)
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. | Larsen, Staff |
| 331 | Population Problems (5)
Major quantitative and qualitative problems of population in contemporary society. Prerequisite, 110 or 310. | Staff |
| 352 | The Family (5)
The family as a social institution; personality development within the family; marriage adjustment; changing family patterns; disorganization and reorganization. Prerequisite, 110 or 310. | Staff |
| 353 | Social Factors in Marriage (3)
Courtship and marriage; marital adjustments; specific problems of marriage and family life. Prerequisite, 352. | Camilleri |
| 362 | Race Relations (5)
Interracial contacts and conflicts. Prerequisite, 10 credits in social science. | Barth |
| 365 | Urban Community (5)
Comparative and analytic study of organization and activities of urban groups. Prerequisite, 110. | Cohen |
| 371 | Criminology (5)
Individual and social factors in delinquency; history and methods of criminal justice. Field trips to local penal institutions. Prerequisite, 110 or 310. | Hayner, Schrag |
| 389 | Reading in Selected Fields (2-5, maximum 15)
Open only to qualified undergraduate students by permission. | Staff |
| 410 | History of Sociological Thought (5)
Background and trends in sociological thought from Comte to the present. Prerequisite, 110 or 310. | Staff |
| 411, 412, 413 | Systematic Sociology (3,3,3) | Dodd |
| 414 | Sociological Theory (5)
Modern scientific theory applied to social behavior; sociology as a natural science. Prerequisite, 20 credits in social science. | Lundberg |
| 415 | Theory of Social Organization (5)
Prerequisite, 110 or 310. | Staff |
| 420 | Methods of Sociological Research (5)
A general survey of the principal methods of research used in sociology, and of special issues and problems in methodology. | Faris |
| 421 | Methodology: Case Studies and Interviewing (3) | Larsen |

- 423 Advanced Social Statistics (5)** **Camilleri**
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)** **Camilleri**
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)** **Camilleri**
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)** **Camilleri**
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, Miyamoto**
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.
- 446 Social Adjustment of the Worker (3)** **Wager**
Adjustments made during the span of work life; cultural background of work values; transition from school to work. 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.
- 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.
- 460 Social Differentiation (5)** **Staff**
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. Laboratory practice. Prerequisite, 110 or 310.
- 467 Industry and the Community (3)** **Wager**
- 472 Juvenile Delinquency (5)** **Hayner, Schrag**
Family and community backgrounds; institutional treatment; juvenile court and probation; programs for prevention. Prerequisite, 371 or equivalent.
- 473 Penology (5)** **Hayner, Schrag**
Social treatment of adult offenders. Prerequisite, 371 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, or equivalents.
- 528 Seminar in Selected Statistical Problems in Social Research (3)** **Camilleri**
- 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)** **Camilleri**
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 Institutions (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.
- 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, 230, 240, 310, 400, and 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.

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)** **Rahskopf 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 social interaction, 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 C. Oral interpretation
B. Public address D. Radio-TV speech
E. Speech correction and hearing

VOICE AND PHONETICS

- 110 Voice Improvement (2)** **Tiffany in Charge**
The study and improvement of vocal quality, pitch, loudness, and duration as based on adequate breathing, phonation, and resonance.
- 111 Articulation Improvement (2)** **Tiffany in Charge**
Individual and group study and practice in articulation and pronunciation. May follow or precede 110.
- 211 Phonetics (3)** **Tiffany**
A study of the sound system of English. The use of the international phonetic alphabet as a tool in speech improvement and language learning.
- 310 Voice Science (5)** **Tiffany**
A study of basic physiological, anatomical, and acoustical backgrounds involved in the processes of voice and articulation. Not open to students having taken 210 prior to Autumn Quarter, 1957.
- 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. (Offered alternate years; offered 1957-58.) Prerequisite, 5 credits in anatomy, physiology, or zoology, or permission.
- 415 Advanced Voice and Phonetics (5)** **Tiffany**
Advanced problems in voice and phonetics with a study of factors influencing speech sounds in context. Prerequisite, 310 or permission.

PUBLIC ADDRESS

- 120 Introduction to Public Speaking (5)** Franzke 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 1958-59; 426 offered 1957-58.)

ARGUMENT AND DISCUSSION

- 230 Essentials of Argument (5)** Pence, Richards
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, Nilson
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)** Richards
Discussion of selected public questions before audiences on and off campus. No more than 3 credits may be earned in one year. Prerequisite, permission.
- 430 Advanced Argument (5)** Pence, Richards
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

- 240 Oral Interpretation (5)** Grimes in Charge
Development and use of fundamental techniques for analysis and reading aloud of prose and poetry.
- 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, 240.
- 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 1958-59.) 240 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. Prerequisites, 240 and permission.
- 440 Oral Interpretation of Poetry (3)** Grimes
Problems of interpretation pertaining to oral presentation of various types of poetry. Prerequisite, 240 or 340.

TEACHING OF SPEECH

- 352 Introduction to the Teaching of Speech (2)** Nelson
Orientation in the nature, history, and problems of speech education. Intended for speech majors in the College of Education, but open to others by permission. Prerequisites, Education 209 and 370, or permission.
- 357 Debate and Discussion Problems in High School and College (2½)** Richards
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**79 Speech Clinic (0)****Palmer**

Open to any University student with hearing difficulties or speech problems such as stuttering, lisp, or similar defects. Meetings are arranged after interview with the instructor for individual or group instruction.

470, 471 Speech Correction (3 or 5, 5)**Carrell, 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)**Palmer**

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 1958-59.)

478 Interview Techniques for Speech and Hearing Rehabilitation (3)**Wingate**

(Offered alternate years; offered 1957-58.)

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)**Phillips**

Diseases and injuries of the ear resulting in reduced audition. (Offered alternate years; offered 1958-59.)

487 Audiometry (2)**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 1958-59.) 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 1957-58.) 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 1958-59.) 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. 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. Prerequisites, 430 or equivalent, and permission.
- 540 Studies in Oral Interpretation (3)** **Grimos**
Critical analysis of writings by Sheridan, Walker, Rush, Delsarte, Bell, Curry, Emerson, and others. (Offered alternate years; offered 1957-58.) Prerequisite, 440.
- 550 Studies in Speech Education (3)** **Nelson**
Philosophical, curricular, and methodological problems of speech instruction. (Offered alternate years; offered 1958-59.)
- 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 Quarter, 1956. (Offered alternate years; offered 1958-59.) 571: dysarthria, especially cerebral palsy. (Offered alternate years; offered 1957-58.) 572: aphasia. (Offered alternate years; offered 1958-59.) 573: pathologic disorders of voice. (Offered alternate years; offered 1957-58.) 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)** **Carrell**
(Offered alternate years; offered 1958-59.) 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 1957-58.) 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. 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 1957-58.) Prerequisite, 487.
- 600 Research (*)** **Staff**
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 401 (Comparative Anatomy and Physiology of Fishes), 402 (Phylogeny of 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); a year of college physics; Chemistry 160, 170 (General), 231, 232 (Organic), 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, 451 and permission.

401L Cytology Laboratory (2)

Hsu

Must be accompanied by 401.

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. (Offered alternate years; offered 1957-58.) 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 1957-58.) 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, 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 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 chordates; 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**
Must be accompanied by 118.
- 204 Forestry Zoology (5)** **Hatch, Richardson**
Evolution of animals to the level of the arthropods and chordates; emphasis on those as the groups of animals of greatest practical importance in the forest fauna. Prerequisites, Botany 114, 115, and 216.
- 208 Elementary Human Physiology (5)** **Flory**
Each organ system is described and its function illustrated in the laboratory. Prerequisite, freshman chemistry.
- 330 Natural History of Marine Invertebrates (5)** **Hlg, Ray**
A field and laboratory course emphasizing the habits, habitats, identification, and interrelationships of marine animals. Prerequisites, 112 or 10 credits in biological sciences, and 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. (Offered alternate years; offered 1957-58.) Prerequisites, 112 or 10 credits in biological sciences.
- 381 Microtechnique (4)** **Hsu**
Critical evaluation of each step in microslide preparation. Prerequisites, 112 and permission.
- 400 General Physiology (5)** **Flory**
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.
- 423 General Protozoology (5)** **Osterud**
Introduction to the morphology, classification, and life histories of the Protozoa. 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)** **Hlg, 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**
Must be accompanied by 457. Prerequisite, permission.
- 463 Natural History of Amphibia and Reptiles (5)** **Svihla**
Systematics, distribution, and speciation. (Offered alternate years; offered 1957-58.) Prerequisites, 111 and 112.
- 464 Natural History of Birds (Ornithology) (5)** **Richardson**
(Offered alternate years; offered 1958-59.) Field glasses furnished. Prerequisites, 111 and 112.

- 465 Natural History of Mammals (5)** **Svihla**
Methods of field observation; classification, behavior, ecology, and speciation. Prerequisites 111 and 112.
- 475 Vertebrate Zoogeography (3)** **Svihla**
Principles governing animal distribution, morphology, and physiology. Prerequisite, 5 credits in natural history or permission.
- 498 Special Problems in Zoology (3 or 5)** **Staff**
Prerequisites, 30 credits in zoology and permission.

COURSES FOR GRADUATES ONLY

BIOLOGY

- 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.

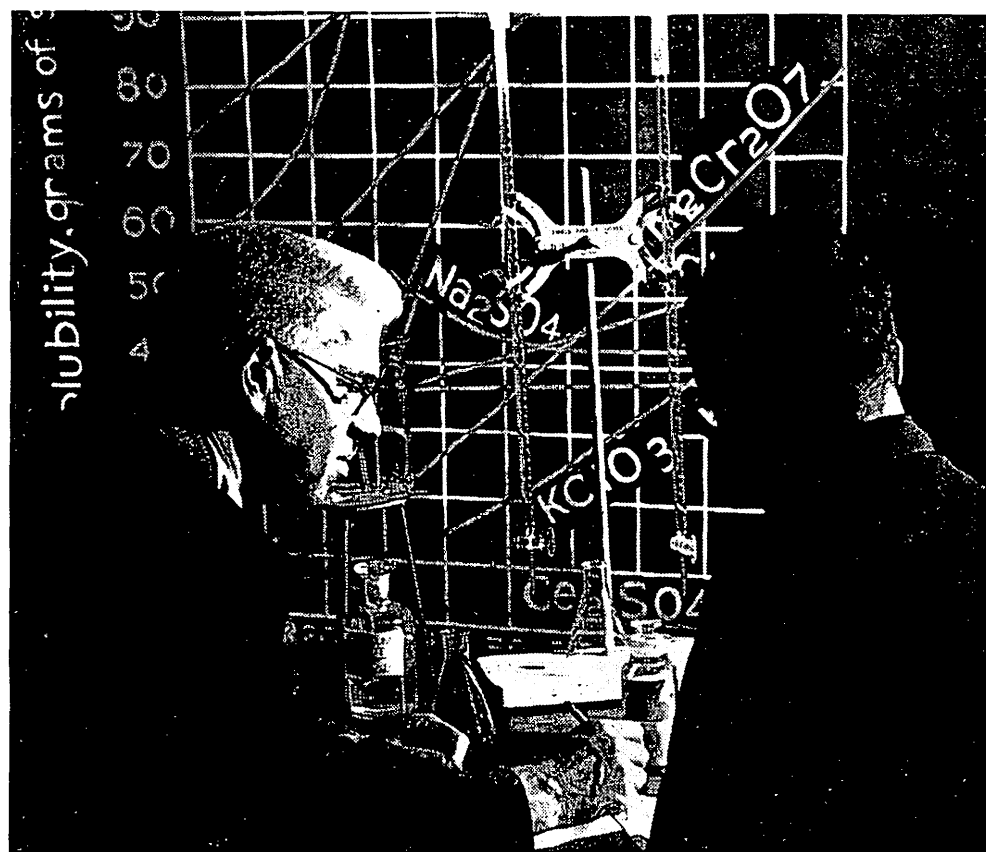
ZOOLOGY

- 506 Topics in Experimental Embryology (6, maximum 12)** **Staff**
(Offered at Friday Harbor Summer Quarter only.) 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**
- 528 Experimental Protozoology (6)** **Osterud**
Cultivation; identification; cytology; physiology and genetics; general literature and current research in protozoology. (Offered alternate years; offered 1958-59.) Prerequisite, 423 or equivalent.
- 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)** **Floreay**
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)** **Floreay**
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)** **Martín**
Advanced studies with particular reference to cold-blooded vertebrates and to birds. Prerequisite, 400 or equivalent.

581 Systematic Zoology (4)

History, principles, and procedures of zoological taxonomy; review of biological bases of phylogeny; history and principles of zoological nomenclature. Prerequisite, permission.

Illig**600 Research (*)****Staff****Thesis (*)****Staff**



RESERVE OFFICERS TRAINING PROGRAMS

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 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 49). 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: JACK R. BANKS, 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 within quota

limitations subject to the approval of the Professor of Air Science. One criterion for military deferment is good standing at the University, which means the student must: (1) maintain an acceptable grade-point average; (2) be registered for at least 15 academic credits per quarter, exclusive of required lower-division ROTC and physical education activity; and (3) earn at least 45 academic credits during each academic year.

Students who are given an ROTC deferment agree to complete four years of ROTC, accept a commission, if offered, then serve three years on active duty when called, unless sooner relieved, and three additional years in a reserve organization.

First-year Air Force ROTC students are given an introductory course in the theory of flight, followed by a study of fundamentals of global geography, international tensions and security organizations, and instruments of national military security. This sequence of courses requires classroom attendance two hours each week. First-year students 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, the emphasis is moved to a study of aerial warfare and the Air Force itself. 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 receive equivalent credit for active service in the military forces of the United States.

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.

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, unless excused or dismissed from this requirement by authority of the Secretary of the Air Force.

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 relations of the Air Force commander and his staff, problem-solving techniques, communication, military instructional methods, military justice, navigation, weather, and Air Force base organization. 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 seminar on leadership and management, then study military aviation and the evolution of warfare, military aspects of global geography, and are briefed for 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 programs 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 matters should be addressed to the Professor of Air Science.

COURSES FOR UNDERGRADUATES

- 131, 132, 133 Air Science I—Basic (2,2,2)** **Staff**
Details of the Air Force ROTC program; the significance of the individual's obligations for military service; introduction to aviation; fundamentals of global geography; factors of world power; the nation's defense organization; drill.
- 231, 232, 233 Air Science II—Basic (2,2,2)** **Staff**
The purpose, process, and primary elements of aerial warfare; targets, weapons, delivery aircraft, operations, and bases; purpose and provisions of the Air Force Officer Career Program; survey of occupational fields open to Air Force officers; opportunities for and obligations of a career in the Air Force as an officer or airman; cadet non-commissioned-officer training.
- 301, 302, 303 Air Science III—Advanced (3,3,3)** **Staff**
Command and staff concepts; leadership laboratory; problem-solving techniques, communications processes; principles and techniques of learning and teaching; Air Force correspondence and publications; military law—courts and boards; aerial navigation, and weather; functions of the Air Force base.
- 304 Air Science III—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 IV—Advanced (3,3,3)** **Staff**
Critique of summer camp; Air Force leadership and management; relationship of geographical factors to national strength and international power patterns; foundations of national power; military aviation and the art of war; career guidance, briefing for commissioned service.

MILITARY SCIENCE AND TACTICS

Professor of Military Science and Tactics: WALTER A. RUDE, Army ROTC Building

Qualifications for entrance to the Army Reserve Officers Training Corps are in accordance with University requirements and Department of the Army regulations. Participation in the Army ROTC program may permit deferment from the draft under the Universal Military Training and Service Act of 1951.

Courses in the first and second years of the basic program require classroom attendance two hours each week. First and second year students are introduced to American military history, organization of the Army, map reading, and individual and crew-served weapons. School of the soldier 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 are eligible for entrance to the advanced Army ROTC, which is designed to train professionally qualified officers. Students in the advanced course are chosen from the group of most highly qualified students who have completed the basic program of senior-division ROTC, or have had twelve months or more of honorable active service in the military forces of the United States. Each student accepted for the advanced program must:

1. Be able to complete before his twenty-eighth birthday all requirements for a commission, including the completion of the advanced program and the requirements for a degree.
2. Execute a written agreement with the government to complete the advanced course contingent upon remaining in the University.
3. Be selected by the Professor of Military Science and Tactics and the President of the University.
4. Successfully complete whatever general survey and screening tests are prescribed.
5. Complete the course as a prerequisite for graduation from the University,

unless excused or dismissed from this requirement by authority of the Secretary of the Army.

Courses in the advanced program require classroom attendance four hours a week, plus one hour of practice in school of the soldier, and exercise of command. Advanced students are given courses in small unit tactics and communications, organization and functions of various arms and services, logistics, operations, and military administration. In addition, a summer camp is attended for six weeks between the first and second years of the advanced program. Students attending summer camp receive pay equivalent to that of a private in the army. Those who so desire and who meet the necessary criteria may take flight training during the senior year. This training is in addition to the normal ROTC course and entails an obligation for an additional year of active duty after graduation.

Advanced Army ROTC students are paid a monetary allowance at a daily rate not to exceed the value of the commuted ration. Currently the cadets receive 90 cents a day. The allowance is in addition to benefits received through the World War II G.I. Bill. However, payment at summer camp will fall under Public Law 512, 80th Congress, Veterans Regulation 1, which may require a refund to the Veterans Administration for subsistence allowance advanced by them.

Regulation ROTC uniforms are issued to students in the basic program, and uniforms similar to those of Army officers are issued to students in the advanced program. Students are required to wear the uniform on drill day. At the time of registration, each student must make a \$25.00 deposit. This deposit is refunded in full to those who have completed one year of either the basic or the advanced Army ROTC courses when the uniform is returned complete and undamaged. A student withdrawing from either the basic or the advanced Army ROTC courses, after completing less than one year, may retain the shoes which have been issued to him, provided he authorizes a deduction from his deposit equal to one-half the Army list price for such shoes. The Army furnishes all textbooks and equipment used in military science classes.

Inquiries about enrollment or other matters 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 (objective and scope); 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: T. D. F. LANGEN, 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 seventy 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 sixteen 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 65½ and 76 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.

Students with not more than one year of previous attendance in college are eligible if they meet the qualifications and agree to finish the four-year program.

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 Educational Testing Service, Box 592, Princeton, New Jersey, 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.
- 212 Fire Control (3)** **Staff**
Surface fire control; battery alignment; antiaircraft fire control.
- 213 Applied Naval Electronics (3)** **Staff**
Advanced fire control; radar, sonar; C.I.C.; shore bombardment; guided missiles; nuclear explosives; underwater ordnance; rockets.

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. (Formerly 400.)
- 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.

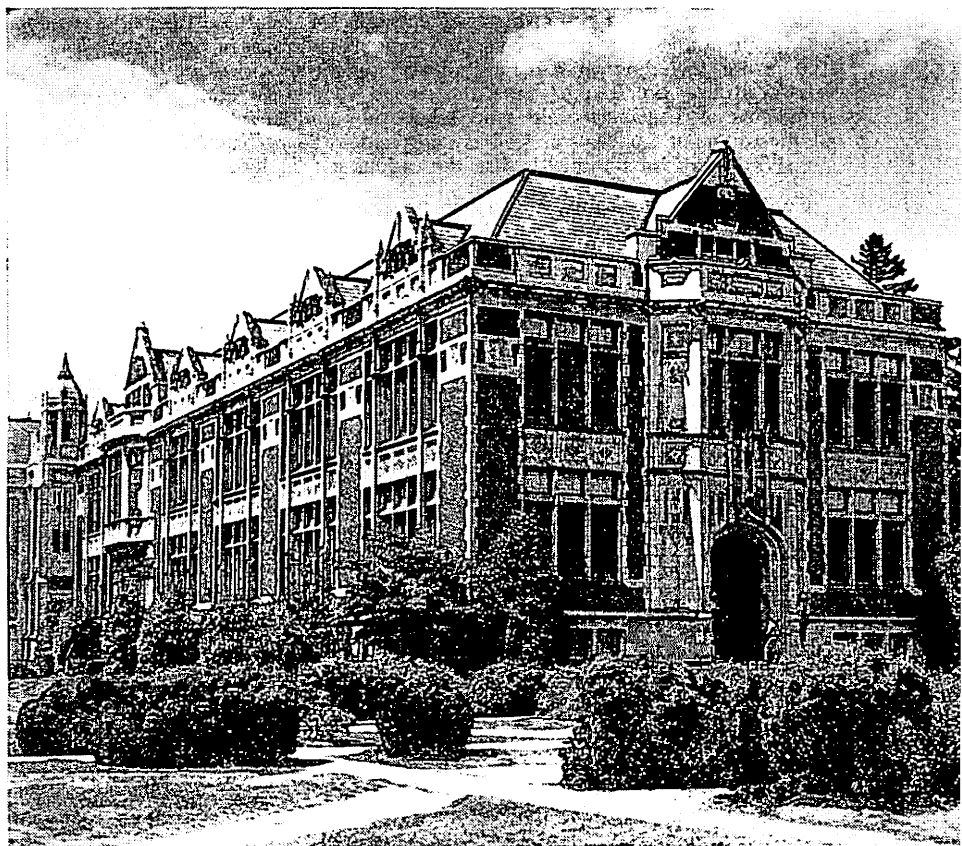
SUPPLY CORPS

- 311S Introduction to Supply, Naval Finance, and Basic Naval Accounting (4)** **Staff**
Introduction to Supply Corps and accounting principles; national security organization; naval finance; appropriations; cost and fidelity accounting.
- 312S Advanced Naval Accounting, Basic Supply Afloat (4)** **Staff**
Reports and returns; property and stores accounting; organization and administration of supply afloat; material identification, classification, and allowance.

- 313S Supply Afloat, Intermediate (4)** **Staff**
Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.
- 411S Advanced Supply Afloat and Basic Ships' Stores (4)** **Staff**
Records, reports, and returns for supply afloat, and ships' store operating procedure.
- 412S Advanced Ships' Stores, Commissary, Clothing, and Small Stores (4)** **Staff**
Records, reports, and returns for ships' stores, commissary, clothing, and small stores.

- 313S Supply Afloat, Intermediate (4)** **Staff**
Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.
- 411S Advanced Supply Afloat and Basic Ships' Stores (4)** **Staff**
Records, reports, and returns for supply afloat, and ships' store operating procedure.
- 412S Advanced Ships' Stores, Commissary, Clothing, and Small Stores (4)** **Staff**
Records, reports, and returns for ships' stores, commissary, clothing, and small stores.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF
BUSINESS ADMINISTRATION
1957-1959

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; and publications of the Division of Adult Education and Extension Services, the correspondence study and extension 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 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 ARTS AND SCIENCES
COLLEGE OF BUSINESS ADMINISTRATION
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EXTENSION CLASSES

BULLETIN
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CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

WINTER QUARTER, 1957

REGISTRATION PERIOD

- NOV. 26-DEC. 14 Registration for students in residence Autumn Quarter, 1956. (*Registration appointments will be issued on presentation of ASUW cards beginning October 26.*)
- JAN. 2-JAN. 4 Registration for former students not in residence Autumn Quarter, 1956. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 26.*)
- JAN. 2-JAN. 4 Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- JAN. 7-MONDAY Instruction begins
- JAN. 11-FRIDAY Last day to add a course
- FEB. 22-FRIDAY Washington's Birthday and Founder's Day holiday
- MAR. 22-FRIDAY Instruction ends

SPRING QUARTER, 1957

REGISTRATION PERIOD

- FEB. 27-MAR. 15 Registration for students in residence Winter Quarter, 1957. (*Registration appointments will be issued on presentation of ASUW cards beginning January 25.*)
- MAR. 27-MAR. 29 Registration for former students not in residence Winter Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 25.*)
- MAR. 27-MAR. 29 Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- APR. 1-MONDAY Instruction begins
- APR. 5-FRIDAY Last day to add a course
- MAY 24-FRIDAY Governor's Day
- MAY 30-THURSDAY Memorial Day holiday
- JUNE 9-SUNDAY Baccalaureate Sunday
- JUNE 14-FRIDAY Instruction ends
- JUNE 15-SATURDAY Commencement

SUMMER QUARTER, 1957

REGISTRATION PERIOD

JUNE 5-JUNE 7	Registration for all students. (<i>Registration appointments for students in residence Spring Quarter, 1957, and for former students not in residence Spring Quarter, 1957, may be obtained from the Registrar's Office beginning April 22. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 17-JUNE 21	

ACADEMIC PERIOD

JUNE 24-MONDAY	Instruction begins
JUNE 25-TUESDAY	Last day to add a course for the first term
JUNE 28-FRIDAY	Last day to add a course for the full quarter
JULY 4-THURSDAY	Independence Day holiday
JULY 24-WEDNESDAY	First term ends
JULY 25-THURSDAY	Second term begins
JULY 26-FRIDAY	Last day to add a course for the second term
AUG. 23-FRIDAY	Instruction ends

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

SEPT. 9-OCT. 1	Registration for students in residence Spring Quarter, 1957. (<i>Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.</i>)
SEPT. 13-OCT. 1	Registration for former students not in residence Spring Quarter, 1957. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.</i>)
SEPT. 16-SEPT. 27	Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 17, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)
SEPT. 16-OCT. 1	Registration for new transfer students with at least full sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 17, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

SEPT. 30-MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
OCT. 2-WEDNESDAY	Instruction begins (8 a.m.) for all other students

OCT. 8—TUESDAY	Last day to add a course
NOV. 11—MONDAY	State Admission Day holiday
NOV. 27—DEC. 2	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 20—FRIDAY	Instruction ends (6 p.m.)

WINTER QUARTER, 1958

REGISTRATION PERIOD

NOV. 25—DEC. 13	Registration for students in residence Autumn Quarter, 1957. (<i>Registration appointments will be issued on presentation of ASUW cards beginning October 25.</i>)
JAN. 2—JAN. 3	Registration for former students not in residence Autumn Quarter, 1957. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.</i>)
JAN. 2—JAN. 3	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

JAN. 6—MONDAY	Instruction begins
JAN. 10—FRIDAY	Last day to add a course
FEB. 22—SATURDAY	Washington's Birthday and Founder's Day holiday
MAR. 21—FRIDAY	Instruction ends

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26—MAR. 14	Registration for students in residence Winter Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 24.</i>)
MAR. 26—MAR. 28	Registration for former students not in residence Winter Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.</i>)
MAR. 26—MAR. 28	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

MAR. 31—MONDAY	Instruction begins
APR. 4—FRIDAY	Last day to add a course
MAY 23—FRIDAY	Governor's Day
MAY 30—FRIDAY	Memorial Day holiday
JUNE 8—SUNDAY	Baccalaureate Sunday
JUNE 13—FRIDAY	Instruction ends
JUNE 14—SATURDAY	Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4-JUNE 6	Registration for all students. (<i>Registration appointments for students in residence Spring Quarter, 1958, and for former students not in residence Spring Quarter, 1958, may be obtained from the Registrar's Office beginning April 21. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 16-JUNE 20	

ACADEMIC PERIOD

JUNE 23-MONDAY	Instruction begins
JUNE 24-TUESDAY	Last day to add a course for the first term
JUNE 27-FRIDAY	Last day to add a course for the full quarter
JULY 4-FRIDAY	Independence Day holiday
JULY 23-WEDNESDAY	First term ends
JULY 24-THURSDAY	Second term begins
JULY 25-FRIDAY	Last day to add a course for the second term
AUG. 22-FRIDAY	Instruction ends

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 8-SEPT. 30	Registration for students in residence Spring Quarter, 1958. (<i>Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.</i>)
SEPT. 12-SEPT. 30	Registration for former students not in residence Spring Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.</i>)
SEPT. 15-SEPT. 26	Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 17, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)
SEPT. 15-SEPT. 30	Registration for new transfer students with at least full sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 17, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

SEPT. 29—MONDAY

Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

OCT. 1—WEDNESDAY

Instruction begins (8 a.m.) for all other students

OCT. 7—TUESDAY

Last day to add a course

NOV. 11—TUESDAY

State Admission Day holiday

NOV. 26—DEC. 1

Thanksgiving recess (6 p.m. to 8 a.m.)

DEC. 19—FRIDAY

Instruction ends (6 p.m.)

WINTER QUARTER, 1959

REGISTRATION PERIOD

NOV. 20—DEC. 12

Registration for students in residence Autumn Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning October 23.*)

DEC. 29—DEC. 31

Registration for former students not in residence Autumn Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 23.*)

DEC. 29—DEC. 31

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

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

MAR. 20—FRIDAY

Instruction ends

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24—MAR. 13

Registration for students in residence Winter Quarter, 1959. (*Registration appointments will be issued on presentation of ASUW cards beginning January 23.*)

MAR. 25—MAR. 27

Registration for former students not in residence Winter Quarter, 1959. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.*)

MAR. 25—MAR. 27

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

MAR. 30—MONDAY

Instruction begins

APR. 3—FRIDAY

Last day to add a course

MAY 22—FRIDAY

Governor's Day

MAY 30—SATURDAY

Memorial Day holiday

JUNE 7—SUNDAY

Baccalaureate Sunday

JUNE 12—FRIDAY

Instruction ends

JUNE 13—SATURDAY

Commencement

ADMINISTRATION

BOARD OF REGENTS

CHARLES M. HARRIS, <i>President</i>	Entiat
WINLOCK W. MILLER, <i>Vice-President</i>	Seattle
GRANT ARMSTRONG	Chehalis
THOMAS BALMER	Seattle
DONALD G. CORBETT	Spokane
CHARLES F. FRANKLAND	Seattle
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HAROLD P. EVEREST, M.A.	<i>Vice-President of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
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DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
AUSTIN GRIMSHAW, D.C.S.	<i>Dean of the College of Business Administration</i>
MARGARET P. FENN, M.B.A.	<i>Assistant to the Dean</i>
LOUISE L. MARTIN, B.A.	<i>Assistant to the Dean</i>

COLLEGE OF BUSINESS ADMINISTRATION EXECUTIVE COMMITTEE

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EDWARD G. BROWN, M.B.A.	<i>Executive Officer of the Department of Policy, Personnel Relations, and Production</i>
JOSEPH DEMMERY, M.A.	<i>Executive Officer of the Department of General Business</i>
KERMIT O. HANSON, Ph.D.	<i>Executive Officer of the Department of Accounting, Finance, and Statistics</i>
CHARLES J. MILLER, M.B.A.	<i>Executive Officer of the Department of Marketing, Transportation, and Foreign Trade</i>

FACULTY OF THE COLLEGE OF BUSINESS ADMINISTRATION

(As of September 16, 1956)

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, <i>Acting Assistant Professor of Finance</i> B.A., 1949, M.A., 1953, Minnesota
BENTLEY, JAMES R., 1956, <i>Part-Time Lecturer in Accounting</i> B.A., 1943, Stanford
BERG, KENNETH B., 1950 (1955), <i>Associate Professor of Accounting</i> B.S., 1939, North Dakota; M.S., 1941, Ph.D., 1952, Illinois; C.P.A., 1954, State of Washington
BLTYHE, HARRY, 1949 (1955) <i>Lecturer in Finance</i> B.S., 1947, M.S., 1949, Columbia
BRABB, GEORGE J., 1956, <i>Acting Assistant Professor of Statistics</i> B.S., 1950, M.S., 1954, Idaho

- BUTTERBAUGH, GRANT I., 1930 (1956), *Professor of Statistics*
A.B., 1916, Wisconsin; M.B.A., 1923, Washington; Ph.D., 1942, Chicago
- COURTNEY, JAMES R., 1954, *Lecturer in Statistics*
B.S., 1949, Wichita; M.B.A., 1952, Washington; M.B.A., 1954, New York
- COX, WILLIAM E., 1919 (1923), *Professor of Accounting and General Business*
B.A., 1909, M.A., 1910, Texas
- HAMACK, FRANK H., 1921 (1942), *Lecturer in Accounting*
LL.B., 1916, Georgetown
- HANSON, KERMIT O., 1948 (1954), *Professor of Accounting, Finance and Statistics and Executive Officer of the Department of Accounting, Finance, and Statistics*
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)
- HOLMES, RODERICK L., 1956, *Part-Time Lecturer in Accounting*
B.S., 1938, Kansas State Teachers College; M.B.A., 1947, Denver; C.P.A., 1949, State of Iowa, 1950, State of Texas
- 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, *Acting Assistant Professor of Finance*
B.S., 1952, McGill; M.B.A., 1954, 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
- MARCUS, SUMNER, 1955, *Lecturer in Finance and Business Law*
A.B., Harvard, 1931; M.B.A., 1933, LL.B., 1936, Harvard
- MUELLER, FRED J., 1956, *Assistant 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
- PALMER, WALTER S., 1955 (1956), *Associate Professor of Finance*
B.A., 1937, Nevada; M.B.A., 1941, Ph.D., 1954, Stanford
- ROLLER, JULIUS A., 1945 (1950), *Associate Professor of Accounting*
B.B.A., 1934, Washington
- STOREY, REED K., 1956, *Acting Assistant Professor of Accounting*
B.S., 1952, Utah
- THOMPSON, LEETE A., 1956, *Lecturer in Finance and Production*
B.S., 1938, Indiana; M.B.A., 1949, California (Los Angeles)
- WALKER, LAUREN M., 1946 (1953), *Associate Professor of Accounting*
B.A., 1939, M.B.A., 1943, Washington; C.P.A., 1943, State of Washington
- WRIGHT, LAURENCE A., 1954, *Acting Assistant Professor of Finance*
B.A., 1947, M.B.A., 1950, Washington

DEPARTMENT OF GENERAL BUSINESS

- BIGGS, 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, *Instructor in Secretarial Training*
B.A., 1953, Washington
- BURRUS, MARY E., 1943, *Part-Time Lecturer in Business Law*
B.A., 1935, LL.B., 1937, Washington
- CALLOW, KEITH M., 1956, *Part-Time Lecturer in Business Law*
B.A., 1949, LL.B., 1952, Washington
- DEMMEY, JOSEPH, 1928 (1934), *Professor of General Business and Executive Officer of the Department 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. in 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
- HARLOW, JOHN S.**, 1948, *Part-Time Lecturer in Business Law*
B.A., 1935, Princeton; LL.B., 1939, Harvard
- HAYNE, DONALD F.**, 1950 (1955), *Associate Professor of Insurance*
B.B.A., 1949, M.B.A., 1950, Wisconsin
- HUNTER, DAVID C.**, 1954, *Part-Time Lecturer in Business Law*
A.B., 1942, Michigan; LL.B., 1949, Washington
- MARCUS, SUMNER**, 1955, *Lecturer in Business Law and Finance*
A.B., 1931, M.B.A., 1933, LL.B., 1936, Harvard
- MCGUIRE, JOSEPH W.**, 1950 (1956), *Associate Professor of Business Fluctuations*
Ph.B., 1948, Marquette; M.B.A., 1950, Ph.D., 1956, Columbia
- ROBINSON, DWIGHT E.**, 1950 (1956), *Professor of Business Fluctuations*
B.A., 1936, Yale; M.A., 1938, Oxford; Ph.D., 1948, Columbia
- ROSENZWEIG, JIM**, 1956, *Assistant Professor of General Business and Industrial Analyst, Bureau of Business Research*
B.A., 1951, M.B.A., 1954, Washington; Ph.D., 1956, Illinois
- 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, *Assistant 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, *Instructor 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
- DEPARTMENT OF MARKETING, TRANSPORTATION, AND FOREIGN TRADE**
- BARBER, WILLIAM F.**, 1956, *Part-Time Instructor in Marketing*
B.B.A., 1952, M.B.A., 1956, Washington
- BOYNE, THOMAS W.**, 1949 (1953), *Part-Time Lecturer in Marketing*
B.A., 1947, Hawaii; M.S., 1949, Columbia
- BREWER, STANLEY H.**, 1946 (1956), *Professor of Transportation*
B.A., 1942, M.B.A., 1943, Washington; I.C.C. Practitioner, 1948; F.M.R. Practitioner, 1950
- BURD, HENRY A.**, 1924 (1927), *Professor Emeritus*
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 and Director, Bureau of Business Research*
B.A., 1925, M.A., 1926, Washington; Ph.D., 1929, Michigan
- ETCHESON, WARREN W.**, 1954 (1956), *Associate Professor of Marketing*
B.S., 1942, Indiana; M.A., 1951, Ph.D., 1956, Iowa
- GORDON, GUY G.**, 1949 (1952), *Acting Assistant Professor of Marketing*
B.A., 1949, M.B.A., 1950, Washington
- HARDER, VIRGIL E.**, 1955, *Acting Assistant Professor of Business Writing*
B.S.C., 1950, M.A., 1950, Iowa
- KOLDE, ENDEL J.**, 1951 (1956), *Associate Professor of Marketing and Foreign Trade*
B.S., 1940, National Military Academy, Estonia; D.H.S., 1947, Stockholm, Sweden;
M.A., 1951, D.B.A., 1954, Washington
- LAMBRIGHT, ROBERT W.**, 1955, *Instructor in Marketing*
B.B.A., 1952, M.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 and 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
- NEWCOMER, HALE A., 1956, *Acting Assistant Professor of Marketing and Foreign Trade*
B.S., 1951, Illinois; M.B.A., 1953, Texas
- OLBERDING, HAROLD H., 1955, *Instructor in Marketing*
B.A., 1954, M.B.A., 1955, Washington
- PECK, CHARLES E., 1951 (1955), *Associate Professor of Business Writing*
B.A., 1935, Wichita; M.A., 1947, Ph.D., 1950, Iowa
- 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
- BROWN, EDWARD G., 1948 (1949), *Professor of Business Policy and Executive Officer of the Department of Policy, Personnel Relations, and Production*
A.B., 1929, Washington; M.B.A., 1932, Harvard
- FENN, MARGARET P., 1953, *Part-Time Instructor in Human Relations*
B.S., 1942, LaCrosse State Teachers; M.B.A., 1950, Washington
- HENNESSEY, JOHN W., JR., 1950 (1956), *Associate Professor of Human Relations and Policy and Administration*
A.B., 1948, Princeton; M.B.A., 1950, Harvard; D.B.A., 1956, Washington
- 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, *Lecturer in Production*
B.B.A., 1949, M.B.A., 1952, Minnesota
- KAST, FREMONT E., 1951 (1956), *Associate Professor of Production and Assistant Director of the Bureau of Business Research*
A.B., 1946, San Jose State; M.B.A., 1949, Stanford; D.B.A., 1956, Washington
- MENGES, PAUL F., 1956, *Part-Time Instructor in Personnel*
B.A., 1947, George Washington; M.A., 1948, Columbia
- 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
- SHUSTER, LOUIS J., 1956, *Instructor in Production*
B.A., 1953, Sacramento State; M.B.A., 1955, Washington
- SUTERMEISTER, ROBERT A., 1949 (1952), *Professor of Personnel and Human Relations*
A.B., 1934, Harvard; M.A., 1942, Washington
- THOMPSON, LEETE A., 1956, *Lecturer in Production and Finance*
B.S., 1938, Indiana; M.B.A., 1949, California (Los Angeles)
- WOLF, WILLIAM B., 1954 (1956), *Associate Professor of Production and Personnel*
A.B., 1942, California; M.B.A., 1945, Northwestern; Ph.D., 1954, Chicago

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

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 of seventy-five members and in 1956 its student body included twenty-one hundred undergraduate and one hundred 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, 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 Commerce Hall, which, in addition to regular classrooms and staff offices, 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 Commerce 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 and conferences has been provided for the use of faculty members and graduate students.

BUREAU OF BUSINESS RESEARCH

The College operates a Bureau of Business Research which is affiliated with the National 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, and the professions. Publications include studies of Pacific Northwest and Washington industries, Alaska, communities, tourist trade, trading areas, and income.

PACIFIC NORTHWEST BUSINESS

Pacific Northwest Business is a monthly journal published by the Bureau of Business Research, College of Business Administration. Statistical data, including specially constructed indexes of business activity in the Pacific Northwest and its major component areas, together with an interpretive summary of current business conditions in the Pacific Northwest, are supplied by the Bureau. The magazine serves as a means of disseminating information of wide interest to the business community and to other universities, and for publication of relevant faculty research.

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, market-

ing, and production 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. 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, J. C. Penney Company, 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.

The Production Department allows credit to majors employed part time on a planned work program in an industrial organization. These students work in the various departments of the organization to observe and participate in its many operations. Reports of observations and a summary covering evaluations and recommendations are prepared at the end of the work period.

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 Alaska 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. See Scholarship Requirements, pages 17-22.

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 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 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 are 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 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 20 for applicants who have had college work.

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

The University scholarship requirement is a high school grade point 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 Athletic 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, 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 and the Territory of Alaska

The University scholarship requirement for nonresidents* or students residing outside the state of Washington or the territory of Alaska 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.

* Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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 units¹ (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. Under certain circumstances, however, and with the approval of the Dean of the College, deficiencies in admission requirements may be removed after entrance.

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 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

¹ 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.

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 \$18.00 per course) and do not carry University credit.

ADMISSION BY EXAMINATION

A graduate of a *nonaccredited* 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 9896, 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 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 or territory of Alaska 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. 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.

3. *Applicants who are not legal residents* of the state of Washington or territory of Alaska 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 or territory of Alaska 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 or the territory of Alaska 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, 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 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.

5. 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. No credit will be allowed in the senior year.

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

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.

A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit, and, in addition, shall be allowed up to a maximum of 90 quarter credits from the junior college exclusive of physical education activity credits.

6. 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.

7. 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.

8. 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 Division of Adult Education and Extension Services. 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.

9. 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.

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 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 20.

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 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 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.

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 26).

REQUIRED TESTS AND EXAMINATIONS

APTITUDE TESTS

New students of freshman standing (including transfer students with less than 45 quarter hours of college credit 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 50 (Elementary Composition) 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 three 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 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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

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, filing his class cards, and depositing his registration book at Sections, 101 Administration Building.

APPOINTMENTS

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 4). Students in residence may obtain appointments at the time announced in the Calendar.

ADVISING

After notification of admission, and before registration, new students should visit or write to the College for help in planning their course programs. The College of Business Administration maintains a registration office in 214 Commerce Hall. 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 its equivalent) or more than 16 credits (or its 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 its 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 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 or Alaska 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 and Alaska. If they believe they are residents, they may petition the Nonresident Tuition 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), per year	3.00-5.00
Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00; Spring Quarter, \$3.00.	

Military Uniform Deposit, per year 25.00

Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. See page 66 for limitation on refund to Army ROTC students.

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 is charged for each additional copy.

Transcript Fee .50

One transcript is furnished without charge; the fee is charged for each additional copy. Supplementary transcripts are 25 cents each.

Graduation Fee 10.00**SPECIAL FEES**

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00 per credit; and for removal of an Incomplete, \$2.00.

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, \$3.00. 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. Riding Fee is payable to riding academy and varies in amount.

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	\$183.00
Full-time nonresident student	408.00

<i>Athletic Admission Ticket (optional)</i>	3.00-5.00
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<i>Accident Insurance (optional)</i>	4.35
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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	600.00
Room and meals in Women's Residence Halls	540.00-630.00
Room and meals in student cooperative house	510.00
Room and meals in fraternity or sorority house	660.00-700.00

Initial cost of joining a fraternity or sorority 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.

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 third-quarter sophomore business administration students who have an over-all grade-point average of 3.00 or better.

Beta Alpha Psi, national accounting fraternity, is composed of accounting majors with 20 credits in accounting subjects and a cumulative grade-point average of 3.00 in accounting and 2.50 in other subjects. Admission is limited to students who successfully pass a five-hour competitive 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. Juniors and seniors with an over-all grade-point average of 3.30 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 and scholastic standing acceptable to the Society's executive committee.

Management Club is an organization for all students interested in fields of management. The Club requires members to have a minimum of 45 credit hours and a cumulative grade-point average of 2.50 or better.

Marketing Club members must be marketing majors with junior standing.

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.

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.

Special awards for students in the College of Business Administration are available 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 in 212 Commerce Hall.

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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical 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. Housing is available to women in the Women's Residence Halls. For further information write to Manager, Women's Residence Halls, University of Washington, Seattle 5, Washington. The Students' Cooperative Association, 1114 East Forty-fifth Street, operated independently from the University, has low-cost accommodations for both men and women. 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, students' cooperatives, and church-sponsored living groups. Other types of living arrangements must be approved by the Office of the Dean of Students.

Married students 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

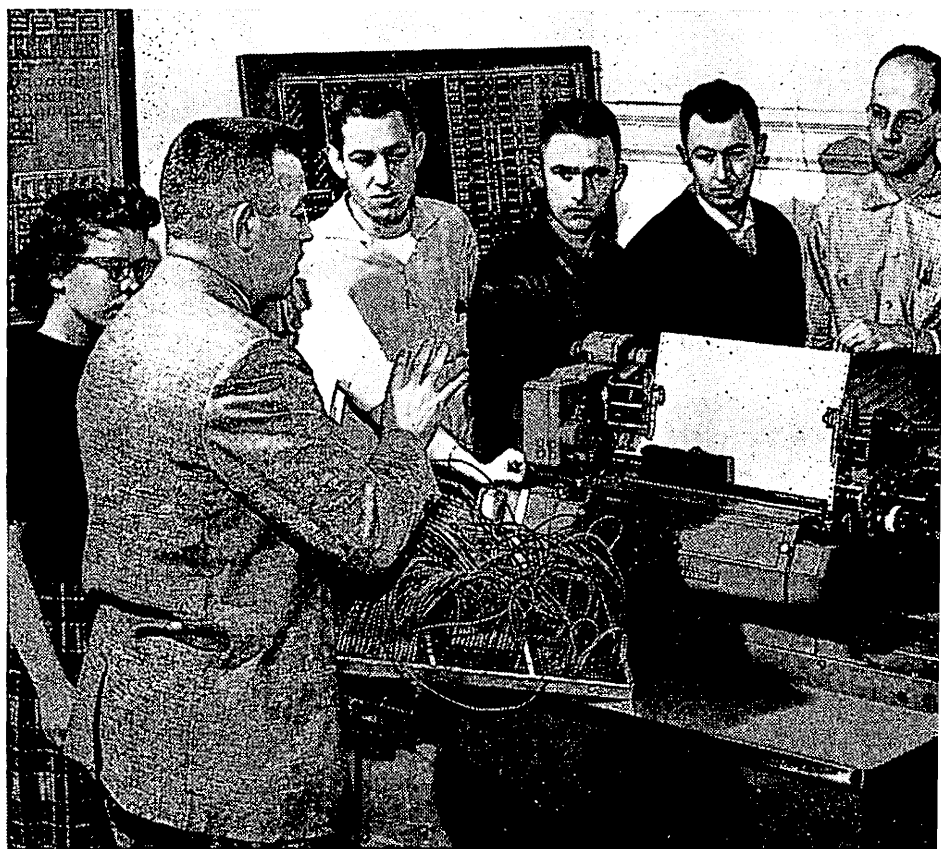
The University maintains a health center and infirmary which help to guard against infectious diseases and incipient ill health.

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

Information and assistance in obtaining full-time positions are given graduates by the Business Administration Placement Office, 212 Commerce Hall. 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

THE DEPARTMENTAL PROGRAMS

THE 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 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 as outlined in 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 Departments 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 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.

Exemptions from the requirement are granted to:

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 Department of Physical Education for Men or Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfitted to join regular

classes will be assigned by the Executive Officer of the Department of Physical 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 Physical 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 Physical Education 175. Veterans with six months or more of active service are exempt from this requirement.

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

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 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 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. Any senior entering his last quarter is put on probation if his cumulative grade average is below 2.00.

7. 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.

8. 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.

9. 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.

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 Division of Adult Education and Extension Services.

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
Phys. Educ. 110 Health Education or 175 Personal Health	2
Electives (10 credits approved in humanities)	10
Acctg. 255 Basic Accounting Analysis	3
Bus. Law 201 Business Law	5
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

SENIOR-YEAR RESIDENCE

Senior standing is attained when 135 credits, plus the required quarters of ROTC and physical education, have been earned. In 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 may be earned either in residence or in this University's extension or correspondence courses.

ADVANCED DEGREES

The College of Business Administration offers courses leading to the degrees of Master of Arts, Master of Business Administration, and Doctor of Business Administration. Graduate training is given in these fields of specialization: account-

ing; business and its environment; business policy and business administration; finance and banking; foreign trade; insurance; marketing; personnel and industrial relations; production; 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 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. Full standing is granted applicants with a grade-point average of 3.00 or higher during their senior year, with the necessary prerequisites for work in the chosen graduate field. A grade-point average of less than 3.00 but above 2.75 will, if the student is admitted, result in provisional standing.

Admission. The candidate for a graduate degree in the College of Business Administration must (1) have a bachelor's degree in business administration from an approved college or (2) present not less than 45 quarter credits in accounting, business fluctuations, business law, business statistics, corporation finance, economics, human relations, marketing, and production. Candidates 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.

Credit Load and Residence

	CREDITS
Minimum load for full residence credit	9
Normal load	12
Maximum load:	
Autumn, Winter, and Spring Quarters	15
Summer Quarter	12

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.

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 three 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, and (3) certain introductory, service and undergraduate-research courses.

MASTER'S DEGREES

A student must have a 3.00 average in the last quarter of his senior year to be eligible for graduate courses (500 and 600 series) in the first quarter of graduate work. He 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 credits taken while a graduate student at another accredited institution may be applied toward the master's degree. Six credits of extension work may similarly be applied, but only if taken at the University. However, a combination of such transfer and extension work applying to the 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 including the thesis. At least 24 credits must be in business administration courses. Students may elect to complete General Business 570, 571-572 in lieu of completing a formal thesis. The following courses are required:

	CREDITS
Policy and Administration 560 or 561	3
Policy and Administration 590, 591, or 596	3
Accounting 591 or 592	3
Thesis or General Business 570, 571-572	9
Electives (at least 6 credits in 500 series other than policy and administration, accounting controls, and General Business 570, 571-572)	18
	<hr/> 36

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.

Master of Arts in Urban Planning. An interdepartmental curriculum leading to the degree of Master of Arts in Urban Planning is offered by the School of Architecture; the Colleges of Business Administration and of Engineering; and the Departments of Geography, Political Science, and Sociology. The curriculum is supervised by an interdepartmental Coordinating Committee, under the Graduate School, which is composed of representatives from the participating academic divisions (see the *Graduate School Bulletin*).

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. 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 candidate for the doctoral degree must demonstrate competence in four areas of study, at least three of which must be in the College of Business Administration. The candidate also must complete a minimum of 15 credits in courses numbered 500 or above in the fields of business and its environment, economics, or other social sciences; concentration of study in any of these areas may be used to satisfy one of the four area requirements. 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 fields.

Admission to Candidacy. At the end of two years of graduate study as approved by the student's supervisory committee, 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. The warrant should indicate the time, place, and manner of the examination and must be delivered to the Graduate School at least two weeks prior to the proposed examination date.

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 open only to graduate students, though 400 courses may carry graduate credit for graduate students.

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*.

ACCOUNTING

Executive Officer: KERMIT O. HANSON, 203 Commerce Hall

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, 486; and Business Law 302 (Business Law) and 420 (Law in Accounting Practice). One additional course 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, excluding 305.

COURSES FOR UNDERGRADUATES

150 Fundamentals of Accounting (4)

Basic principles, financial statements, double-entry principles, capital and revenue expenditures, depreciation, etc.

151 Fundamentals of Accounting (3)

Elements of manufacturing, partnership, and corporation accounting. Prerequisite, 150.

- 255 Basic Accounting Analysis (3)**
Financial and cost analysis and interpretation. Prerequisite, 150.
- 305 Office Management (5)**
Office organization; supervision of office functions; office personnel problems. Prerequisite, Production 301.
- 310 Intermediate Accounting (5)**
Advanced theory on inventory valuation, depreciation, etc.; analysis of profit variations. Prerequisite, 255.
- 320 Income Tax I (3)**
Federal revenue acts and their application to tax returns. Prerequisite, 310.
- 330 Cost Accounting (5)**
Economics of cost accounting; industrial analysis; production control through costs; types of cost systems; burden application. Prerequisite, 310 or permission.
- 340 Accounting Systems (3)**
System design and installation, with special emphasis upon internal control. Prerequisite, 310.
- 341 Systems for Mass Production (2)**
Design of systems for accounting and statistical control to meet problems of mass production, involving use of tabulating equipment. Prerequisite, 255.
- 350 Budgetary Control (2)**
Revenue and expense planning and control for business enterprises. Prerequisite, 255.
- 351 Distribution Cost Analysis (2)**
Analysis of selling expenses as a basis for managerial decisions and control. Prerequisite, 255.
- 360 Advanced Accounting (5)**
Continuation of 310. Prerequisite, 310.
- 371 Auditing Internship (2)**
One quarter's work with a certified public accounting firm. Prerequisite, 470.
- 420 Income Tax II (3)**
Special problems in income tax, including fiduciaries and corporate reorganizations; appeals; estate and gift taxes. Prerequisite, 320.
- 470 Auditing I (5)**
Auditing procedures and techniques, including practice set. Prerequisite, 360.
- 471 Auditing II (3)**
Releases of the American Institute of Accountants and the Securities and Exchange Commission; special problems and theory in professional auditing. Prerequisite, 470.
- 480 Government Accounting I (3)**
Principles of fund accounting. Prerequisite, 360.
- 485 Consolidations and Mergers (3)**
Consolidated balance sheets; statements of profit and loss; domestic and foreign branches. Prerequisite, 360.
- 486 Fiduciary Accounting (2)**
Estates, trusts, and bankruptcies. Prerequisite, 360.
- 490 C. P. A. Problems (3)**
Problems from the American Institute of Accountants and state C. P. A. examinations. Prerequisites, 320, 330, 480, 485, and 486.
- 495 Advanced Accounting Theory (3)**
Theory of accounting related to income measurement, assets, and equities. Prerequisites, 360 and senior standing.
- 499 Undergraduate Research (3, maximum 9)**
Prerequisite, permission.

COURSES FOR GRADUATES ONLY

- 520, 521, 522 Seminar (3,3,3)**
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. 522: 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.
- 591, 592 Seminar in Administrative Controls (3,3)**
Accounting and statistical controls employed by management. 591: major administrative control techniques, including the accounting plan, budgets, standard costs, cost analyses, inventory control, and profit planning. 592: major aspects of budgetary control, principles and application. Prerequisite, permission. 255 or 330 is recommended. 591 not a prerequisite for 592.
- 604 Research (*, maximum 10)**
Prerequisite, permission.
- Thesis (*)**

BUSINESS AND ITS ENVIRONMENT

Executive Officer: JOSEPH DEMMERY, 209 Commerce Hall

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 Administration (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.
- 598 Current Problems in Business (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.
- Thesis (*)

BUSINESS EDUCATION

Executive Officer: JOSEPH DEMMERY, 209 Commerce Hall

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 10 (Typewriting), 111, 112 (Secretarial Training), 115 (Office Machines), 120-121 (Gregg Shorthand), and 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 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; if, on the other hand, he plans to work toward the Master of Education, he is advised to take his degree in education.

BUSINESS LAW

Executive Officer: JOSEPH DEMMERY, 209 Commerce Hall

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. (Autumn and Spring Quarters the course meets two hours per day prior to C. P. A. examination.)

BUSINESS STATISTICS

Executive Officer: KERMIT O. HANSON, 203 Commerce Hall

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, 344, 442, and 443; Accounting 310 (Intermediate Accounting); Mechanical Engineering 415 (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.
- 344 Administrative Applications of High-Speed Computers (2)**
Current use of computers in business; impact of high-speed computation on decision-making; consideration of problems which lend themselves to quantitative approaches. Prerequisite, 201.
- 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.
- 444 Advanced Administrative Applications of High-Speed Computers (5)**
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.

COURSES FOR GRADUATES ONLY**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.

Thesis (*)**BUSINESS WRITING**

Executive Officer: CHARLES J. MILLER, 300C Commerce Hall

The Business Writing curriculum offers both required and elective courses for students majoring in other departments of the College. Students learn to compile and interpret research data and to write effective business letters and reports.

COURSES FOR UNDERGRADUATES**310 Business Correspondence (5)**

Analysis of principles, including psychological factors, and actual business letters in terms of fundamentals. Prerequisites, English 103 and junior standing.

410 Business Reports (5)

Analysis of problems; methods of gathering and interpreting data; preparation of written reports. Prerequisite, junior standing.

FINANCE

Executive Officer: KERMIT O. HANSON, 203 Commerce Hall

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; and investments, leading to careers in investment banking and investment management.

BANKING OPTION. The requirements are: Finance 344, 423, and 426; 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); Economics 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 10 or more credits elected from Finance 344, Accounting 320 (Income Tax I); Accounting 330 (Cost Accounting); Accounting 350 (Budgetary Control); and Policy and Administration 470 (Business Policy).

INVESTMENTS OPTION. The requirements are: Finance 344, 426, and 446; Accounting 310 (Intermediate Accounting); plus 10 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.
- 334 Credits and Collections (5)**
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, 201.
- 340 Securities Markets (5)**
Economic functions of securities markets; investment banking, direct placement, securities exchanges, and the over-the-counter market. Special attention is devoted to customer-broker relationships and trading techniques. 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 bank organization and departmental functions; appraisal of responsibilities of officers and directors; analysis of relationships with correspondents, branches, government agencies, and the money market; bank personnel and public relations policies; mergers and consolidations. Prerequisite, 201.
- 426 Management of Bank Funds (5)**
Principles of management of bank funds; credit policies; credit analysis; commercial, consumer, agricultural, real estate, and security loans; handling of distressed loans; investment procedures; portfolio policies; bank earnings and expenses; bank dividend policies. Prerequisite, 201.
- 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)**
Current problems in credit administration, international finance, banking, corporation finance, and investments. Prerequisites, 301 and permission.

COURSES FOR GRADUATES ONLY

- 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. Integrating corporation finance and banking, 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 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.
- 604 Research (*, maximum 10)**
Prerequisite, permission.

Thesis (*)

FOREIGN TRADE

Executive Officer: CHARLES J. MILLER, 300C Commerce Hall

The Foreign Trade curriculum is designed to prepare students for careers in overseas operations divisions of manufacturers and mercantile establishments, import and export houses, international agencies, foreign trade services, and related activities.

The requirements for a major are: Foreign Trade 301, 380, and 470; Finance 367 (International Finance), plus a minimum of 10 approved upper-division credits *either* in a field of business administration other than Foreign Trade, *or* in courses dealing with a particular area or region of the world, such as Central America, Europe, South America, the Soviet Bloc, the Far East, the Near East, and Africa. Foreign students are permitted to select the United States as their region of specialization.

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. Prerequisite, Marketing 301.
- 340 Trade Problems of Europe and Latin America (5)**
Markets, resources, and trade patterns; business environment; institutions, practices, marketing channels and methods, business services; foreign investments, subsidiaries and affiliates; international cooperation, governmental regulations. Prerequisite, 301.
- 350 Far East Foreign Trade Problems (5)**
Population, markets, and resources; foreign investments and industrialization; marketing channels and methods with special reference to capital goods, staples, and industrial technology; political and other special problems. Prerequisite, 301.
- 420 Foreign Trade Practices (5)**
International communications, contracts, and arbitration; product and market analysis, packaging, pricing; documentation and shipping; licenses, taxes, tariffs, and customs procedures. Prerequisite, 301.
- 470 Problems in Foreign Operations Management (5)**
Analysis of foreign operations problems 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, 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.
- 604 Research (*, maximum 10)**
Prerequisite, permission.
- Thesis (*)**

GENERAL BUSINESS

Executive Officer: JOSEPH DEMMERY, 209 Commerce Hall

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.

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.

Thesis (*)**HUMAN RELATIONS IN BUSINESS AND INDUSTRY**

Executive Officer: EDWARD G. BROWN, 263B Miller Hall

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, junior standing.

INSURANCE

Executive Officer: JOSEPH DEMMERY, 209 Commerce Hall

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 (Credit and Collections); Finance 344 (Principles of Investment); Insurance 460; Law 231 (Taxation); Law 307 (Insurance); Marketing 351 (Principles of Salesmanship); Policy and Administration 470 (Business Policy); and Transportation 452 (Transportation Insurance).

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 Insurance (5)**
Contracts and benefits under fire insurance and its allied lines of coverage; inland marine insurance; ocean marine insurance. The viewpoint is that of the insurance company. Prerequisite, 301.
- 375 Casualty Insurance (5)**
Contracts, benefits, and premiums in the fields of automobile, liability, burglary, robbery, and theft insurance, and fidelity and surety bonding. The viewpoint is that of the insurance company. Prerequisite, 301.
- 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.
- Thesis (*)**

LAW, PREPROFESSIONAL PROGRAM

Adviser: S. D. BROWN, 223A Commerce Hall

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 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.

MARKETING

Executive Officer: CHARLES J. MILLER, 300C Commerce Hall

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; a problems course (451, 461, 471, or 491); and 5 credits recommended by the faculty adviser.

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 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. Prerequisite, 301.
- 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.
- 431 Retail Merchandising Problems (3)**
Analysis, planning, and control of stocks, sales, markups, markdowns, shortages, and expenses; open-to-buy; operating statements; unit records and model stocks. Prerequisite, 381.
- 441 Retail Sales Promotion (3)**
The promotion plan and budget; advertising, publicity, salesmanship, and sales supervision; store design and layout; group promotion; coordination of promotional activities. Prerequisite, 301.
- 451 Wholesale and Industrial Marketing Problems (5)**
Analysis of wholesale and industrial marketing problems at the management level. Prerequisite, 371.
- 461 Retail Management Problems (5)**
Analysis of retail problems from the point of view of management. Prerequisite, 381.
- 471 Advertising Problems (5)**
Analysis of advertising problems from the point of view of management. Prerequisite, 391.
- 481 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

- 520, 521, 522 Seminar (3,3,3)**
Social, economic, and business implications of marketing operations, institutions, and policies. Each quarter is concerned with different aspects of the problem. Prerequisites, one marketing course and permission.
- 604 Research (*, maximum 10)**
Prerequisite, permission.

Thesis (*)

OFFICE MANAGEMENT

Executive Officer: KERMIT O. HANSON, 203 Commerce Hall

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 (Credit and Collections); and Personnel 310 (Personnel Management).

PERSONNEL

Executive Officer: EDWARD G. BROWN, 263B Miller Hall

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), 405 (Personality), 413 (Tests and Measurements); Economics 441 (Union-Management Relations), and 442 (American Labor History).

COURSES FOR UNDERGRADUATES

- 310 Personnel Management (5)**
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)**
Practice in using the tools of a personnel administrator: job analysis and description, job evaluation, application blanks, reference letters, employment interviews, employee handbooks, counseling and correction interviews. Prerequisite, 310.
- 346 Personnel Management Techniques (3)**
Practice in using the tools of a personnel administrator: job instruction and job methods, efficiency ratings, safety, and suggestion systems. 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.
- 604 Research (*, maximum 10)**
Prerequisite, permission.
- Thesis (*)**

POLICY AND ADMINISTRATION

Executive Officer: EDWARD G. BROWN, 263B Miller Hall

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

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.

COURSES FOR GRADUATES ONLY

560, 561 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 seminar. Prerequisites, Master of Business Administration candidacy and permission for 560; 560 for 561.

590, 591 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.

596 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.

604 Research (*, maximum 10)

Prerequisite, permission.

Thesis (*)

PRODUCTION

Executive Officer: EDWARD G. BROWN, 263B Miller Hall

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 Castings), 202 (Welding), 203 (Metal Machining) and 417 (Methods Analysis); and one of the following: Production 470; Policy and Administration 470 (Business Policy) or 471 (Problems of the Independent Businessman). 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.

380 Field Work in Production (2, maximum 6)

Open only to students majoring in production. A program of part-time employment planned in advance with the instructor to provide on-the-job training correlated with current reading, periodic reports, and evaluation of experience. Prerequisites, 301 and permission.

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**520, 521 Seminar (3,3)**

Advanced study in policy formation and administration of manufacturing enterprises. Research, reading and reports on current problems in field. 520 has 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. 521 is concerned with the integration of all the major functions of production management toward the major goals of the manufacturing organization. Each course is a separate unit and need not be taken in sequence. Prerequisite, permission.

604 Research (*, maximum 10)

Prerequisite, permission.

Thesis (*)

REAL ESTATE

Executive Officer: JOSEPH DEMMERY, 209 Commerce Hall

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); Finance 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**604 Research (*, maximum 10)**

Prerequisite, permission.

Thesis (*)

SECRETARIAL TRAINING

Executive Officer: JOSEPH DEMMERY, 209 Commerce Hall

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

- 10 Typewriting (1)**
Familiarization with keyboard; development of speed and accuracy; introduction to basic typewriting problems. No credit toward graduation.
- 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, 10, or 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, 300C Commerce Hall

The Transportation curriculum provides training for students who plan careers in the field of transportation and for other business administration students who want an understanding of the transportation industry and industrial traffic management. The requirements for a major are: Business Law 302 (Business Law); Transportation 301, 440; and at least 20 credits from Transportation 311, 313, 315, 317, and 452.

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.

435 Industrial Transportation Problems (5)

Plant location with respect to transportation costs, relative time in transit, considerations in industry location; handling, warehousing, and distribution problems; transportation pricing and claim procedure; liability relationships between carriers. Not open to transportation majors.

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.

452 Transportation Insurance (5)

Contracts of affreightment, marine insurance, general and particular average, salvage, limited liability, and marine collision law.

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.

Thesis (*)**OTHER COURSES IN BUSINESS ADMINISTRATION PROGRAMS****ANTHROPOLOGY****101 Principles of Anthropology: Race (5)**

Evolution and heredity as applied to man; racial classification and its significance. **Staff**

102 Principles of Anthropology: Social Customs (5)

Man's social customs, political institutions, religion, art, literature, and language. **Staff**

103 Principles of Anthropology: Prehistory (5)

Man's cultural development as revealed by archaeology and carried to the beginning of history. **Staff**

280 Theories of Race (2)

Survey of human heredity; racial history; race differences. Not open to students who have had 101, 380, or 390. **Staff**

ARCHITECTURE**100, 101 Architectural Appreciation (2,2)**

Survey of architectural design from a historical viewpoint. **Staff**

105 The House (2)

Analysis of domestic architecture. **Staff**

ART**100 Introduction to Art (5)**

Lectures and studio work. For nonmajors. **Staff**

ASTRONOMY**101 Astronomy (5)**

Star finding, solar system, sidereal universe. **Staff**

BIOLOGY**101J-102J General Biology (5-5)**

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 Zoology. Recommended for education students and those not majoring in the biological sciences. **Staff**

BOTANY**111 Elementary Botany (5)**

Structure, physiology, and reproduction of seed plants. **Staff**

112 Elementary Botany (5)

Structure and relationships of the major plant groups. Prerequisites, 111, one year of high school botany, Biology 101J-102J, or Zoology 111 and 112. **Staff**

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, electro-chemistry, oxidation and reduction. Prerequisites 100 or 110; Mathematics 101 or 103 or passing score on Algebra Placement Test. (Formerly 112.)

CLASSICAL COURSES IN ENGLISH

- 101 Latin and Greek in Current Use (2)** **Staff**
Designed to increase English vocabulary through study of the principles of word building and of Greek and Latin derivatives, with emphasis on words in literary and scientific use. No knowledge of Latin or Greek required.

COMMUNICATIONS**Advertising**

- 226 Introduction to Advertising (3)** **Staff**
A survey of the economics of advertising, its organizational structure, and the elements of copy, production, media, and research. Open to nonmajors.

Communications

- 100 Communications Today (2)** **Staff**
A survey of the fields of communications: newspaper, magazine, radio and television, public relations, propaganda, photo journalism and advertising. Objectives and responsibilities of the various areas of communications. Career opportunities in these fields outlined. 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. Prerequisite, upper-division standing or permission. Open to nonmajors in Autumn Quarter only.

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 and operation 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.

THE DEPARTMENTAL PROGRAMS

55

- 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. Six hundred word vocabulary.
- 102-103 Elementary Russian Language (5-5)** **Staff**
Introduction to pronunciation, spelling, graded reading, essentials of grammar, exercises. 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, 102 The Physical Universe (5,5)** **Staff**
Part I: The universe as a unit; the stars; the solar system; the earth; the basic process; the atom. Part II: The nature of matter; the structure and behavior of the atom; relations between atoms; the elements; combinations of inorganic and organic elements.

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 Introductory Economic Geography (5)** **Staff**
A world survey of classes of economic activities: their distribution, resources used, and commodities produced.

GEOLOGY

- 101 Survey of Geology (5)** **Staff**
- 102 Geology in World Affairs (5)** **Staff**
Geological occurrence, world distribution, and production of coal, petroleum, and the important industrial materials. Prerequisite, 101 or 205.
- 103 Earth History (5)** **Staff**
Geology from a chronological standpoint, including the elements of stratigraphy and paleontology. Prerequisite, 101 or 205.

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.
- 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.

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 reregistered 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.
- 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. Does not count toward a mathematics major. Prerequisites, one and one-half years of high school algebra and qualifying test, or 101.

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.

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.

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 35.
- 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 35.

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

- 50 General Physics (0)** **Staff**
Mechanics and sound; methods for handling problems in physics. For students concurrently registered in 101 with deficiencies. Prerequisite, concurrent registration in 101.
- 101, 102, 103 General Physics (4,4,4)** **Staff**
101: mechanics and sound. Concurrent registration in 107 required. Prerequisites, plane geometry, trigonometry, and one year of high school physics. A deficiency in any one or all

of these prerequisites must be satisfied by concurrent registration in 50. 102: electricity and magnetism. No credit if 112 has been taken. Prerequisites, 101 and concurrent registration in 108. 103: heat, light, and modern physics. No credit if 113 has been taken. Prerequisites, 101 and concurrent registration 109. No credit for 101, 102, 103 without credit in 107, 108, 109, respectively.

107, 108, 109 General Physics Laboratory (1,1,1)

Staff

107: mechanics and sound laboratory to be taken concurrently with 101. 108: electricity and magnetism laboratory to be taken concurrently with 102. 109: heat and light laboratory to be taken concurrently with 103.

POLITICAL SCIENCE

201 Modern Government (5)

Staff

The nature and function of political institutions in the major national systems.

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

Prerequisites, for -102, 101- or second high school semester with grade of C or D; for 103, -102, or second high school semester with A or B, or third high school semester.

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. The methods and objectives are primarily oral-aural. Prerequisites, 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

Prerequisites, 110- for -111; -111 for 112 or grade of A or B in the second high school semester or any passing grade in the third high school semester.

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

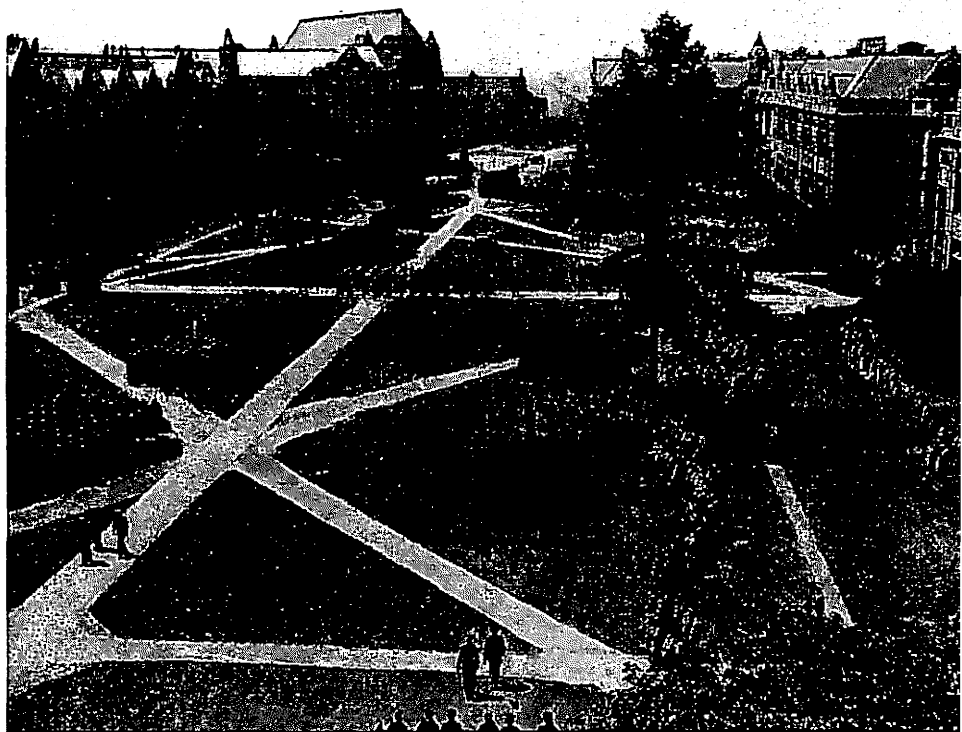
Analysis of the processes of social and personal disorganization and reorganization in relation to poverty, crime, suicide, family disorganization, mental disorders, and similar social problems. Prerequisite, 110 or 310.

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 social interaction, with emphasis on the more informal uses of speech in daily life. Frequent conferences with instructor.
- 110 Voice Improvement (2)** **Staff**
The study and improvement of factors influencing vocal quality, pitch, loudness, and duration as based on adequate breathing, phonation, and resonance.
- 111 Articulation Improvement (2)** **Staff**
A study of the sound system of American speech as applied to training in articulation and pronunciation.
- 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. Prerequisite, 111.



RESERVE OFFICERS TRAINING PROGRAMS

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 not less than three years, and to remain in the reserve of their service until the sixth anniversary of the date of their commission.

ROTC courses are included in the freshman and sophomore curricula of all male students (see page 33). 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: JACK R. BANKS, 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 within quota limitations subject to the approval of the Professor of Air Science. One criterion for military deferment is good standing at the University, which means the student must: (1) maintain an acceptable grade-point average; (2) be registered for at least 15 academic credits per quarter, exclusive of required lower-division ROTC and physical education activity; and (3) earn at least 45 academic credits during each academic year.

Students who are given an ROTC deferment agree to complete four years of ROTC, accept a commission, if offered, then serve three years on active duty when called, unless sooner relieved, and three additional years in a reserve organization.

First-year Air Force ROTC students are given an introductory course in the theory of flight, followed by a study of fundamentals of global geography, international tensions and security organizations, and instruments of national military security. This sequence of courses requires classroom attendance two hours each week. First-year students 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 the emphasis is moved to a study of aerial warfare and the Air Force itself. 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 receive equivalent credit for active service in the military forces of the United States.
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 appointments as a second lieutenant before his twenty-eighth birthday.
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, unless excused or dismissed from this requirement by authority of the Secretary of the Air Force.

The two-year advanced course requires classroom attendance four hours a week, plus one hour of practice in the leadership laboratory. Between the first and second years, students attend summer camp for four weeks.

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. Students 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 matters should be addressed to the Professor of Air Science.

COURSES FOR UNDERGRADUATES

- 131, 132, 133 Air Science I—Basic (2,2,2)** **Staff**
 Details of the Air Force ROTC program; the significance of the individual's obligations for military service; introduction to aviation; fundamentals of global geography; factors of world power; the nation's defense organization; drill.
- 231, 232, 233 Air Science II—Basic (2,2,2)** **Staff**
 The purpose, process, and primary elements of aerial warfare; targets, weapons, delivery aircraft, operations, and bases; purpose and provisions of the Air Force Officer Career Program; survey of occupational fields open to Air Force officers; opportunities for and obligations of a career in the Air Force as an officer or airman; cadet non-commissioned-officer training.
- 301, 302, 303 Air Science III—Advanced (3,3,3)** **Staff**
 Command and staff concepts; leadership laboratory; problem-solving techniques, communications processes; principles and techniques of learning and teaching; Air Force correspondence and publications; military law—courts and boards; aerial navigation, and weather; functions of the Air Force base.
- 304 Air Science III—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 IV—Advanced (3,3,3)** **Staff**
 Critique of summer camp; Air Force leadership and management; relationship of geographical factors to national strength and international power patterns; foundations of national power; military aviation and the art of war; career guidance; briefing for commissioned service.

MILITARY SCIENCE AND TACTICS

Professor of Military Science and Tactics: WALTER A. RUDE, Army ROTC Building

Qualifications for entrance to the Army Reserve Officers Training Corps are in accordance with University requirements and Department of the Army regulations. Participation in the Army ROTC program may permit deferment from the draft under the Universal Military Training and Service Act of 1951.

Courses in the first and second years of the basic program require classroom attendance two hours each week. First and second year students are introduced to American military history, organization of the Army, map reading, and individual and crew-served weapons. 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 are eligible for entrance to the advanced Army ROTC, which is designed to train professionally qualified officers. Students in the advanced course are chosen from the group of most highly qualified students who have completed the basic program of senior-division ROTC, or have had twelve months or more of honorable active service in the military forces of the United States. Each student accepted for the advanced program must:

1. Not have reached twenty-seven years of age at the time of initial enrollment in the advanced course.
2. Execute a written agreement with the government to complete the advanced course contingent upon remaining in the University.
3. Be selected by the Professor of Military Science and Tactics and the President of the University.
4. Successfully complete whatever general survey and screening tests are prescribed.
5. Complete the course as a prerequisite for graduation from the University, unless excused or dismissed from this requirement by authority of the Secretary of the Army.

Courses in the advanced program require classroom attendance four hours a week, plus one hour of practice in leadership, drill, and exercise of command. Advanced students are given courses in small unit tactics and communications, organization and functions of various arms and services, logistics, operations, and military administration. In addition, a summer camp is attended for six weeks between the first and second years of the advanced program. Students who so

desire and who meet the necessary criteria may take flight training during the senior year. This training is in addition to the normal ROTC course and entails an obligation for an additional year of active duty after graduation.

Advanced Army ROTC students are paid a monetary allowance at a daily rate not to exceed the value of the commuted ration. Currently the cadets receive 90 cents a day. The allowance is in addition to benefits received through the World War II G.I. Bill. However, payment at summer camp will fall under Public Law 512, 80th Congress, Veterans Regulation 1, which may require a refund to the Veterans Administration for subsistence allowance advanced by them.

Regulation ROTC uniforms are issued to students in the basic program, and uniforms similar to those of Army officers are issued to students in the advanced program. Students are normally required to wear the uniform on drill days; wearing it to ROTC classes other than drill is optional. At the time of registration each student must make a \$25.00 deposit, which is refunded in full when the uniform is returned undamaged. The Army furnishes all textbooks and equipment used in military science classes.

Inquiries about enrollment or other matters should be addressed to the Professor of Military Science and Tactics.

COURSES FOR UNDERGRUATES

- 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 (objective and scope); 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: T. D. F. LANGEN, 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 seventy 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 sixteen and twenty-one on July 1 of the year of entrance.
3. Meet physical requirements, which include vision of 20/40, corrected to 20/20, no cavities in teeth, and height between 65½ and 76 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.

Students with not more than one year of previous attendance in college are eligible if they meet the qualifications and agree to finish the four-year program.

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 Educational Testing Service, Box 592, Princeton, New Jersey, 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 of fire control; aviation ordnance.

- 212 Fire Control (3)** **Staff**
Surface fire control; battery alignment; antiaircraft fire control.
- 213 Applied Naval Electronics (3)** **Staff**
Advanced fire control; radar, sonar; C.I.C.; shore bombardment; guided missiles; nuclear explosives; underwater ordnance; rockets.

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. (Formerly 400.)
- 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.

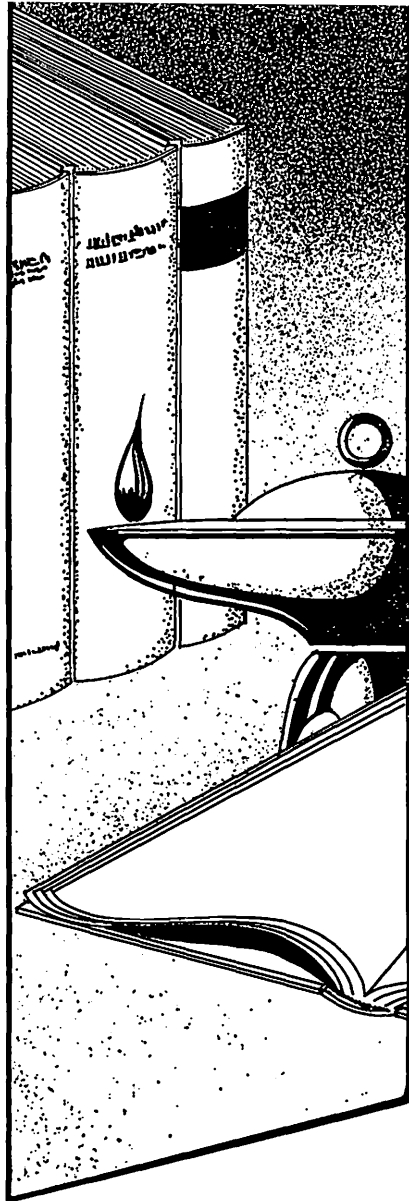
MARINE CORPS

- 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 Introduction to Supply, Naval Finance, and Basic Naval Accounting (4)** **Staff**
Introduction to Supply Corps and accounting principles; national security organizations; naval finance; appropriations; cost and fidelity accounting.
- 312S Advanced Naval Accounting, Basic Supply Afloat (4)** **Staff**
Reports and returns; property and stores accounting; organization and administration of supply afloat; material identification, classification, and allowance.
- 313S Supply Afloat, Intermediate (4)** **Staff**
Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.
- 411S Advanced Supply Afloat and Basic Ships' Stores (4)** **Staff**
Records, reports, and returns for supply afloat, and ships' store operating procedure.
- 412S Advanced Ships' Stores, Commissary, Clothing, and Small Stores (4)** **Staff**
Records, reports, and returns for ships' stores, commissary, clothing, and small stores.

**BULLETIN
UNIVERSITY
OF
WASHINGTON**



**DEPARTMENT OF
CORRESPONDENCE
STUDY**

1958-60

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; and publications of the Division of Adult Education and Extension Services, 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.

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
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EVENING CLASSES

BULLETIN
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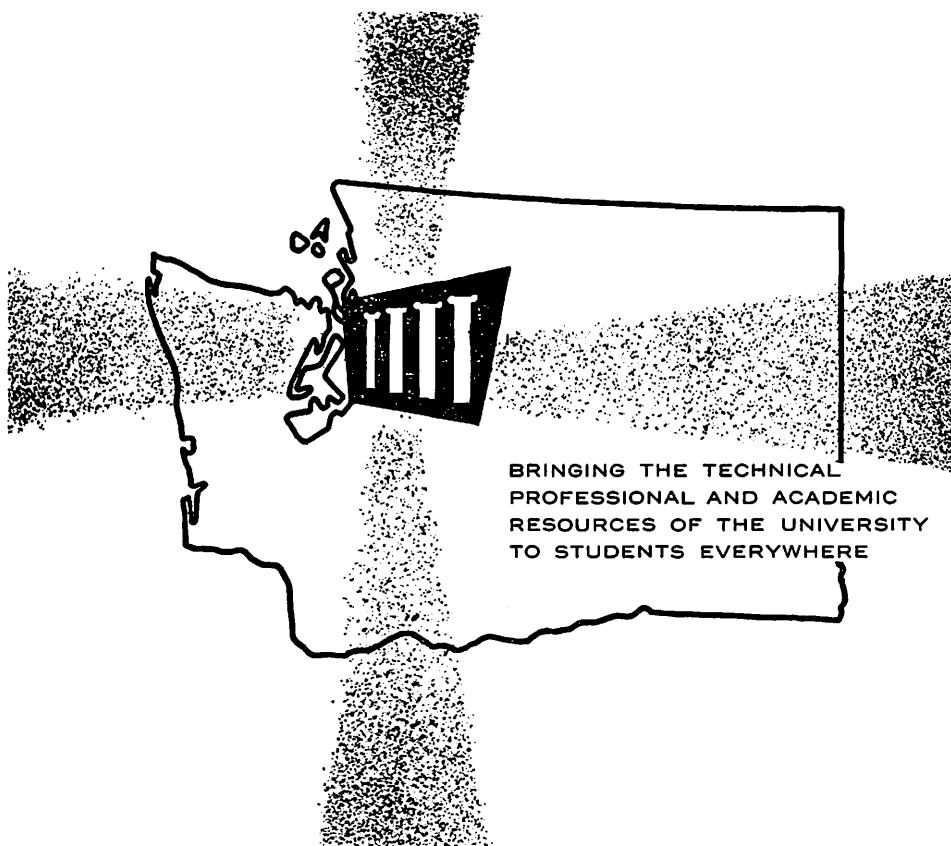
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BINNS, ARCHIE, A.B.....	<i>English</i>
CORNU, ELIZABETH, M.A.....	<i>English</i>
HEFFELFINGER, CHARLES H., M.A.....	<i>History</i>
IRWIN, JUDITH.....	<i>English</i>
RYBERG, VIOLET, M.A.....	<i>Geography</i>
THOMPSON, JOHN W., M.A.....	<i>Botany</i>

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.



BRINGING THE TECHNICAL
PROFESSIONAL AND ACADEMIC
RESOURCES OF THE UNIVERSITY
TO STUDENTS EVERYWHERE

GENERAL INFORMATION

GENERAL INFORMATION

THE 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.

Tuition 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.

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.

Tuition 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 $1\frac{1}{2}$ 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 Division of Adult Education and Extension Services. 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 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 8 $\frac{1}{2}$ " 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.

TUITION AND FEES

1. *Rates.* Tuition 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 accompany 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 of these courses are available to veterans under Public Law 550. Information on the regulations may be obtained from the Department of Correspondence Study upon request. Be sure to indicate under which law you are eligible.

APPLICATION FOR REGISTRATION

Mail to: DEPARTMENT OF CORRESPONDENCE STUDY, 402 Administration Building
University of Washington, Seattle 5, Washington

Name of applicant in full, Mr., Mrs., Miss:

----- Last Name	----- First Name	----- Middle Name	----- Maiden Name
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Address in full -----

----- Street and Number	----- City and Zone	----- State
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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

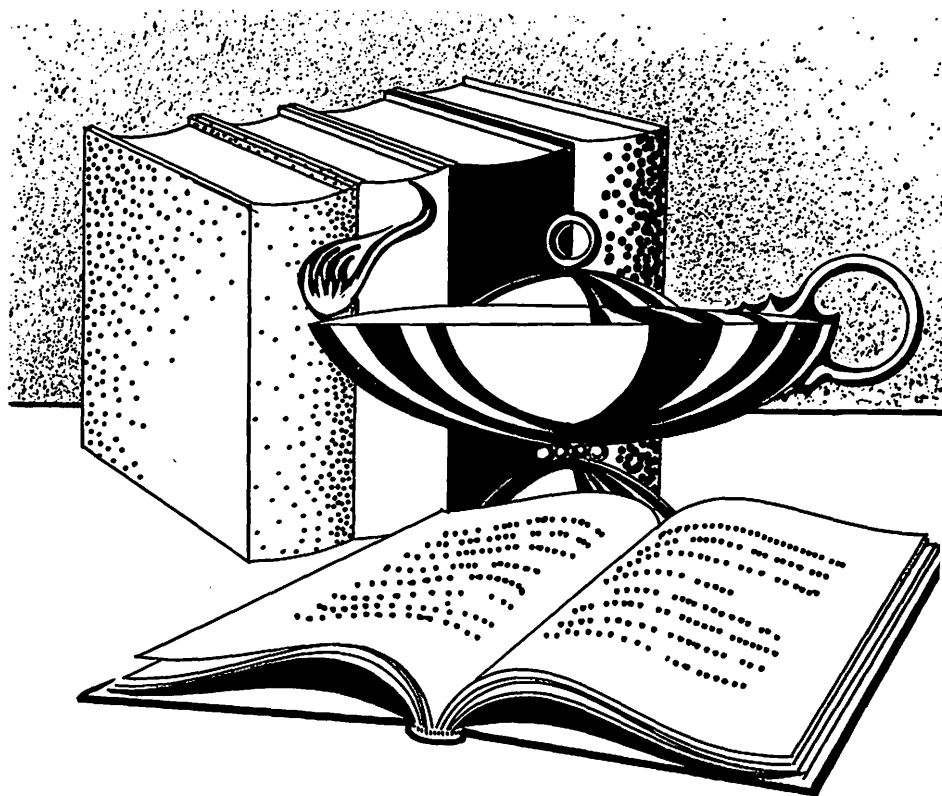
Lesson Paper: Printed First Sheets \$0.25
Plain Second Sheets at 20 cents a block

Total

All tuition 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

HOME STUDY COURSES

ANTHROPOLOGY

- 101c Principles of Anthropology: Race (5)** **Garfield**
Evolution and heredity as applied to man; racial classification and its significance. (30 lessons, \$40.00)
- 102c Principles of Anthropology: Social Customs (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, 103. (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)

a: First half of a course.

b: Second half of a course.

c: Correspondence course.

-: Hyphen indicates a hyphenated course, which must be followed 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. (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; financial statements; functions of accounts; trial balances; balance sheets; profit and loss statements; books of original entry ledgers; business forms and papers. (24 lessons, \$32.00)
- 151c Fundamentals of Accounting (3)** **Hamack**
Elements of manufacturing, partnership and corporation accounts; correct classification; manufacturing and cost accounts; controlling accounts and subsidiary ledgers; voucher systems. Prerequisite, 150. (18 lessons, \$24.00)
- 255 Basic Accounting Analysis (3)** **Hamack**
Financial and cost analysis and interpretation. Prerequisite, 150. (18 lessons, \$24.00)
- 310c Intermediate Accounting (5)** **Storey**
Advanced theory on inventory valuation, depreciation, etc. Construction and interpretation of accounting standards and measures; analysis of financial statements. Problems in report writing. Prerequisite, 255. (30 lessons, \$40.00)
- 320c Income Tax I (3)** **Roller**
Federal Revenue Acts and their application to tax returns, and to individuals and different types of business organizations. Prerequisite, 310. (18 lessons, \$24.00)
- 330c Cost Accounting (5)** **Storey**
Economics of cost accounting; industrial analysis; production control through costs; types of cost systems; burden application. Prerequisite, 255. (30 lessons, \$40.00)
- 420c Income Tax II (3)** **Roller**
Special problems in income tax, including fiduciaries, corporate reorganization, appeals, estate and gift taxes. Prerequisite, 320. (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**
Statistical methods and their application to practical economic and business problems. Use of business ratios, averages, and measures of dispersion. Techniques of time-series analysis and construction of index numbers. Modern method used in the collection, preparation, analysis, and presentation of quantitative data. Prerequisite, General Business 101. (30 lessons, \$40.00)

BUSINESS WRITING

- 310c Business Correspondence (5)** **Peck**
Study of business writing principles (clarity, conciseness, tone, "you" attitude, organization, and correctness) and types of letters used in business. Emphasis is on writing effective letters. (30 lessons, \$40.00)

FINANCE

- 201c Banking and Business (5)** **Henning**
Functions of money; principles of banking with special reference to the banking system of the United States; services of banks and other credit-granting institutions in financing business; an introduction to the short-term financial problems of business enterprise. Prerequisites, Accounting 151; Economics 200 and 201. (30 lessons, \$40.00)

- 301c Financial Management (5)** **Mueller**
Formation and financial organization of the business enterprise; corporate securities; promotion; long-term financing of various types of businesses; marketing of securities; working capital analysis; sources of short-term funds; income determination; reserve and dividend policies; financing expansion; failure and reorganization. Prerequisite, 201. (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)** **Staff**
The nature of business problems; various types of ownership; physical factors involved in location of business; personnel aspects; marketing problems, devices, and institutions; devices for long- and short-term financing; managerial controls, such as accounting, statistics, and budgets; and the relation of business to government. (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

- 31c Insurance Agents' 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)

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)

SECRETARIAL TRAINING

- 10c Typewriting (1)** **Burr**
Keyboard introduced; also letter writing, manuscript writing, tabulation, and composition at the machine. (24 lessons, \$32.00)
- 120c Gregg Shorthand (3-)** **Burr**
Theory of Gregg Shorthand. Students who present one or more units of shorthand as entrance credit cannot receive credit for 120-. (18 lessons, \$32.00)
- 130c Thomas Shorthand (3-)** **Burr**
Theory of Thomas Shorthand. Students who present one or more credits of shorthand as entrance credit may not receive credit for 130-. (18 lessons, \$32.00)

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

- 411c, 412c Playwriting (3,3)** **Redford**
Professional course. Principles and technique of dramatic composition with experimental creative work. Emphasis on the practical aspects of playwriting exemplified by contemporary theatre students. Prerequisite, one quarter of English 328 or 329. (18 lessons each, \$24.00 each)
- 427c, 428c, 429c 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. (12 lessons each, \$16.00 each)
- 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)** **Myers**
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)
- 350c Public Finance and Taxation I (5)** **Lampman**
Principles of taxation, tax forms and practices, public expenditure, public credit, and public budgetary policy. Prerequisite, 200. (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. Prerequisites, 209, 370; 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. Prerequisites, 209, 370; Spanish 303 and 358, or concurrently, and permission of instructor. (12 lessons, \$16.00)
- 360c Principles of Education (3)** **Draper**
A study of the profession of teaching, foreign education programs, guidance and counseling, vocational education, extracurricular activities, and curriculum improvement. Reading assignments. (18 lessons, \$24.00)
- 370c Introduction to Teaching Procedures (5)** **Boroughs**
A course designed for the purpose of acquainting the student with the fundamental techniques and methods of teaching. Practical considerations are stressed. Actual classroom teaching situations are observed on the elementary, junior, and senior high school levels. (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. Open to teachers who have not passed the State Manual examination. (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 of teaching these to elementary students. The subject matter includes that 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)** **Batie**
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. Credit may be applied toward administrators' credentials in group "A." (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**
Consideration of the development, principles, and practical methods of implementing a school program of safety education. Types of school programs in elementary and secondary schools, safety under school jurisdiction, coordination of safety education programs. (18 lessons, \$24.00)
- 417c Adult Education (3)** **Jessup**
The purpose of this course is to present principles and methods and to offer suggestions for directing the continued educational growth for those whose intellectual curiosity, ambition, and desire for greater social service prompts them to seek ways and means for self-improvement. (18 lessons, \$24.00)
- 425c Remedial Reading (3)** **Fea**
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)
- 432c City School Administration (4)** **Jessup**
For those preparing for superintendencies, principalships, and other supervisory positions. (24 lessons, \$32.00)
- 433c Elementary School Organization and Administration (3)** **Jessup**
Organization of the principal's work; professional leadership; supervision of instruction; office routine; selection of texts; selection of teachers; community leadership. (18 lessons, \$24.00)
- 434c High School Organization and Administration (3)** **Strayer**
General plans for secondary school organization and administration; types of junior and senior high schools; advantages and disadvantages of 8-4, 6-3-3, 6-6, 6-4-4, and 7-5 plans; program-making; pupil adjustment; principal and department heads; extension of the programs to include the thirteenth and fourteenth years. (18 lessons, \$24.00)

- 435c Administration and Supervision of Junior High Schools (3)** **Strayer**
Objectives, curricula, and the community; schedules and budgets for curricular and co-curricular activities; school plant; improvement of instruction; guidance and discipline; school organization; evaluation of the total program. (18 lessons, \$24.00)
- 436c State and County School Administration (4)** **Jessup**
Study of federal and state policies and organization, development of state and county control, administration and financial support. (24 lessons, \$32.00)
- 437c School Supervision (3)** **Jessup**
Criteria for good teaching, evaluating good teaching, and means of improving the teachers in service. (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**
Relation of federal and state governments to local administration. 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. Role of guidance in present-day education; tools and techniques; organization and evaluation. Advisory systems, child accounting, classification, promotions, plans, predictions, placement. For teachers and administrators. (18 lessons, \$24.00)
- 448c Improvement of Guidance Techniques (3)** **Vopni**
Designed for teachers, administrators, and counselors. The use of sociometrics, group tests, anecdotal records, family autobiography, and other guidance techniques in school procedures. Emphasis in the course will be placed upon the use of the techniques in projects in the individual's own classroom or school. (18 lessons, \$24.00)
- 461c Elementary School Curriculum (3)** **Jessup**
A study of the child as a growing organism, developing personality, and as a learner. Describes the curriculum as the guiding life of the school; subjects, time schedules, principles, objectives, activities, classification, adaptation, projects. Discusses the development of units, utilization and evaluation of curriculum material. (18 lessons, \$24.00)
- 464c Principles of Curriculum Improvement (3)** **Draper**
An intensive study of the basic principles and procedures utilized in the development of curriculum materials. Contributions of philosophy and psychology; modern industrial development; general education or core curriculum; resources and materials; the teacher, administrator, and pupil in curriculum planning. (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)
- 475Nc Introduction to the Literature of Nature Study (2)** **Vopni**
Study of books dealing with elementary nature work, suitable for use by grade school teachers and group leaders as reference material for preparing talks, and for use as readers for children. The most interesting nontechnical books dealing with the various branches of nature study will be assigned to be evaluated from the point of view of scientific accuracy and usefulness. (12 lessons, \$16.00)
- 475Sc Improvement of Teaching: 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)
- 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 historic beginnings of education. Preliterate education, beginnings in the Orient, Greece, Rome, the Medieval period, the Renaissance, and modern times. Shows 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**
Deals with the school systems of England, Germany, France, Italy, and Russia. An interpretation in terms of the political philosophy of each country. Influence upon educational theories and practices in America. (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.
- 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.
- 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 Drawing (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 Drawing (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

- 45c Current Reading for Enjoyment (0)** **Adams**
Reviews and written discussion of new books chosen primarily for the reader's enjoyment. (12 lessons, \$16.00)
- 50c Basic Grammar (0)** **Irwin**
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 (5)** **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. (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)** **Binn**
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)
- 440ac, 440bc Social Ideals 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 Ideals 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)** **Suh**
Prerequisite 304 or equivalent. (30 lessons, \$40.00)
- 406c, 407c Advanced Korean Reading (5,5)** **Suh**
Prerequisite, 405. (30 lessons each, \$40.00 each)

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. (39 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- Introductory Economic Geography (5)** **Ryberg**
World survey of major occupations; their distribution, resources used, and commodities produced. (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- Second-Year Reading (5)** **Meyer**
Vocabulary building, modern prose. Prerequisite, 112 or two years high school German. (30 lessons, \$40.00)
- 205c- Second-Year Reading (3)** **Meyer**
Prerequisite, 112 or two years of high school German. Not open for credit to students who have taken 204. (18 lessons, \$24.00)
- 206c- Second-Year Reading (2)** **Meyer**
Prerequisite, 112 or two and one-half years of high school German. Not open for credit to students who have taken 204. (12 lessons, \$16.00)
- 207c- Second-Year Grammar Review (3)** **Reed**
Systematic grammar review with a complete, introductory college German text as basis. Prerequisite, 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)

HOME ECONOMICS

- 433c- History of Costume and Textiles (4)** **Payne**
Relationship of the fashions of each historic period to their aesthetic and social backgrounds. The survey begins with the ancient Egyptians and continues to the twentieth century. Source material for professional designers. Prerequisites, 334 or 338. (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 three terms 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. (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, 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)
- 421c, 422c Differential Equations (3,3)** **Zuckerman**
 Elementary methods of solution, linear differential equations, systems of differential equations, series solutions. Prerequisites, 253 for 421; 421 for 422. (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. (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)
- 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)
- 475c 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)

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, 200 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. Prerequisite, 100. (30 lessons, \$40.00)
- 307c Psychology of Adolescence (3)** **Sarason**
A survey of the physical and personality development of the adolescent. Prerequisite, 306. (18 lessons, \$24.00)
- 331c Applied Psychology (3)** **Culbert**
An attempt to approach, through objective and scientific techniques, practical problems of human behavior arising in personal, industrial, legal, and related areas. Human efficiency, testimony, accident proneness, and vocational choice are typical subjects touched upon. Prerequisite, 100. (18 lessons, \$24.00)
- 345c Social Psychology (3)** **Edwards**
Psychology of human institutions. Prerequisite, 100. (18 lessons, \$24.00)

ROMANCE LANGUAGES AND LITERATURE

FRENCH

- 101c-102c, 103c Elementary (5-5,5)** **Simpson**
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)
- 237c, 238c Lower-Division Scientific French (3,3)** **David**
Class reading with emphasis on constructions and scientific terms. Prerequisite, 201 or equivalent. (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 and romantic 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. (18 lessons, \$24.00)
- 443c Drama (2)** **Simpson**
Modern drama. Eleven assignments plus examination. Study and critical analysis of representative plays of the twentieth century. (12 lessons, \$16.00)

ITALIAN

- 101c-102c, 103c Elementary (5-5,5)** **Staff**
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)** **Budel**
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)** **Staff**
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 or B in -102 or 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. (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. (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. (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, -102 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 drama and prose fiction. 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)
- 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 on next page, 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.

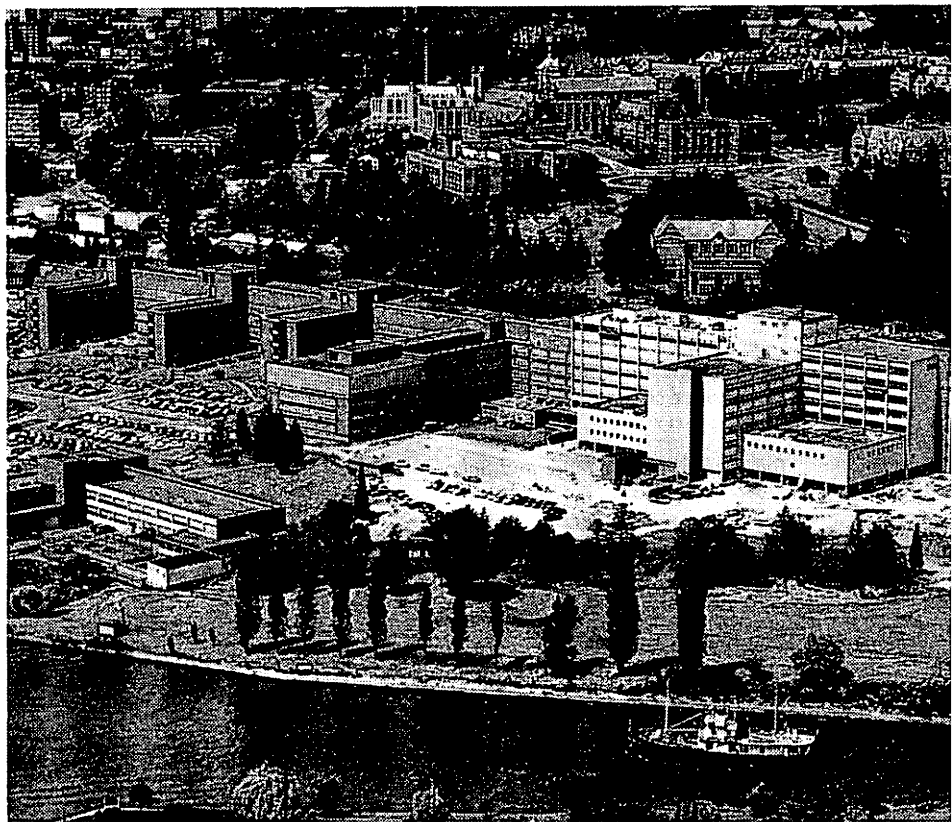
HISTORY

- Ac Preparatory Ancient History (1/2 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 (1/2 unit)** **Heffelfinger**
Development of Roman history to 400 A.D. (15 lessons, \$20.00)
- Ac Preparatory European History (1/2 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 (1/2 unit)** **Heffelfinger**
Covering the early modern period from the Protestant Revolt to 1870. (15 lessons, \$20.00)
- Ac Preparatory United States History (1/2 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 (1/2 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 (1/2 unit)** **Zuckerman**
Similar to the first term of high school algebra. (18 lessons, \$24.00)
- Bc Survey of Elementary Algebra (1/2 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 (1/2 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 (1/2 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
1958-1960**

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 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 Registrar.

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
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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CALENDAR

All fees must be paid at the time of registration.

AUTUMN QUARTER, 1958

SEPT. 17—WEDNESDAY	Instruction begins, Third Year Students (8 a.m.)
OCT. 1—WEDNESDAY	Instruction begins, First, Second and Fourth Year Students (8 a.m.)
NOV. 11—TUESDAY	State Admission Day holiday
NOV. 26—DEC. 1	Thanksgiving recess
DEC. 15—DEC. 19	Examinations
DEC. 19—FRIDAY	Instruction ends

WINTER QUARTER, 1959

JAN. 5—MONDAY	Instruction begins, All Four Classes (8 a.m.)
FEB. 23—MONDAY	Washington's Birthday and Founder's Day holiday
MAR. 16—MAR. 20	Examinations
MAR. 20—FRIDAY	Instruction ends

SPRING QUARTER, 1959

MAR. 30—MONDAY	Instruction begins, All Four Classes (8 a.m.)
MAY 30—SATURDAY	Memorial Day holiday
JUNE 8—JUNE 12	Examinations
JUNE 12—FRIDAY	Instruction ends
JUNE 13—SATURDAY	Commencement

SUMMER QUARTER, 1959 — For Graduate Students

JUNE 22—MONDAY	Instruction begins
SEPT. 4—FRIDAY	Instruction ends

AUTUMN QUARTER, 1959

SEPT. 16—WEDNESDAY	Instruction begins, Third Year Students (8 a.m.)
SEPT. 30—WEDNESDAY	Instruction begins, All Four Classes (8 a.m.)
NOV. 11—WEDNESDAY	State Admission Day holiday
NOV. 25—NOV. 30	Thanksgiving recess
DEC. 14—DEC. 18	Examinations
DEC. 18—FRIDAY	Instruction ends

WINTER QUARTER, 1960

JAN. 4—MONDAY	Instruction begins, All Four Classes (8 a.m.)
FEB. 22—MONDAY	Washington's Birthday and Founder's Day holiday
MAR. 14—MAR. 18	Examinations
MAR. 18—FRIDAY	Instruction ends

SPRING QUARTER, 1960

MAR. 28—MONDAY	Instruction begins, All Four Classes (8 a.m.)
MAY 30—MONDAY	Memorial Day holiday
JUNE 6—JUNE 10	Examinations
JUNE 10—FRIDAY	Instruction ends
JUNE 11—SATURDAY	Commencement

SUMMER QUARTER, 1960 — For Graduate Students

JUNE 20—MONDAY	Instruction begins
SEPT. 5—FRIDAY	Instruction ends

ADMINISTRATION

BOARD OF REGENTS

HAROLD S. SHEFELMAN, <i>President</i>	Seattle
JOHN L. KING, <i>Vice-President</i>	Seattle
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MRS. A. SCOTT BULLITT	Seattle
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MRS. J. HERBERT GARDNER	La Conner
CHARLES M. HARRIS	Entiat
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>
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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>
MAURICE J. HICKEY, D.M.D., M.D.	<i>Dean of the School of Dentistry</i>

BOARD OF HEALTH SCIENCES

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MAURICE J. HICKEY, D.M.D., M.D.	<i>Dean of the School of Dentistry</i>
HENRY A. BURD, Ph.D.	<i>Acting Dean of the Graduate School</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>
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LLOYD S. WOODBURN, Ph.D.	<i>Dean of the College of Arts and Sciences</i>
MARY ADAMS, <i>Secretary</i>	

OFFICERS OF THE SCHOOL OF DENTISTRY

MAURICE J. HICKEY, D.M.D., M.D.	<i>Dean</i>
BERTON E. ANDERSON, D.M.D.	<i>Assistant Dean</i>
SAUL SCHLUGER, D.D.S.	<i>Director of Graduate Dental Education</i>
ESTHER M. WILKINS, B.S., R.D.H., D.M.D.	<i>Director of Department of</i> <i>Dental Hygiene</i>

OTHER ADMINISTRATIVE OFFICERS

JEAN ASHFORD, B.A.	<i>Acting Librarian, Division of Health Sciences</i>
DERWIN R. DEMERS	<i>Assistant Business Manager, Division of Health Sciences</i>
JOHN M. FLETT	<i>Manager of Dental Supplies</i>
CLIFFORD L. FREEHE	<i>Chief Dental Photographer and Television Coordinator</i>
DONALD HISCOX, B.F.A.	<i>Administrative Assistant, Division of Health Sciences</i>
RICHARD JOHNSON	<i>Hospital Buyer</i>
DOROTHY D. KIPPLE	<i>Administrative Assistant, School of Dentistry</i>
T. W. PENFOLD, D.V.M.	<i>Veterinarian</i>
JESSIE PHILLIPS, B.F.A.	<i>Director of Medical Illustration,</i> <i>Division of Health Sciences</i>
LEROY S. RAMBECK, B.A.	<i>Hospital Administrator</i>
SEYMOUR M. STANDISH	<i>Assistant to the Chairman, Division of Health Sciences</i>

FACULTY, SCHOOL OF DENTISTRY

DENTAL MATERIALS

- GILBERT, Howard I., 1949
Clinical Associate in Dental Materials;
Director of the Department of Dental
Materials
D.M.D., 1917, Oregon
- PLUMMER, Ralph E., 1948
Clinical Associate in Dental Materials
D.M.D., 1914, Oregon

DENTAL SCIENCE AND LITERATURE

- ANDERSON, Berton Emmett, 1948
Professor of Dental Science and Literature
D.M.D., 1925, 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
- FORD, Jack W., 1954
Clinical Assistant in Fixed Partial
Dentures
B.S., 1940, Washington State; D.M.D.,
1949, Oregon
- GIBB, George H., 1954
Clinical Assistant in Fixed Partial
Dentures
B.Sc., 1950, D.D.S., 1952, Alberta
- GUTHRIE, John D., 1950
Clinical Associate in Fixed Partial
Dentures
D.M.D., 1928, Oregon
- HAGEN, William H., 1947
Clinical Associate in Fixed Partial
Dentures
D.D.S., 1920, Minnesota
- HANFORD, E. Matthew, 1957
Instructor in Fixed Partial Dentures
(Now on leave of absence)
D.D.S., 1957, Washington
- HARRISON, Richard P., 1957
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
- NORDENG, Harold, 1957
Clinical Assistant in Fixed Partial
Dentures
D.D.S., 1951, Washington
- SCHULTZ, Arthur G., 1957
Clinical Associate in Fixed Partial
Dentures
D.M.D., 1924, Oregon
- 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
- WARNICK, Myron E., 1956
Instructor in Fixed Partial Dentures
D.D.S., 1955, Alberta
- YOSHINO, Keith H., 1957
Clinical Assistant in Fixed Partial
Dentures
D.D.S., 1956, Washington

DEPARTMENT OF OPERATIVE DENTISTRY

- BURKE, Joseph L., 1954
Instructor in Operative Dentistry
D.D.S., 1952, Iowa
- CANFIELD, Robert C., 1951
Clinical Associate in Operative Dentistry
D.D.S., 1951, Washington
- ELLSPERMAN, George A., 1957
Special Lecturer in Operative Dentistry
D.D.S., 1917, Southern California
- GREY, John M., 1955
Clinical Associate in Operative Dentistry
B.A., 1934, Carleton College; B.S., 1945,
Oregon; D.D.S., 1947, Oregon
- HAMILTON, Alexander Ian, 1949
Associate Professor in Operative
Dentistry; Clinical Co-ordinator
D.D.S., 1936, Toronto; B.A., 1953,
Washington
- HASS, Glen W., 1955
Clinical Associate in Operative Dentistry
B.S., 1945, D.D.S., 1946, Northwestern
- HODSON, Jean E., 1952
Instructor in Operative Dentistry
(Ceramics and Oral Anatomy)
B.S., 1952, M.S., 1958, Washington
- HOPPERS, James E., 1957
Instructor in Operative Dentistry
B.S., 1939, Illinois Wesleyan University;
D.D.S., 1950, School of Dentistry,
Loyola
- KORN, James H., 1957
Instructor in Operative Dentistry
D.D.S., 1957, Washington
- OSTLUND, Lyle E., 1950
Clinical Associate in Operative Dentistry
D.M.D., B.S., 1947, Oregon
- PHELPS, Gilbert M., 1954
Instructor in Operative Dentistry
B.S., D.D.S., 1951, Nebraska

- SCHROETER, Charles, 1950
Assistant Professor of Oral Anatomy
- STIBBS, Gerald D., 1948
Professor of Operative Dentistry and Fixed Partial Dentures; Executive Officer of the Department of Operative Dentistry; Director of the Dental Operatory
- 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
- COX, Herschel A., Jr., 1956
Clinical Assistant in Oral Diagnosis
- B.S., 1948, D.D.S., 1953, 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
- ROSS, Russell, 1957
Clinical Assistant in Oral Diagnosis
- A.B., 1951, Cornell; D.D.S., 1955, Columbia
- ZECH, Jerome Monroe, 1955
Consultant in Oral Roentgenology
- B.S., 1949, D.D.S., 1952, Washington

ORAL PATHOLOGY

- 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

ORAL SURGERY

- DORE, George David, Jr., 1949
Clinical Associate in Oral Surgery
- D.D.S., 1941, Northwestern
- 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
- HOUSEHOLDER, James R., 1955
Clinical Associate (Special Lecturer) in Oral Surgery
- M.D., 1948, Iowa
- JOHNSON, Robert Edward, 1949
Clinical Associate in Oral Surgery
- D.D.S., 1944, M.S., 1948, Michigan
- IVERSON, James R., 1957
Clinical Assistant in Oral Surgery
- D.D.S., 1953, University of Washington

- 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
- WANAMAKER, Frank H., 1947
Professor of Major Oral Surgery
- D.D.S., 1922, M.S., 1929, Northwestern
- WESTERBERG, Milton L., 1956
Clinical Assistant in Oral Surgery
- D.D.S., 1948, M.S.D., 1953, Washington

ORTHODONTICS

- BISHOP, Everard Allen, 1949
Clinical Associate in Orthodontics
- D.D.S., 1952, Washington
- BOLTON, Wayne A., 1954
Clinical Assistant 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; Director of Graduate Dental Education
- D.D.S., 1941, California; M.S., 1948, Illinois
- PHILBRICK, Richard C., 1953
Clinical Associate in Orthodontics
- B.S., 1942, D.D.S., 1943, California
- RAYNES, John C., 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 Assistant in Orthodontics
- D.D.S., 1949, Marquette; M.S., 1950, Washington
- BAIRD, Frank P., 1953
Clinical Assistant in Pedodontics
- D.D.S., 1950, M.S., 1952, Washington
- BLANCHER, Robert B., 1957
Clinical Assistant in Pedodontics
- D.D.S., 1950, Washington
- BOWLER, Frank T., 1947
Clinical Associate in Pedodontics
- D.M.D., 1945, Oregon

PEDODONTICS

- COLEMAN, Clarence I., 1949
Clinical Associate in Pedodontics
Ph.C., 1932, D.M.D., 1946, Oregon
- 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)
- ROGERS, John R., 1952
Clinical Assistant in Pedodontics
B.S., 1943, United States Coast Guard Academy; D.D.S., 1951, Northwestern
- SCHUMACHER, Erwin R., 1957
Clinical Assistant and Research Associate in Pedodontics
B.A., 1948, Iowa State Teacher's College; D.D.S., 1956, Iowa
- SUPERNAW, Eugene W., 1957
Clinical Assistant in Pedodontics
D.D.S., 1953, Marquette; M.S., 1955, Washington

PERIODONTICS & ENDODONTICS

- BELL, John Allen, 1952
Clinical Associate in Periodontics and Endodontics
D.D.S., 1952, Washington
- BRAYSHAW, Col. Horace A., 1957
Lecturer in Periodontics and Endodontics
D.D.S., 1933, Minnesota
- BURRELL, Frank C., 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, North Pacific College, Oregon
- INGLE, John Ide, 1948
Associate Professor of Periodontics and Endodontics; Executive Officer of the Department of Periodontics and Endodontics
D.D.S., 1942, Northwestern; M.S.D., 1948, Michigan
- LOFLIN, Leonard E., 1956
Clinical Assistant in Periodontics and Endodontics
D.D.S., 1956, Washington
- 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 Assistant in Periodontics and Endodontics
B.S., 1948, D.D.S., 1953, Washington
- SCHLUGER, Saul, 1958
Professor of Periodontics
D.D.S., 1931, Louisville
- SOBOTTKA, Hugh C., 1957
Clinical Assistant in Periodontics and Endodontics
D.D.S., 1955, Washington
- 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
- TEEL, W. Stephen, 1954
Clinical Assistant in Periodontics and Endodontics
D.D.S., 1954, Washington
- TIMBERLAKE, Wayne J., 1957
Clinical Assistant in Periodontics and Endodontics
D.D.S., 1954, Washington
- WALTERS, John L., 1957
Clinical Assistant in Periodontics and Endodontics
B.A., 1951; D.D.S., 1955, Washington
- WILSON, Donald W., 1956
Clinical Assistant in Periodontics and Endodontics
B.S., 1949, Seattle Pacific College; D.D.S., 1956, Washington
- ZEDLOW, Bernard J., 1957
Instructor in Periodontics and Endodontics
B.A., 1949, Buffalo; M.S., 1951, Washington; D.D.S., 1956, Pennsylvania

PROSTHODONTICS

- ANDERSON, Carl O., 1947
Clinical Associate in Prosthodontics
D.D.S., 1924, Northwestern
- ANDERSON, Howard S., 1954
Clinical Assistant 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
- FLOOD, Clyde Richard, 1955
Clinical Assistant in Prosthodontics
D.M.D., 1925, North Pacific College
- HARRIS, Earl Odell, 1954
Clinical Assistant in Prosthodontics
D.D.S., 1946, 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
- HOERSTER, Roy D., 1957
Clinical Assistant in Prosthodontics
D.D.S., 1954, Washington
- JANKELSON, Bernard, 1951
Clinical Associate in Prosthodontics
D.M.D., 1924, Oregon
- JOHNSON, Richard J., 1953
Clinical Assistant in Prosthodontics
D.D.S., 1939, Northwestern
- KYDD, William L., 1950
Clinical Assistant in Prosthodontics
D.M.D., 1947, Oregon
- LAMBRECHT, James R., 1954
Clinical Assistant in Prosthodontics
D.D.S., 1952, Marquette
- LINDLEY, Ross C., 1952
Clinical Associate in Prosthodontics
D.M.D., 1925, Oregon
- McCLAIN, Patrick P., 1951
Clinical Associate in Prosthodontics
D.D.S., 1950, Washington
- McCLUNG, Earle J., 1954
Clinical Assistant in Prosthodontics
D.M.D., 1915, Oregon
- MITCHELL, Robert D., 1955
Clinical Assistant in Prosthodontics
B.S., 1947, Brigham Young; D.D.S., 1951, Washington
- PIPER, Lavern A., 1958
Clinical Assistant in Prosthodontics
D.D.S., 1949, Minnesota
- RAISLER, Gordon D., 1956
Clinical Assistant in Prosthodontics
B.S., 1951, D.D.S., 1954, Washington
- SHAW, Donald Robert, 1955
Clinical Assistant in Prosthodontics
D.D.S., 1938, Iowa
- ULIP, Edward J., 1956
Clinical Associate in Prosthodontics
D.D.S., 1937, Chicago College of Dental Surgery
- WENSINK, Raymond A., 1957
Instructor in Prosthodontics
D.M.D., 1952, B.S., 1953, Oregon
- WILLSON, Lewis W., 1958
Clinical Assistant in Prosthodontics
D.M.D., 1946, Oregon
- WYKHUIS, Walter A., 1956
Associate Professor of Prosthodontics
B.A., 1932, Calvin College; D.D.S., 1936, Chicago College
- YOUNG, Harry A., 1948
Professor of Prosthodontics; Executive Officer of the Department of Prosthodontics
D.D.S., 1919, Indiana

DENTAL HYGIENE

- McCULLOUGH, Patricia A., 1953
Instructor in Dental Hygiene
B.S., R.D.H., 1952, Washington
- STICKELS, Claudette M., 1955
Instructor in Dental Hygiene
R.D.H., 151, Northwestern; B.S., R.D.H., 1956, Washington
- TRONQUET, Alice, 1957
Instructor in Dental Hygiene
B.S., R.D.H., 1956, Washington
- WILKINS, Esther, 1950
Associate Professor of Dental Hygiene; Director of the Department of Dental Hygiene
B.S., 1938, Simmons; D.H., 1939, Forsyth; D.M.D., 1949, Tufts

COMMITTEES

DIVISION OF HEALTH SCIENCES

BUILDING SPACE: J. W. Haviland, *Chairman*; D. R. de Mers, D. F. Hiscox, K. Hoffman, A. W. Moore, L. S. Rambeck.

COORDINATION OF PURCHASING: D. R. de Mers, *Chairman*; R. W. Bradley, J. M. Flett, J. W. Harding, C. J. Harsh, B. S. Henry, J. I. Ingle, R. L. Johnson, L. S. Rambeck.

INSTRUMENT SHOP: A. C. Young, *Chairman*; W. E. Quinton, *Secretary*; E. H. Fischer, G. S. Greenwald, R. F. Hain, L. B. Thomas, J. W. Woodbury, *Ex officio*: D. R. de Mers, J. W. Haviland.

LIBRARY: T. C. Ruch, *Chairman*; J. Ashford, *Secretary*; W. B. Dandliker, N. B. Everett, P. C. Griffith, J. R. Hadmann, R. Kittelsby, A. L. Ogilvie, F. Plum, E. K. Smith, A. A. Ward, Jr., R. S. Weiser.

MEDICAL ILLUSTRATION: R. F. Rushmer, *Chairman*; J. Phillips, *Secretary*; E. Burke, L. D. Ellerbrook, D. J. Hanahan, A. W. Moore, J. G. Skahen, *Ex officio*: D. R. de Mers, J. W. Haviland.

TELEVISION EVALUATION AND PLANNING: A. W. Moore, *Chairman*; B. F. Baldwin, B. M. Bennett, J. L. Boor, J. M. Dille, C. L. Freehe, D. F. Hiscox, R. E. Pearson, J. W. Phillips, S. M. Standish, P. Vander Leest, C. E. Vavra.

SCHOOL OF DENTISTRY

ADMISSIONS COMMITTEE: B. E. Anderson, *Chairman*; O. E. Beder, C. W. Bodemer, N. B. Everett, F. L. Jacobson, G. D. Stibbs, J. W. Woodbury.

APTITUDE TEST COMMITTEE: B. E. Anderson, *Chairman*; A. I. Hamilton, T. G. Hermans, 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 HYGIENIST ADMISSIONS COMMITTEE: E. M. Wilkins, *Chairman*; B. E. Anderson, M. J. Hickey, Jean Hodson (Mrs.), Julia Skahen (Mrs.), Claudette M. Stickels (Miss).

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, Leo Sreebny, G. D. Stibbs, E. M. Wilkins, H. A. Young, *Ex officio*: D. R. de Mers.

GRADUATE DENTAL ADMISSIONS COMMITTEE: A. W. Moore, *Chairman*; B. E. Anderson, M. J. Hickey, D. B. Law, B. S. Kraus, Leo Sreebny.

HOSPITAL LIAISON COMMITTEE: J. D. Gehrig, *Chairman*; M. J. Hickey, J. I. Ingle, F. L. Jacobson.

SPACE PLANNING AND ALLOCATION COMMITTEE: H. A. Young, *Chairman*; B. E. Anderson, M. J. Hickey, J. I. Ingle, D. B. Law, A. W. Moore, K. N. Morrison, G. D. Stibbs.

STUDENT EVALUATING COMMITTEES: *Chairmen*: G. D. Stibbs, first-year class; K. N. Morrison, second-year class; F. L. Jacobson, third-year class; B. E. Anderson, fourth-year class.

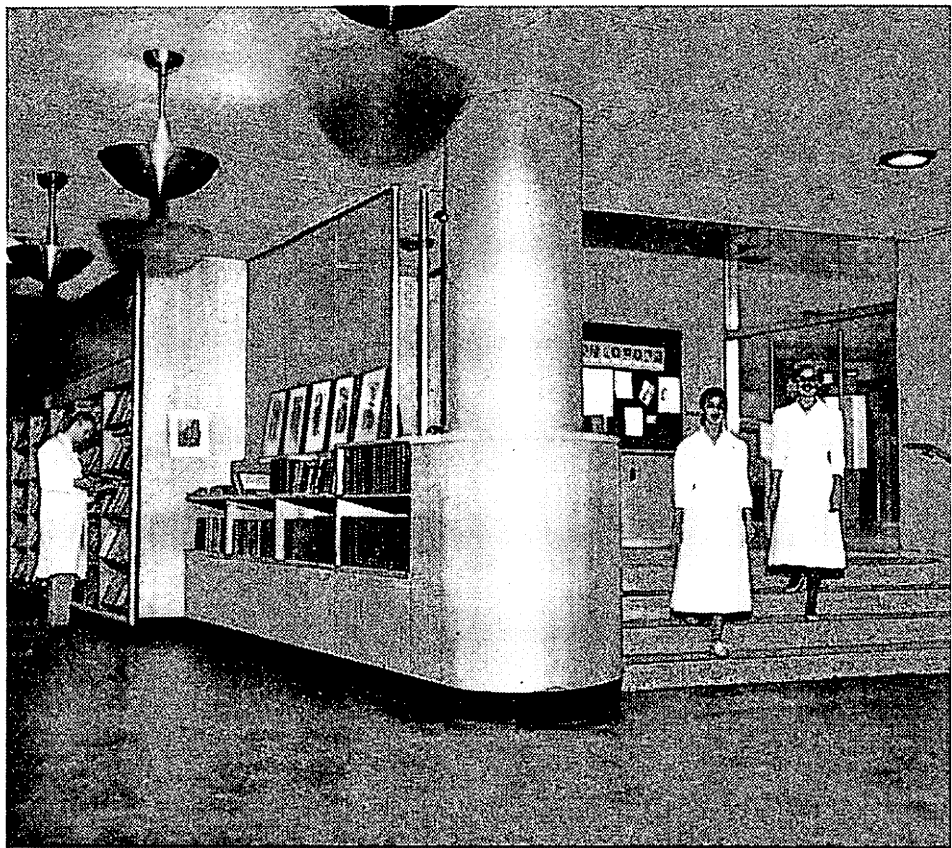
STUDENTS' HONORS AND AWARDS COMMITTEE: F. L. Jacobson, *Chairman*; C. I. Degering, Patricia McCullough (Miss), K. N. Morrison, A. M. Ogilvie, W. A. Wykhuis.

STUDENT LOAN COMMITTEE: J. I. Ingle, *Chairman*; C. I. Degering, A. L. Ogilvie.

THESIS COMMITTEE: A. M. 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.



THE DIVISION OF HEALTH SCIENCES

THE DIVISION OF HEALTH SCIENCES

THE 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 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, established a four-year course leading to a bachelor's degree in 1904, and now offers both bachelor's and advanced degrees.

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, Physics, Psychology, and Zoology; the College of Engineering; the College of Fisheries; the School of Social Work; and the Student 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 Science 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 a 300-bed teaching hospital located at the east end of the Health Sciences Building is under construction. On June 30, 1952, ground was broken for the first unit of the University Hospital, which now houses hospital administration offices, clinical laboratory, and teaching areas for five clinical departments of the School of Medicine. On June 12, 1956, ground was broken for the second unit which is carefully coordinated with the existing structure in design and function and which will house a major portion of the in-patient and out-patient facilities of the completed teaching and research hospital. Construction of the second unit should be completed by February, 1959. 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.

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. 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 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 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, 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.

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

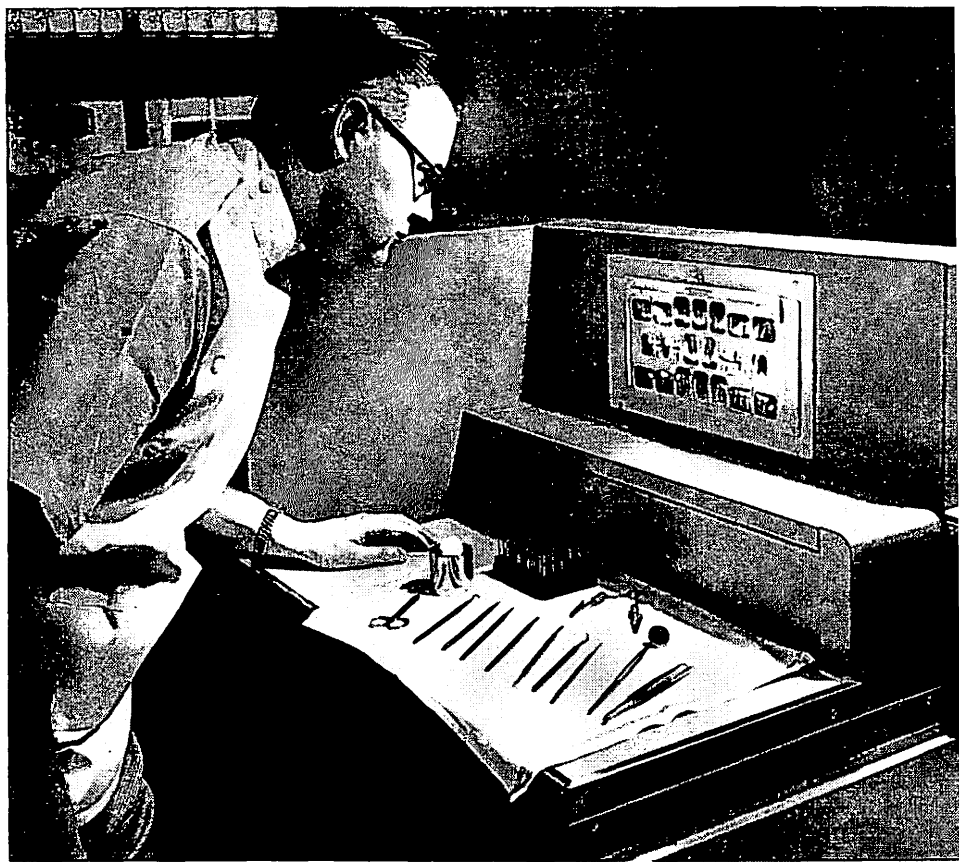
For information about accommodations in the Men's Residence Halls, write to the Manager at 1201 Campus Parkway, Seattle 5, Washington. Preference is given to younger girls in assignment to the Women's Residence Halls. Interested women should write to the Manager, Women's Residence Halls, University of 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 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.



THE SCHOOL OF DENTISTRY

THE SCHOOL OF DENTISTRY

THE 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 46.

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 predental 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 predental 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.

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. Two unmounted recent photographs (2 by 2 inches).
4. 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.
5. 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 1.

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 preclinical 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 25.* 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 or Alaska for at least a year immediately prior to registration. Domicile connotes a present intention of permanent residence. Temporary residence in the state merely for the purpose of attending school, performing duties while in the military service, or for reasons of health or pleasure is not a basis for the establishment of legal domicile. 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 and Alaska. If they believe they are residents, they may petition the Nonresident 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.

LATE REGISTRATION FEE. A 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.

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 change when the change is made on the initiative of the University.

GRADE SHEET FEE. One grade sheet is furnished each quarter without charge; 25 cents is charged for each additional copy.

TRANSCRIPT FEE. One transcript is furnished without charge; 50 cents, 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.

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	577.45	849.70	326.02	26.10
Books	124.60	57.25	96.60	38.50
Total	702.05	906.95	422.62	64.60

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 26-29.

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>Micro- scope Rental*</i>	<i>Dental Engine Rental*</i>	<i>Labora- tory 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	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 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	....	....	....	146.00
Nonresident..	165.00	82.50	8.50	....	....	....	256.00

WINTER QUARTER

FRESHMAN—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
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	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 HYGIENISTS— (Junior and Senior) Resident.....	100.00	37.50	8.50	....	....	....	146.00
Nonresident.....	165.00	82.50	8.50	....	....	....	256.00

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	....	....	....	146.00
Nonresident.....	165.00	82.50	8.50	....	....	....	256.00

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				Physiol. & Biophys. 126	Anat. 329
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	Prosthodontics 131	Biochemistry Lab.	Biochem. 361 (Biochemistry) (Conf.)	Biochemistry Lab.	Oper. Dent. 134
10-10:50	Prosthodontics Lab.		Oper. Dent. 134		Oral Anat. Lab.
11-11:50			Oral Anat. Lab.		
1:30-2:20	Oper. Dent. 131	Prosthodontics 131 Lab.	Oper. Dent. 131	Prosthodontics 131	Prosthodontics 131
2:30-3:20	Operative Dent. Lab.		Operative Dent. Lab.	Prosthodontics Lab.	Prosthodontics 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.		
11-11:50	Fixed Partial Dentures 231	Prosthodontics Lab.	Free	Prosthodontics Lab.	Fixed Partial Dentures 231
1:30-2:20	Fixed Partial Dentures Lab.	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 232	Oper. Dent. 232	Prosthodontics 232	Oper. Dent. 232	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					Pedo. 201
1:30-2:20	Fixed Partial Dentures 232	Path. 231 (General Path.)	Free	Path. 231	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.P.T. 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.

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
2-4:30	CLINIC				

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
1:30-2:30	Oral Path. 331	CLINIC (Oper. Block 1:00)	Oral Path. 331	CLINIC 2:00	CLINIC (Oper. Block 1:00)
2:30-4:30	Oral Pathology Lab. 2:30-5:00		Oral Pathology Lab. 2:30-5:00		

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 (Tech. Composition)
9-9:50	Orthodontics 300	Prosthetics 304	Oral Surgery 302	F.P.D. 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) Oral Surgery 331 Lab. 2:00-3:00—3:00-5:00	CLINIC	CLINIC

FOURTH YEAR SCHEDULE

Autumn Quarter

Hours	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8-8:50	Dent. Sci. & Lit. 403 (Jurisprudence)	Orthodontics 400	Oral Surgery 400	Dent. Sci. & Lit. 431 (Dent. Ethics & Office Mgmt.)	O.D.T.P. 400
9-9:50	Conjoint (Dent.) 400 (Occlusion)	Prosthodontics 400	Oper. Dent. 400		Fixed Partial Dentures 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)	Orthodontics 401	O.D.T.P. 401	Dent. Sci. & Lit. 432 (Dent. Ethics & Office Mgmt.)
9-9:50	Dent. Sci. & Lit. 401 (Applied Dental Science)	Prosthodontics 402	Oper. Dent. 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	Oral Surgery 404 (Maxillofacial Surgery)	Oral Surgery 402	Conjoint (Dent.) 402 (Applied Ther. & Prescrib.)	Endodontics 400
9-9:50	Dent. Sci. & Lit. 433 (Dent. Ethics & Office Mgmt.)	Prosthodontics 401	Oper. Dent. 402		O.D.T.P. 402
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.

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.

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.

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: Under-graduate 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 aver-

age 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 under-graduate 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 Research 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 \$126,000 have been received during the past year. About \$121,000 was received from government agencies and private sources, and some \$5,303 from the state of Washington under Initiative 171.

THE DEPARTMENTAL PROGRAMS

THE 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 is also offered in the School of Dentistry. Department of Dental Hygiene (see page 46).

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 50.

CERTIFICATE IN ORTHODONTICS, PEDODONTICS, OR RESTORATIVE DENTISTRY. Programs are not administered by the Graduate School; no thesis is required. See page 51.

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

- 328, 329 Gross Anatomy (6, 4)** **Bodemer, Hampton**
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**
Lecture and laboratory work in neuroanatomy. For dental students; others by permission.
- Conjoint 317-318 Elementary Anatomy and Physiology (6-6) (See Conjoint Courses, School of Medicine Bulletin.)**
- 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 (3-5)** **Bennett**
Essentials of microscopic, submicroscopic, and chemical anatomy. Required for first-year medical students. Prerequisite for nonmedical students, permission.
- Conjoint 408 Conjoint Research Projects (2) (See Conjoint Courses, School of Medicine Bulletin.)**
- Conjoint 409 Basis of Neurology (3,5 or 8) (See Conjoint Courses, School of Medicine Bulletin.)**
- 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 of biological systems. Prerequisite, permission.
- 521 Seminar in Molecular and Submicroscopic Anatomy (2)** **Bennett, Luft, Hampton**
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.
- 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)** **Thornburg**
Quantitative studies of cell structure and function using light microscope, phase microscope, polarizing microscope and microspectrophotograph. Prerequisite, permission.
- Conjoint 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4)** (See Conjoint Courses, School of Medicine Bulletin.)

COURSES FOR GRADUATES ONLY

- 600 Research (*)** **Staff**
Prerequisite, permission.
- 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 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.

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 and food technology 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 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)** **Zahler**
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)** **Rickenberg, 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, D509 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 history, anatomy, and physiology 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.

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 applying as candidates for M.S. and Ph.D. degrees are accepted with bachelor's degrees in zoology, psychology, chemistry, physics, or with an M.D. degree.

COURSES

126 Human Physiology (6)

Scher, Woodbury, DeVito

Lectures, laboratories, demonstrations, and small group conferences in human physiology stressing applications to dentistry. For dental students.

CLINICAL DENTAL SCIENCES

DENTAL MATERIALS

Director: HOWARD I. GILBERT, B138 Health Sciences Building

The Department of Dental Materials offers instruction in the physical and chemical properties and manipulation of the materials used in dentistry.

COURSES

131 Dental Materials (4)

Gilbert, Staff

Physical and chemical properties of dental materials.

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.

In addition to the courses for undergraduate dental students, the Department of Fixed Partial Dentures offers a graduate program for students working toward the degree of Master of Science in Dentistry with a major in fixed partial dentures.

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.

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 stains. 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.
- 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 graduate program for students working toward the degree of Master of Science in Dentistry with a major in operative dentistry.

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)** **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.
- 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 three acceptable full-mouth surveys.
- 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. Typical cases of the various conditions in the oral cavity are presented.

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 (4)** **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.
- 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)** **Gehrig**
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**

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 jaws; 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, Wanamaker**

Major oncological surgery of head and neck region; fractures of jaws; cleft lip and palate surgery; fundamentals of maxillofacial, otolaryngological, and plastic surgery.

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.

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)**Moore**

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)**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.

Thesis (*)

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.

Staff**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, 202 Preventive Dentistry (1,1,1)** **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 techniques 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.

Thesis (*)

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.

Staff**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)** **Ogilvie, Staff**
Illustrated lectures on elementary material necessary for clinical work.
- 231 Periodontic Technic (1)** **Ogilvie, Ingle, Staff**
A short lecture-laboratory course to indoctrinate the student into clinical periodontics.
- 300 Periodontics (2)** **Ogilvie, Ingle, 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)** **Ogilvie, Ingle, Staff**
A continuation of Periodontics 300 (see above).
- 346 Clinical Periodontics (3)** **Staff**
Treatment of routine cases of periodontal disease.
- 400 Advanced Periodontics (1)** **Ogilvie, Ingle, 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.
- 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.
- 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)** **Ingle, 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)** **Ingle, 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)** **Ingle, 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

- 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** **Morrison, Staff**
A lecture-clinical 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 Research (*)** **Ingle, Staff**
An investigative program in one of the basic sciences under the direction of the departmental faculty. Prerequisite, permission.
- 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

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 graduate program for students working toward the degree of Master of Science in Dentistry with a major in prosthodontics.

COURSES

- 131 Complete Denture Technic (8)** **Wensink, 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.

PROSTHODONTIC LABORATORY

JAMES LINCOLN, Chief Technician;
BERNARD LANGDON, 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.

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.

COURSES FOR GRADUATES ONLY

- 561 Immediate Dentures (4)** **Wykhuis, 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)** **Wykhuis, 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**
Theories, principles, technical and clinical experience in the fabrication of prostheses for the patient presenting with 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.

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.

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)** **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)** **Staff of the School of Dentistry**
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 fall 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)** **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.

DENTAL HYGIENE

Director: ESTHER M. WILKINS, B214-B Health Sciences Building

A two-year program following two years of preidental hygiene leads to a Bachelor of Science degree with a major in Dental Hygiene or Public Health Dental Hygiene. The educational program has the full approval of the Council on Dental Education of the American Dental Association.

Two curricula are offered. The basic curriculum, for undergraduate students, provides a background of theory and experience in the educational and clinical skills required for the professional practice of the dental hygienist. The other curriculum, for graduate dental hygienists, is directed toward administrative work with specialization in public health dental hygiene or dental hygiene education.

Preparation emphasizes the role of the dental hygienist as a contributing member of the dental health team. The dental hygienist will be required to maintain effective inter-professional relationships with members of related health professions, and develop habits, interests, and attitudes favorable to 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. The student must complete 90 quarter credits in an accredited college or university together with 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 preidental 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.

The basic curriculum is open only to women between the ages of eighteen and thirty-five.

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 preidental hygiene requirements listed above are the same. 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 preidental hygiene education was obtained.
3. A written list of subjects which the applicant is taking or will take to complete the requirements if such a list does not appear on the official transcripts.
4. Two unmounted recent photographs (2 x 3 inches).
5. 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, scholarship records, residence of the applicant, dental hygiene aptitude test rating, and personal characteristics of the applicant.

PERSONAL INTERVIEW. Before admission is granted, an interview with the Committee on Dental Hygiene Admissions is required of eligible applicants. The interview is held at the School of Dentistry and the applicant is notified of the date and time.

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 curricula pay the regular tuition of the School of Dentistry (see page 23). Additional expenses for uniforms, instruments, and other equipment approximate \$200 for the two years.

BASIC CURRICULUM

MAJOR IN DENTAL HYGIENE. This program includes specific courses in the Schools of Dentistry and 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 370 (Introduction to Teaching Procedures); 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 (Principles of Public Health IV); 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 preprofessional 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).

COURSES FOR UNDERGRADUATES

- | | |
|---|--|
| <p>300 Dental Procedures (3)
Lectures and demonstrations in dental procedures, with emphasis on the role of auxiliary personnel.</p> <p>331 Dental Anatomy (4)
Morphology of permanent and primary teeth; sketching and carving of essential units.</p> | <p style="text-align: right;">Stickels, School of Dentistry Staff</p> <p style="text-align: right;">Hodson</p> |
|---|--|

- 332 Dental Materials (2)** **Gilbert**
Survey of the physical and chemical properties of dental materials, with laboratory experience in their manipulation.
- 333 Oral Radiographic Technique (2)** **McCullough, Tronquet, Wilkins**
Principles and procedures in radiographic technique with clinical experience.
- 334 Oral Histology (3)** **Ogilvie**
Development and microscopic anatomy of structures of the oral cavity.
- 335 Oral Prophylaxis (2)** **McCullough, Stickels, Wilkins**
Objectives and principles of oral hygiene; instrumentation and procedure of oral prophylaxis, topical fluoride application, oral inspection, and dental health instruction.
- 346 Clinical Dental Procedures (1)** **Wilkins, and School of Dentistry Staff**
Observation and clinical assisting in School of Dentistry clinics.
- 347 Clinical Oral Prophylaxis (1)** **McCullough, Stickels, Tronquet, Wilkins**
Clinical experience in the performance of oral prophylaxis, topical application of fluoride, and dental health instruction for patients.
- 401 Office Procedure and Ethics (2)** **Tronquet**
Dental office and clinic procedure; dental and dental hygiene ethics.
- 402, 403, 404 Principles of Dental Hygiene Practice (1,1,1)** **McCullough, Wilkins**
Presentation and analysis of dental health problems, with emphasis on advanced dental health instruction.
- 405, 406 Oral Pathology (1,1)** **Staff**
Study of diseases and abnormalities of the hard and soft tissues of the oral cavity. Prerequisite, 405 for 406.
- 407, 408 Principles of Periodontology (1,1)** **Staff**
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)** **Atkinson, Wilkins**
Advanced dental hygiene practice, including work in the University Child Health Center, in a public health department, and hospitals, clinics, and schools.
- 447, 448, 449 Dental Hygiene Practice (2,2,2)** **McCullough, Stickels, Tronquet, Wilkins**
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 209 Educational Psychology (3)** **Fea, Powers**
The psychological basis of education. Recent experimentation. Prerequisites, Psychology 100 and a course in child development.
- Education 370 Introduction to Teaching Procedures (5)** **Boroughs**
A general orientation to the teaching profession with an examination of the basic methods of teaching with emphasis on practical considerations. Classroom teaching situations are observed on the elementary, junior, and senior high school levels. Audio-visual laboratory experiences are provided. Prerequisite, 209.
- Home Economics 300 Nutrition (2)** **Staff**
Importance of food to the maintenance of health; nutritive values and human needs emphasized. For nonmajors in home economics.
- Microbiology 301 General Microbiology (5)** **Kickenberg**
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 (3)** **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 and medical technology; others by permission.
- Pedodontics 200 Preventive Dentistry (1)** **Law, 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.
- 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 Principles of Public Health IV (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

A number of short, intensive one-week and two-week as well as more extensive courses are offered from time to time in each of the special areas of dentistry.

GRADUATE STUDY IN THE SCHOOL OF DENTISTRY

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 orthodontics, pedodontics, restorative dentistry (operative dentistry), fixed partial dentures, oral pathology, prosthodontics, periodontics, and endodontics. Classes are selectively admitted once a year at the beginning of the Autumn Quarter.

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, de-

pending upon the availability of teaching and research staff members. There will be three openings for majors in both periodontics and endodontics commencing the Autumn Quarter of 1958.

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, periodontics, or 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 (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 cooperation 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 eleven-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 eleven-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 January 1 for consideration for entrance in the following Autumn Quarter. Applicants for restorative dentistry, pedodontics, periodontics, or endodontics, must have complete credentials on file by July 15. The last day for new students to submit applications with complete credentials for admission in Autumn Quarter is August 31. 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.

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 take the same courses and maintain the same academic standards as the graduate student. These programs are not administered by the Graduate School and no thesis is required.

Following the successful completion of the prescribed courses during the required residency, a Certificate in orthodontics, pedodontics, 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

Director, Graduate Education: SAUL SCHLUGER,
B324 Health Sciences Building

The courses listed here are for graduate 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.
- 522 Dental Caries Control (2)** **Law, Staff**
Seminar on etiology and control of dental caries. Discussion based on assigned reading on physiology, composition of saliva, chemical composition of the teeth, oral microbiology, degradation of carbohydrates, systemic factors in the caries process, fluorides, enzyme inhibitors, and caries susceptibility tests. (Department of Pedodontics)
- 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)

583 Reproduction of Oral Tissues (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)

For other graduate course offerings see individual departmental listings.

ROSTER OF STUDENTS IN DENTISTRY

CLASS OF 1961

- ALDRICH, Arthur Newell, Jr., Seattle
University of Washington
- ALEXANDER, Richard Morgan, Seattle
University of Washington
- BAGSHAW, Ralph C., Vancouver, B. C.
University of British Columbia
- 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
- BURDETT, Jerry Richard, Edmonds
University of Washington
- CAMPBELL, Falconer Everett, 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
- DWORAK, David Arthur, Seattle
University of Washington
- 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
- 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
- JOHNSTON, Neal Wesley, Langley
University of Washington
- KUMPF, Kenneth William, Casper, Wyo.
University of Wyoming
- LOWRY, Franklin H., Seattle
B.A., Pacific University
University of Washington
- LUST, Wayne Barry, Seattle
B.S., Linfield College
- MARTTALA, Warren Harvey, Seattle
University of Washington
- 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, John Douglas, Hoquiam
University of Washington
- MEYER, Roger Albert, Hoquiam
University of Washington
- MILLER, Dale Edward, Sunnyside
University of Washington
- NIENABER, Duane Edward, Puyallup
Pacific Lutheran College
- NOTDVEDT, 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
- RICE, Glen Velman, Bountiful, Utah
University of Washington
- ROBERTSON, Wallace Duncan, St. John
Central Washington College of Education
- 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
- SNYDER, Arthur James, Seattle
University of Washington
- SPRINGER, Kirk W., Tacoma
College of Puget Sound
- STODDARD, James W., Seattle
University of Washington
- TALBOTT, Leonard James, Seattle
University of Washington
- TATE, Carl Robert, Boise
B.S., College of Idaho
- TAYLOR, Pete Leslie, Sequim
B.S., Washington State College
- THOMPSON, Carl Clyde, Seattle
University of Washington
- THOMPSON, Charles Calvin, Olympia
B.A., St. Martins College
University of Washington
- WAMBA, Jon Montgomery, Mercer Island
University of Washington
- WEBBER, Charles Eric, Seattle
University of Washington
- WOLGAMOTT, Fred A., Aberdeen
Whitman College
- WILLIAMS, Lewis Harrigfeld, Boise
University of Idaho

Class of 1960

- ADAMS, Harmon F., 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
- GALUTIA, Chester M., Seattle
B.S., University of Washington
- GHERMAN, Ellis Joseph, Seattle
University of Washington
- GEORGE, James Peter, Tacoma
University of Washington
- GILE, Richard Austin, Sidney, 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
- HUNTER, Samuel John, Olympia
B.A., University of Washington
- HUNSAKER, Steve David, Sandy, Utah
University of Utah
- INGMAN, Robert Edwin, Bremerton
University of Washington
- JOHNSON, Vern H., Jr., Longview
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
- JORDAL, David G., Tacoma
B.S., College of Puget Sound
- KELLER, Jack Herbert, Kellogg, Idaho
University of Washington
- KLAPPER, Martin S., Seattle
B.S., University of Pittsburgh
- KYLLINGSTAD, Vernon Jack, Butte,
Montana
University of Washington
- LARSON, Duane Burke, Longview
B.A., University of Washington
- LEDERMAN, Donald Newton, Seattle
University of Washington
- LEE, Darrel Dean, Provo, Utah
B.S., Brigham Young University
- LEITHE, Charles Chris, Spokane
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
- 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
- OSTROM, Robert Emery, Seattle
B.A., Central Washington College of
Education
- 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
- ROBINSON, Henry James, Gooding, Idaho
University of Idaho
- 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
- 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
- STEWART, Donald William, Spokane
Central Washington College of Education
- STRANDWOLD, Silvan Otto, Jr., Hoquiam
University of Washington
- THOMPSON, Jerry Lee, Cowlitz
B.S., Washington State College
- TOPHAM, Forrest Kay, REXBURG
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

- ALLEN, Frank Hanes, Ellensburg
B.A., Central Washington College of
Education
- APELAND, Homer Donald, Seattle
University of Washington
- BARRELL, George Edward, 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, Kuai, Hawaii
University of Washington
- COOK, Robert Corwin, Seattle
B.A., Washington State College
- 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, Puyallup
University of Washington
- KENNAR, 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)
- LIPPERT, George Warren, Jr., Bremerton
University of Washington
- LYNCH, William Patrick, Seattle
University of Washington
- MAR, Philip Leighton, Seattle
B.S., University of Washington
- McCORMICK, Lawrence Patrick, Seattle
University of Washington
- McLEAN, Kenneth Jerome, Ashton, Idaho
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
- SAYLER, Hugh Donald, Longview
University of Washington
- 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
- STEWART, Donald William, Spokane
Central Washington College of Education
- STOBIE, James Lee, Newport
Washington State College
- STRAWN, Alfred Dewey, Vancouver
B.S., University of Washington
- 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

Class of 1958**Degree of Doctor of Dental Surgery Conferred June 14, 1958**

- ADAMS, Alan Duane, Port Angeles
B.A., Central Washington College of Education
- ARCHER, Clyde Lawrence, Jr., Seattle
B.A., College of Idaho
- BATTIN, Richard Alan, Seattle
University of Washington
- BIGGS, Jack Elton, Seattle
University of Washington
- BIRDLEBOUGH, Harold, Seattle
University of Washington
- BLACK, George Erwin, Kennewick
University of Washington
- BLOSS, Albert Paul, Seattle
B.A., University of Washington
- BLUHER, John Alfred, Falls City
Central Washington College of Education
- BOLLINGER, Ronald George, Seattle
University of Washington
- BRIGGS, Garth Thorley, Pocatello, Idaho
B.S., University of Utah
- BRUMMITT, William Joseph, Seattle
University of Washington
- BRYANT, James Trevor, Jr., Seattle
University of Washington
- CARSON, Robert Edwin, Bremerton
University of Washington
- CONTRERAS, Eligio, Jr., Seattle
B.A., University of Washington
- COWAN, Everett Richard, Spokane
B.S., Gonzaga University
- CRUIKSHANK, Collen Clive, Seattle
University of Washington
- DUFFIN, Ralph Kenneth, Aberdeen, Idaho
Idaho State College
- ERICKSON, Jack Kenneth, Arlington
University of Washington
- FRALEY, George Thomas, Seattle
University of Washington
- GUTHRIE, Frank Burns, Seattle
University of Washington
- HARBOTTLE, John Frederick, Jr., Tacoma
Seattle University
- HARDY, Leland Roger, Seattle
University of Washington
- HILLSTAD, Garie H., Afton, Wyoming
University of Wyoming
- HOWARD, William Lee, Kennewick
Washington State College
- HUBLOU, Roland August, Everett
Seattle University
- JORGENSEN, Robert Firth, Seattle
B.A., University of Washington
- JUDD, Warren Vernal, Clearfield, Utah
Weber College
- KUMASAKA, Roland Shozo, Seattle
B.S., University of Washington
- LUDDINGTON, Dean Farley, Ogden, Utah
University of Utah
- MECHAM, Lloyd Anderson, Logan, Utah
B.S., Utah State Agricultural College
- MEEK, Glenn Pinson, Logan, Utah
Utah State Agricultural College
- MELLOR, Joel Kimball, Idaho Falls, Idaho
B.A., Brigham Young University
- MENDEL, Robert August, Seattle
University of Washington
- MOHORIC, George Donald, Chehalis
University of Washington
- NAKAMURA, Ken Kunihiko, Seattle
B.S., University of Washington
- NASH, Brent Isaac, Weston, Idaho
Utah State Agricultural College
- NICHOLS, Murray C., Hiram, Utah
Utah State Agricultural College
- NUGENT, Jack LeRoy, Centralia
University of Washington
- OSBORN, Herbert Hoover, Escalante, Utah
Brigham Young University
- PLOGER, William Joseph, Seattle
University of Washington
- QUIGLEY, James Franklin, Coeur d'Alene, Idaho
Washington State College
- RAMAGE, Thomas Edward, Jr., Vancouver, B.C.
University of British Columbia
- RANSOM, Vaughn Rendell, Seattle
B.S., University of Utah
M.S., University of Washington
- RAYMOND, Reginald Robert, Seattle
University of Washington
- REID, Bryan Embree, Victoria, B.C.
University of Washington
- RICE, Frank Carol, Seattle
University of Washington
- ROTH, Theodore Frank, Seattle
University of Washington
- SIMONSMAN, Bernard Alvin, Cordova, Alaska
University of Washington
- STROM, Robert Clifford, Hoquiam
B.S., University of Washington
- TRACY, Ronald Edwin, Seattle
University of Washington
- VANCE, Robert Russell, Ellensburg
Central Washington College of Education
- WESTIN, Richard Palmer, Seattle
Washington State College
- WILSKIE, Gene Harlan, Odessa
University of Washington
- ZWICK, Harold Henry, Tacoma
College of Puget Sound

CLASS OF 1957**Degree of Doctor of Dental Surgery Conferred June 15, 1957**

- ALLEN, Robert William, Kelso
University of Washington
- ANDERSON, William Richard, Seattle
B.A., University of Washington
- ARIMA, James Yoshita, Seattle
B.A., University of Washington
- BALES, David, Klickitat
Central Washington College of Education
- BINGHAM, Marriner Farley, Honeyville, Utah
B.S., Utah State Agricultural College
- BINGHAM, Richard Claude, Burley, Idaho
B.S., Utah State Agricultural College
- BOTTON, John Charles, Seattle
University of Washington
- BROWN, Ervin Lee, Coeur d'Alene, Idaho
University of Idaho
- BUSEMEN, Ralph Henry, Seattle
B.A., University of Washington
- CAMPBELL, Gene Irvin, Vancouver, Wash.
B.S., United States Naval Academy

- CARTER, Robert Randall, Seattle
University of Washington
- CLEMENT, Philip Edwin, Seattle
Seattle Pacific College
- DAVIDSON, Gerhard B., Seattle
University of Washington
- DeMOND, Melvin Ray, Boise, Idaho
University of Oregon
- GUSA, Ronald Stuart, Bremerton
Washington State College
- HAMILTON, Richard Dale, Billings, Mont.
University of Denver
- HANFORD, Edwin Mathew, Oaksdale
Washington State College
- HAVENICK, Robert John, Seattle
University of Washington
- HAWKSLEY, Robert Locke, Seattle
University of Washington
- HAYASHI, Tom Yoshihisa, Seattle
University of Washington
- HAYES, Donald Clayton, Kirkland
University of Washington
- HENNINGER, Frederick Lee, Issaquah
University of Washington
- HOFFMAN, Robert LeRoy, Renton
B.A., University of Washington
- HOFFMEISTER, William Walter, Seattle
University of Washington
- HOUVENER, Donald Curtis, Honolulu
University of Washington
- HUNGAR, Gordon Earle, Lake Stevens
B.S., University of Washington
- IVERSEN, Ray Clifford, Poulsbo
University of Washington
- JACOBSON, Floyd Edward, Seattle
University of Washington
- JOHNSON, Allan Herbert, Centralia
University of Washington
- JOHNSON, Paul Whitney, Walla Walla
Walla Walla College
- JOHNSON, Peter Ward, Kirkland
University of Washington
- JOHNSON, Richard Henry, Seattle
University of Washington
- KELLER, Robert Ernest, Seattle
Seattle University
- KORN, James Hammitt, Kalispell, Mont.
University of Washington
- LAYTHAM, Joel Edgar, Seattle
University of Washington
- LEWIS, Robert Porter, Mercer Island
University of Washington
- LINDSKOG, Jack Allen, Olympia
University of Washington
- LODMELL, Anton Miles, Walla Walla
Whitman College
- LOUDON, Merle Eugene, Carlton
Central Washington College of Education
- LUNSTRUM, Nelse Lavern, Ellensburg
Central Washington College of Education
- MASON, Roscoe Leroy, Tremonton, Utah
Utah State Agricultural College
- McCULLOUGH, Robert Verne, Salt Lake
City
University of Utah
- McMAINS, Paul Eugene, Seattle
University of Washington
- MICHELS, Peter Joseph, Jr., Great Falls,
Mont.
College of Great Falls
- MILLER, Arbie Glenn, Jr., Anthony, Idaho
University of Idaho
- MIRANTE, John Thomas, Seattle
Seattle University
- MONAGHAN, Robert Douglas, Tacoma
University of Washington
- NAUMAN, Alfred Garth, Salt Lake City
B.S., University of Utah
- NIXON, Monte John, Jr., Seattle
University of Washington
- PETERS, Donald Kenneth, Port Townsend
University of Washington
- PETERSON, John Richard, Phoenix, Ariz.
B.S., Brigham Young University
- PIERCE, Donald Charles, Seattle
B.S., University of Washington
- RADKE, Ryle August, Jr., Everett
University of Washington
- RICKETTS, John Wilbur, Seattle
University of Washington
- RIDENOUR, Donald Clyde, Seattle
University of Washington
- RYAN, William Erick, Gig Harbor
College of Puget Sound
- SAHLIN, Edward Renlund, Tacoma
College of Puget Sound
- SHIBATO, Fumio, Seattle
University of Washington
- SIM, Joseph Max, Kirkland
B.S., University of Washington
- SMITH, Elwyn Lugene, Seattle
University of Washington
- STRAND, Harvey Allen, Idaho Falls, Idaho
B.S., Idaho State College
- THOMPSON, William Joseph, Seattle
University of Washington
- VAN DERSCHULDEN, Richard Lee,
Puyallup
University of Washington
- VELLING, Roy John, Seattle
University of Washington
- WARR, Newell Edwin, Beaver, Utah
B.S., Utah State Agricultural College
- WILKES, Truman Joseph, Jr., Kirkland
University of Washington
- WILLIE, Ralph Grant, Brigham, Utah
B.S., Utah State Agricultural College
- WORDEN, Jeremy Frederic, Bremerton
B.A., Vanderbilt University
- ZELDENRUST, Richard Wallace, Seattle
University of Washington

GRADUATE SCHOOL, ENTERED 1956

Orthodontics

- BASH, Vito P., Sparks, Nevada
D.D.S., Marquette University
- DEMPSEY, Robert H., Selah, Washington
D.M.D., University of Oregon
- ERICKSON, Leslie C., Tacoma, Washington
B.A., College of Puget Sound
D.D.S., University of Washington
- FREI, Richard H., North Hollywood,
California
D.D.S., University of Southern California
- HICKEY, David G., Milwaukee, Wisconsin
B.S., University of Wisconsin
D.D.S., Marquette University
- LAVIN, Joseph J., Spokane, Washington
D.D.S., Creighton University
- LUDWICK, Thomas E., Lincoln, Nebraska
B.A., University of Nebraska
D.D.S., University of Nebraska

TICKNOR, Robert C., Tucson, Arizona
B.A., University of Omaha
B. Sci. in Dent., University of Nebraska
D.D.S., University of Nebraska

WALLMAN, Rex H., Adelaide, South Australia
B.D.S., University of Adelaide
WISE, William J., Greenville, Texas
B.S., Eastern Texas State Teachers College
D.D.S., Baylor University

Restorative

BURKE, Joseph L., Marshalltown, Iowa
D.D.S., State University of Iowa
PHELPS, Gilbert M., Alliance, Nebraska
B.Sci. in Dent., University of Nebraska
D.D.S., University of Nebraska

WARNICK, Myron E., Edmonton, Alberta
D.D.S., University of Alberta

GRADUATE SCHOOL, ENTERED 1957

Orthodontics

CAMPBELL, Gene I., Victor, Idaho
B.S., United States 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.
D.D.S., University of Toronto
KELLEY, Robert R., Great Falls, Montana
D.D.S., University of Washington
NELSON, Toyn O., Port Angeles, Washington
B.S., Oregon State College
D.D.S., University of Washington

OVIEDO, George F., San Francisco, California
B.A., University of California
D.D.S., College of Physicians and Surgeons
PIHL, Erik B., Seattle, Washington
D.D.S., University of Washington
RICHARDSON, Jack M., Beaumont, Texas
D.D.S., University of Texas
THOMAS, Frank E., Walnut Creek, California
D.D.S., University of California

Pedodontics

LAMBRECHT, James, Milwaukee, Wisconsin
D.D.S., Marquette University

Restorative

SCHUMACHER, Erwin R., Dubuque, Iowa
B.A., Iowa State Teachers College
D.D.S., State University of Iowa

Degree of Master of Science in Dentistry Conferred March 16, 1956

Orthodontics

CLEMENTS, Blaine S., Salt Lake City, Utah
B.S., University of Utah
D.D.S., College of Physicians and Surgeons
DAVIS, Roland M., Glendale, California
B.S., D.D.S., University of Southern California
GATTI, Sherwood E., San Antonio, Texas
D.D.S., Baylor University

HASSTEDT, Charles W., Denver, Colorado
D.D.S., Northwestern University
PEAY, Wayne L., Mesa, Arizona
D.D.S., University of Kansas City
RAYNES, John G., Seattle, Washington
D.D.S., University of Washington
WASHBON, Robert E., Fullerton, California
D.D.S., University of Southern California

Degree of Master of Science in Dentistry Conferred June 9, 1956

Orthodontics

ESPOSITO, Russell P., Spokane, Washington
D.M.D., University of Oregon (North Pacific)

FOSTER, Robert E., Bellingham, Washington
D.M.D., University of Oregon (North Pacific)

Degree of Master of Science in Dentistry Conferred March 22, 1957

Orthodontics

O'RIELLY, William C., Santa Cruz, California
D.D.S., University of Southern California

Degree of Master of Science in Dentistry Conferred June 15, 1957**Orthodontics**

BARRINGER, Frank E., Spokane,
Washington
D.D.S., University of Washington
FLINT, Willard L., Pittsburgh,
Pennsylvania
B.S., Allegheny College
D.D.S., University of Pittsburgh
INOUE, Stanley Y., Lihue, Hawaii
B.S., University of Hawaii
D.D.S., University of Maryland
KNELL, James K., Salt Lake City, Utah
D.D.S., University of Washington

MEINHOLD, Gareth L., Valparaiso,
California
D.D.S., College of Physicians and
Surgeons
OVENS, John P., Phoenix, Arizona
B.S., Loyola University
M.S., University of Notre Dame
D.D.S., University of Pennsylvania
SEAL, William M., Oahu, Hawaii
B.S., University of Oregon
D.D.S., College of Physicians and
Surgeons

Degree of Master of Science in Dentistry Conferred March 21, 1958**Orthodontics**

BASH, Vito P., Sparks, Nevada
D.D.S., Marquette University
DEMPSEY, Robert H., Selah, Washington
D.M.D., University of Oregon
ERICKSON, Leslie C., Tacoma, Washington
B.A., College of Puget Sound
D.D.S., University of Washington
FREI, Richard H., North Hollywood,
California
D.D.S., University of Southern California
HICKEY, David G., Milwaukee, Wisconsin
B.S., University of Wisconsin
D.D.S., Marquette University

LAVIN, Joseph J., Spokane, Washington
D.D.S., Creighton University
LUDWICK, Thomas E., Lincoln, Nebraska
B.A., University of Nebraska
D.D.S., University of Nebraska
TICKNOR, Robert C., Tucson, Arizona
B.A., University of Omaha
B.Sci. in Dent., University of Nebraska
D.D.S., University of Nebraska
WALLMAN, Rex H., Adelaide, South
Australia
B.D.S., University of Adelaide

Degree of Master of Science in Dentistry Conferred June 14, 1958**Orthodontics**

WISE, William J., Greenville, Texas
B.S., Eastern Texas State Teachers College
D.D.S., Baylor University

STUDENTS IN DENTAL HYGIENE**CLASS OF 1959**

ANDERSON, Nancy Joan, Seattle
University of Washington
DODELLE, Salle Jo, Everett
University of Washington
FERGUSON, Jean Marie, Seattle
North Park Coll. (Ill.)
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 College
University of Washington
STEARNS, Beverly Jean, Seattle
Graceland College, Iowa
University of Washington
SUTHERLAND, Joan, Victoria, B.C.
Victoria College
University of British Columbia

GRADUATES IN DENTAL HYGIENE**CLASS OF 1958****Degree of Bachelor of Science Conferred June 14, 1958**

BAKER, Rena Elizabeth, Seattle University of Washington	HOUSEL, Lenore Annette, Seattle University of Washington
BATES, Marie Pearl, Moses Lake University of Washington	KOCHER, Linda Louise, Aberdeen Grays Harbor College
BOYANER, Carolyn, Vancouver, B.C. University of California University of British Columbia University of Washington	LANGSLET, Jana Lynn, Klamath Falls, Oregon R.D.H., University of Oregon
BROOKS, Lois Gross, Seattle University of Washington	PEER, Jean Carol, Fallon, Nevada University of Washington
CAPELUTO, Marlene, Seattle University of Washington	ROSEBERG, Greta Haagensen, Seattle Pacific Lutheran College University of Washington
DENNIS, Joan Marie, Puyallup University of Washington	STONE, Nancy Lou, Seattle University of Washington
HEGGIE, Marylyn Ann, Seattle University of Washington	WELLS, Norma Jane, Seattle University of Washington

CLASS OF 1957**Degree of Bachelor of Science Conferred March 22, 1957**

HACKNEY, Marilyn Joan, Seattle
R.D.H., Northwestern University

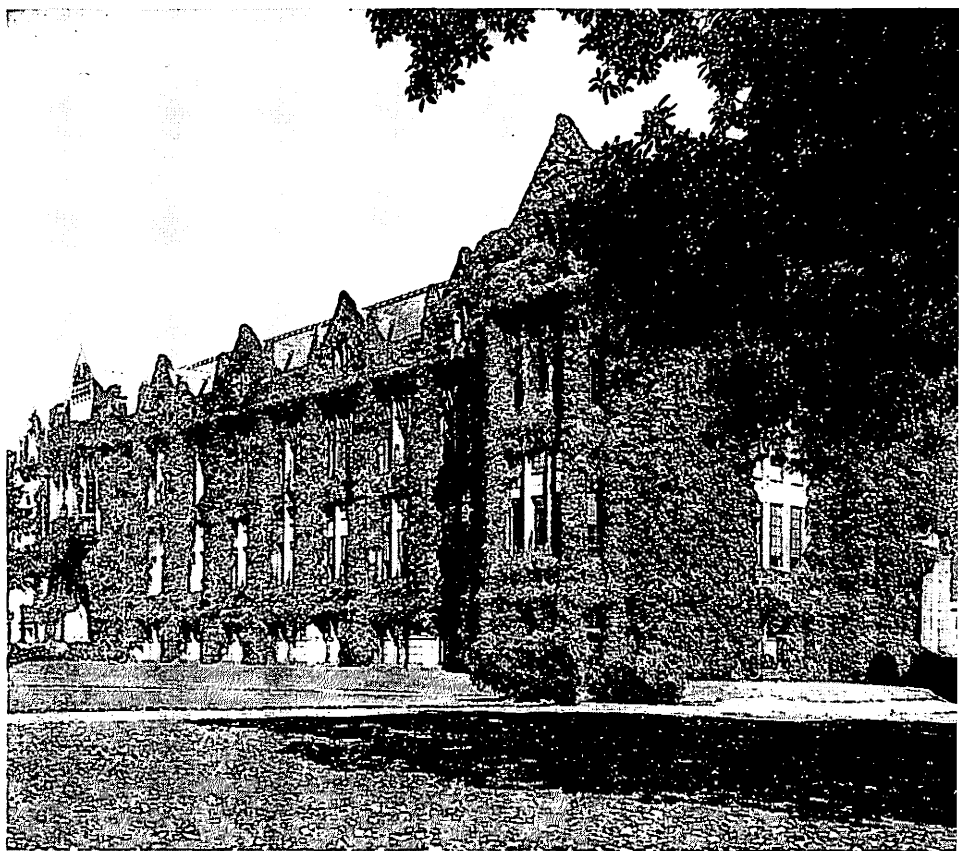
Degree of Bachelor of Science Conferred June 9, 1957

BAKER, Arloene Ann, Elmer City University of Washington	HOMMA, Kumiko, Seattle University of Washington
CHONZENA, Mona Irene, Anacortes Washington State College University of Washington	MASTON, June Hazel, Seattle University of Washington
CONGDON, Roberta Ann, Tacoma University of Washington	MORGANTHALER, Mary Lynn, Everett University of Washington
GAGE, Carolyn Chartrand, Coeur d'Alene, Idaho University of Idaho	O'CONNOR, Sharon Frances, Seattle University of Washington
HAMLIN, Susan Emma, Seattle University of Washington	PARKER, Carol Freese, Bremerton Olympic College University of Washington
HARVEY, Susan Harrison, Seattle University of Washington	SMITH, Madeleine Roop, Seattle Seattle Pacific College University of Washington

CLASS OF 1956**Degree of Bachelor of Science Conferred June 9, 1956**

ANDERSON, Jan Wright, Seattle University of Washington	ROSS, Sharon Ann, Seattle University of Washington
BEESON, Beverly Elaine, Edmonds Seattle University University of Washington	RYAN, Margaret Mary, Seattle University of Washington
DONALDSON, Sally Ellen, Seattle University of Washington	SMITH, Nancy Kenfield, Mercer Island Whitman College University of Washington
DUNN, Muriel May, Seattle University of Washington	STICKELS, Claudette Marlene, Seattle R.D.H., Northwestern University
HILLMAN, Lona Lee, Seattle University of Washington	STOLLER, Barbara Ann, Richland Whitman College B.A., Washington State College
PIHA, Rae, Seattle University of Washington	TRONQUET, Alice Ann, Seattle University of Washington
RASANEN, Irene Ann, Aberdeen University of Washington	

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF EDUCATION
1957-1959

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; and publications of the Division of Adult Education and Extension Services, 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 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
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EVENING CLASSES

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CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

- SEPT. 9-OCT. 1 Registration for students in residence Spring Quarter, 1957. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.*)
- SEPT. 13-OCT. 1 Registration for former students not in residence Spring Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.*)
- SEPT. 16-SEPT. 27 Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification.*)
- SEPT. 16-OCT. 1 Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- SEPT. 30—MONDAY Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
- OCT. 2—WEDNESDAY Instruction begins (8 a.m.) for all other students
- OCT. 8—TUESDAY Last day to add a course
- NOV. 11—MONDAY State Admission Day holiday
- NOV. 27—WEDNESDAY Last day to submit applications for advanced credit examinations
- NOV. 27-DEC. 2 Thanksgiving recess (6 p.m. to 8 a.m.)
- DEC. 14—SATURDAY Advanced credit examinations
- DEC. 16—MONDAY Final examinations begin
- DEC. 20—FRIDAY Final examinations and Quarter end

WINTER QUARTER, 1958

REGISTRATION PERIOD

- NOV. 25-DEC. 13 Registration for students in residence Autumn Quarter, 1957. (*Registration appointments will be issued on presentation of ASUW cards beginning October 25.*)
- JAN. 2-JAN. 3 Registration for former students not in residence Autumn Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.*)

JAN. 2-JAN. 3

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

JAN. 6-MONDAY

Instruction begins

JAN. 10-FRIDAY

Last day to add a course

FEB. 22-SATURDAY

Washington's Birthday and Founder's Day holiday

FEB. 28-FRIDAY

Last day to submit applications for advanced credit examinations

MAR. 15-SATURDAY

Advanced credit examinations

MAR. 17-MONDAY

Final examinations begin

MAR. 21-FRIDAY

Final examinations and Quarter end

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26-MAR. 14

Registration for students in residence Winter Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning January 24.*)

MAR. 26-MAR. 28

Registration for former students not in residence Winter Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.*)

MAR. 26-MAR. 28

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

MAR. 31-MONDAY

Instruction begins

APR. 4-FRIDAY

Last day to add a course

MAY 9-FRIDAY

Last day to submit applications for advanced credit examinations

MAY 23-FRIDAY

Governor's Day

MAY 24-SATURDAY

Advanced credit examinations

MAY 30-FRIDAY

Memorial Day holiday

JUNE 8-SUNDAY

Baccalaureate Sunday

JUNE 9-MONDAY

Final examinations begin

JUNE 13-FRIDAY

Final examinations and Quarter end

JUNE 14-SATURDAY

Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4-JUNE 6

Registration for all students. (*Registration appointments for students in residence Spring Quarter, 1958, and for former students not in residence Spring Quarter, 1958, may be obtained from the Registrar's Office beginning April 21. New students should submit applications for*

admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.)

ACADEMIC PERIOD

JUNE 23—MONDAY	Instruction begins
JUNE 24—TUESDAY	Last day to add a course for the first term
JUNE 27—FRIDAY	Last day to add a course for the full quarter
JULY 3—THURSDAY	Last day to submit applications for advanced credit examinations for first term
JULY 4—FRIDAY	Independence Day holiday
JULY 19—SATURDAY	Advanced credit examinations
JULY 23—WEDNESDAY	Final examinations and first term end
JULY 24—THURSDAY	Second term begins
JULY 25—FRIDAY	Last day to add a course for the second term
AUG. 1—FRIDAY	Last day to submit applications for advanced credit examinations for second term
AUG. 16—SATURDAY	Advanced credit examinations
AUG. 22—FRIDAY	Final examinations and second term end

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 8-SEPT. 30	Registration for students in residence Spring Quarter, 1958. (<i>Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.</i>)
SEPT. 12-SEPT. 30	Registration for former students not in residence Spring Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.</i>)
SEPT. 15-SEPT. 26	Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)
SEPT. 15-SEPT. 30	Registration for new transfer students with at least full sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

SEPT. 29—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
OCT. 1—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 7—TUESDAY	Last day to add a course
NOV. 11—TUESDAY	State Admission Day holiday

NOV. 26—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 26-DEC. 1	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 13—SATURDAY	Advanced credit examinations
DEC. 15—MONDAY	Final examinations begin
DEC. 19—FRIDAY	Final examinations and Quarter end

WINTER QUARTER, 1959

REGISTRATION PERIOD

NOV. 20-DEC. 12	Registration for students in residence Autumn Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning October 23.</i>)
DEC. 29-DEC. 31	Registration for former students not in residence Autumn Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 23.</i>)
DEC. 29-DEC. 31	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.</i>)

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—MONDAY	Final examinations begin
MAR. 20—FRIDAY	Final examinations and Quarter end

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24-MAR. 13	Registration for students in residence Winter Quarter, 1959. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 23.</i>)
MAR. 25-MAR. 27	Registration for former students not in residence Winter Quarter, 1959. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.</i>)
MAR. 25-MAR. 27	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

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—MONDAY	Final examinations begin
JUNE 12—FRIDAY	Final examinations and Quarter end
JUNE 13—SATURDAY	Commencement

SUMMER QUARTER, 1959

REGISTRATION PERIOD

JUNE 3—JUNE 5	Registration for all students. (<i>Registration appointments for students in residence Spring Quarter, 1959, and for former students not in residence Spring Quarter, 1959, may be obtained from the Registrar's Office beginning April 20. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 15—JUNE 19	

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

SEPT. 30—WEDNESDAY	Instruction begins
DEC. 18—FRIDAY	Quarter ends

For more detailed information consult the Registrar's Office.

ADMINISTRATION

BOARD OF REGENTS

THOMAS BALMER, <i>President</i>	Seattle
HAROLD S. SHEFELMAN, <i>Vice-President</i>	Seattle
MRS. J. HERBERT GARDNER	La Conner
CHARLES M. HARRIS	Entiat
JOHN L. KING	Seattle
WINLOCK W. MILLER	Seattle
JOSEPH DRUMHELLER	Spokane
HELEN E. HOAGLAND, <i>Secretary</i>	

OFFICERS OF ADMINISTRATION

HENRY SCHMITZ, Ph.D.	<i>President 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>
FRANCIS FOUNTAIN POWERS, Ph.D.	<i>Dean of the College of Education</i>
ELLA WESA REDFERN, B.A.	<i>Assistant to the Dean</i>

COLLEGE OF EDUCATION FACULTY AND STAFF

(As of September 16, 1957)

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.

- Baily, Athol Romayne, 1949 (1955), *Associate Professor of Industrial Education*
B.S., 1931, Kansas State Teachers College; M.A., 1936, Ed.D., 1949, Missouri
- 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
- Bolton, Frederick Elmer, 1912 (1947), *Professor Emeritus of Education;*
Research Consultant; Dean Emeritus of the College of Education
B.S., 1893, M.S., 1896, Wisconsin; Ph.D., 1898, Clark
- Boroughs, Homer, Jr., 1948 (1956), *Associate Professor of Elementary Education*
B.A., 1939, Western Washington College of Education; M.A., 1947, Ph.D., 1949, Washington
- Cole, Thomas Raymond, 1930 (1951), *Professor Emeritus of Education;*
Consultant in School Service
Ph.B., 1902, M.A., 1903, LL.D. (Hon.), 1931, Upper Iowa
- 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
- Draper, Edgar Marian, 1925 (1936), *Professor of Curriculum;*
Director of In-Service Teacher Training
B.A., 1916, M.A., 1925, Ph.D., 1926, Washington
- Dvorak, August, 1923 (1937), *Professor of Education; Director of the Bureau*
of Admissions Research
B.A., 1920, Ph.D., 1923, Minnesota
- Fea, Henry Robert, 1954 (1955), *Assistant Professor of Education*
B.A., 1942, B.Ed., 1947, M.Ed., 1948, Saskatchewan; Ph.D., 1950, California
- Fletcher, J. Eugene, 1957, *Part-Time Lecturer in Education*
B.S., 1940, Washington; M.A., 1952, Denver

- Hayden, Alice Hazel, 1942 (1952), *Professor of Education; Director of Graduate Studies in Education*
Ph.C., 1928, B.S., M.S., 1929, Oregon State College; Ph.D., 1932, Purdue
- Horst, Claude William, 1950, *Supervisor, Industrial Education Laboratory*
B.A., 1923, M.A., 1933, Washington
- Jessup, John Hunnicutt, 1926 (1927), *Associate Professor of Educational Sociology*
A.B., 1920, Earlham College; M.A., 1924, Iowa
- MacDonald, Cecilia, 1949 (1957), *Associate Professor of Elementary Education*
B.A., 1946, Central Washington College of Education; M.Ed., 1952, Washington
- Mitchell, James Robert, 1957, *Part-Time Lecturer in Education*
B.A., 1949, M.Ed., 1956, Washington
- 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
- Salyer, 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
- Stevens, Edwin Bicknell, 1936 (1947), *Professor Emeritus of Education; Adviser to Higher Education Conference*
A.B., 1896, Tufts College; A.M., 1899, Harvard
- Strayer, George Drayton, Jr., 1949, *Professor of Educational Administration*
B.S., 1927, Princeton; M.A., 1928, Ph.D., 1934, Columbia
- Vopni, Sylvia Freda, 1952 (1956), *Assistant Professor of Education*
B.A., 1931, M.A., 1938, Ph.D., 1955, Washington
- Williams, Curtis Talmadge, 1920 (1957), *Professor Emeritus of Education*
A.B., 1913, Kansas State Normal School; A.M., 1914, Ph.D., 1917, Clark

COOPERATING FACULTY

- Allendoerfer, Carl B., *Professor and Executive Officer, Mathematics (on leave, 1957-58)*
- Beaumont, Ross A., *Professor and Acting Executive Officer, Mathematics (1957-58)*
- Bijou, Sidney W., *Professor, Psychology*
- Blaser, H. Weston, *Associate Professor, Botany*
- Bone, Hugh A., *Professor, Political Science*
- Brier, Howard M., *Associate Professor, Journalism*
- Briggs, Robert, *Associate Professor, General Business*
- Broer, Marion R., *Associate Professor, Physical Education for Women*
- Cady, George H., *Professor, Chemistry*
- Carrell, James, *Professor and Acting Executive Officer, Speech (1957-58)*
- Cartwright, Philip W., *Associate Professor, Economics*
- Chapple, Stanley, *Professor and Director, Music*
- Cole, Kenneth C., *Professor and Executive Officer, Political Science*
- Conway, John A., *Professor, Drama*
- Coombs, Howard A., *Professor and Executive Officer, Geology*
- Cross, Paul C., *Professor and Executive Officer, Chemistry*
- Cutler, Russell K., *Associate Professor and Executive Officer, Physical Education for Men*
- de Vries, Mary Aid, *Associate Professor, Physical Education for Women*
- Emery, Donald W., *Associate Professor, English*
- Faris, Robert E. Lee, *Professor and Executive Officer, Sociology*
- Fox, Katharine, *Associate Professor, Physical Education for Women*
- Fuller, Steven D., *Assistant Professor, Art*
- Gates, Charles M., *Professor, History*
- Geballe, Ronald, *Associate Professor and Acting Executive Officer, Physics*
- Gillingham, J. Benton, *Assistant Professor, Economics*
- Gonzales, Boyer, *Professor and Director, Art*
- Grimes, Wilma H., *Assistant Professor, Speech*
- Grimshaw, Austin, *Professor and Dean, Business Administration*

Grummel, William C., *Associate Professor, Classics*
 Haaga, Agnes M., *Assistant Professor, Drama*
 Harrington, Donal F., *Professor, Drama*
 Hatch, Melville H., *Professor, Zoology*
 Heilman, Robert B., *Professor and Executive Officer, English (on leave, 1957-58)*
 Hitchcock, C. Leo, *Professor and Executive Officer, Botany*
 Hitchner, Dell G., *Associate Professor, Political Science*
 Horne, Dorthalee, *Assistant Professor, Physical Education for Women*
 Huber, J. Richard, *Professor and Executive Officer, Economics*
 Hudson, G. Donald, *Professor and Executive Officer, Geography*
 Hughes, Glenn, *Professor and Director, Drama*
 Jerbert, Arthur R., *Associate Professor, Mathematics*
 Johnson, Mary Louise, *Professor and Director, Home Economics*
 Johnson, Pauline, *Associate Professor, Art*
 Jones, Iris A., *Assistant Professor, Music*
 Katz, Solomon, *Professor and Executive Officer, History*
 Kenworthy, Ray W., *Associate Professor, Physics*
 Kingston, J. Maurice, *Assistant Professor, Mathematics*
 Lieberman, Irving, *Professor and Director, Librarianship*
 Lord, J. J., *Associate Professor, Physics*
 Loucks, Roger Brown, *Professor and Executive Officer, Psychology*
 MacLean, Dorothy G., *Assistant Professor, Physical Education for Women*
 Martin, Arthur W., *Professor, Physiology; Executive Officer, Zoology*
 McAdams, Laura E., *Associate Professor, Home Economics*
 McDiarmid, J. B., *Professor and Executive Officer, Classics (on leave, 1957-58)*
 Meyer, Herman C., *Associate Professor and Acting Executive Officer, Germanic Languages and Literature*
 Mills, Caswell A., *Lecturer, Physical Education and Public Health and Preventive Medicine*
 Moseley, Spencer, *Assistant Professor, Art*
 Nelson, Oliver W., *Associate Professor, Speech*
 Normann, Theodore F., *Associate Professor, Music*
 Nostrand, Howard L., *Professor and Executive Officer, Romance Languages and Literature*
 Palmer, John M., *Assistant Professor, Speech*
 Pascal, Paul, *Assistant Professor, Classics*
 Peek, Clifford, *Assistant Professor, Physical Education for Men*
 Peterson, Marion E., *Assistant Professor, Librarianship*
 Rahskopf, Horace G., *Professor and Executive Officer, Speech (on leave, 1957-58)*
 Reeves, G. Spencer, *Associate Professor, Physical Education and Public Health and Preventive Medicine*
 Reynolds, William E., *Professor and Executive Officer, Public Health and Preventive Medicine*
 Rosenmeyer, Thomas G., *Assistant Professor and Acting Executive Officer, Classics (1957-58)*
 Rulifson, Leone H., *Associate Professor, Physical Education*
 Simpson, Lurline V., *Associate Professor, Romance Languages and Literature*
 Smith, Henry Ladd, *Professor, Journalism; Director, Communications*
 Stirling, Brents, *Professor and Acting Executive Officer, English (1957-58)*
 Strother, Charles R., *Professor, Psychology and Psychiatry*
 Swanson, Bessie R., *Assistant Professor, Music*
 Taylor, George E., *Professor, Far Eastern History and Politics; Executive Officer, Far Eastern and Slavic Languages and Literature*
 Turner, Mabel, *Assistant Professor, Librarianship*
 Vargas-Barón, Anibal, *Associate Professor, Spanish*
 Vavra, Catherine E., *Lecturer, Public Health and Preventive Medicine*
 Waters, Ellen H., *Assistant Professor, Physical Education for Women*
 Wheeler, Sara Hutchings, *Assistant Professor, Librarianship*

Wilson, Ruth M., *Associate Professor and Executive Officer,*
Physical Education for Women
Wilson, William E., *Professor, Romance Languages*
Woodburne, Lloyd S., *Professor, Psychology; Dean, Arts and Sciences*

SERVICE AND PRODUCTION UNITS

BUREAU OF TEACHER SERVICE AND PLACEMENT

Rufus C. Salyer, Director

EDUCATION LIBRARY

Claire A. Marston, Librarian

IN-SERVICE TEACHER TRAINING

Edgar M. Draper, Director

MOTION PICTURE PRODUCTION UNIT

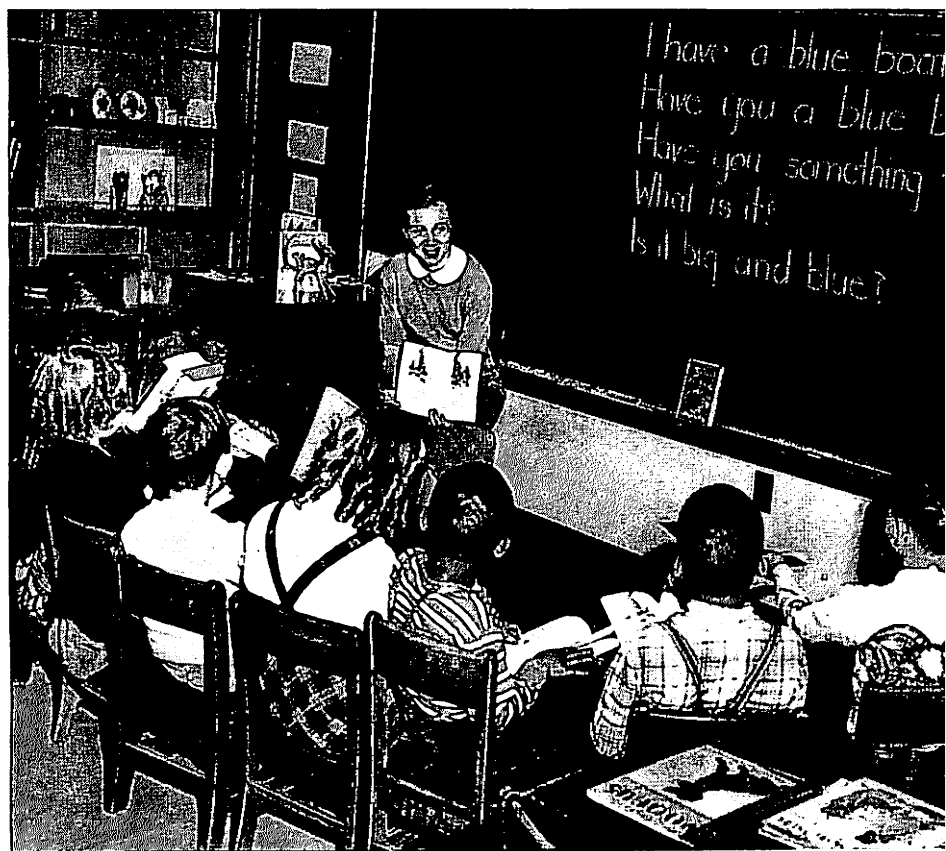
*Philip A. Jacobsen, Technical and
Research Director*

STILL PHOTOGRAPHY PRODUCTION UNIT

E. F. Marten, Supervisor

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

GENERAL INFORMATION

THE FIRST teacher training in the state of Washington was given at the University by President Anderson (1878-1882), who conducted courses in literature, mathematics, astronomy, surveying, psychology, and pedagogics. There was no development of a University program, however, despite efforts of the Board of Regents and the Superintendent of Public Instruction. President Anderson himself finally urged establishment of a state normal school. When normal schools were established at Cheney and Ellensburg in 1890 and at Bellingham in 1893, teacher training at the University halted altogether.

The new beginning in teacher training was a part of the general growth of the University that took place between 1898 and 1914, when the Graduate School and other schools and colleges were established during the administrations of Presidents Graves and Kane. Between 1898 and 1912, a small Department of Education had been developed, and in 1913 the faculty voted to establish a School of Education coordinate with other schools and colleges of the University. Dr. Frederick E. Bolton was appointed dean. In 1914, the School of Education became the College of Education, the first such college in any state university.

The College administration was instrumental in 1929 in obtaining action by the State Board of Education toward establishment of the five-year plan for the normal diploma. By 1933, the plan was in operation. In recent years, the College has emphasized the cooperation of academic and professional faculties of the University and, with the expansion of its facilities in Winlock W. Miller Hall, has advanced the development of many specialized functions, including the Education Library. Observation and practice work have been expanded and strengthened.

The College emphasizes fundamentals in all phases of its teacher-training program. The student is expected to master a defined body of academic material and the professional courses in educational psychology, curriculum, methods, and pupil evaluation. The student's ability to use his knowledge and training is improved in supervised practice teaching, which is supplemented by other classroom and community experiences.

Graduate work leading to the degrees of Master of Arts, Master of Education, Doctor of Education, and Doctor of Philosophy is performed under exacting standards. Both thesis and examination are required in all graduate programs,

although the research project for a Master of Education degree may be more practical and specialized than for the other degrees.

In all education curricula, the goal is the development of a teacher who, through mastery of academic content and professional techniques, thinks creatively, values good citizenship, and reflects the best in democratic society.

COLLEGE FACILITIES AND SERVICES

EDUCATION LIBRARY

The College of Education Library, the first departmental library on the campus (1913), is a branch of the University's Henry Suzzallo Library and contains a well-rounded collection of books and periodicals on education and its related fields. Of particular interest are a curriculum collection and sample textbooks; pamphlet, test, and thesis files; and an interlibrary loan service. The facilities of the library are available not only to students but to teachers throughout the Northwest.

PUBLICATIONS

The *College of Education Record* is published four times a year. In addition to book reviews, education news notes, and occasional College announcements, this journal contains articles on a variety of subjects for teachers and administrators.

Bulletins on the graduate degree program and the training of public school teachers keep students and educators acquainted with changes in these areas.

ASSOCIATION WITH PUBLIC SCHOOLS

The College of Education cooperates with the State Department of Public Instruction and with school districts throughout the state in the training program for the Standard General Certificate through in-service work, individual visits, and conferences with beginning teachers and their administrators. There is also a special observation, research, and practice program in the Seattle Public Schools and in other nearby districts under which students teach for one quarter of their senior year, during which they spend half days working with a master teacher in a public school. By special agreement, the College uses the Nathan Eckstein Junior High School, in Seattle, for intense study of certain school problems; members of the school staff help to carry out these projects under the direction of the College of Education faculty.

PROGRAMS FOR TEACHERS AND ADMINISTRATORS

The College maintains an In-Service Teacher Training program in which University staff members cooperate with state school administrators and teachers in solving professional problems. Other services include curriculum workshops, held at the University during the summer and in some counties during the school year; a reading clinic, in which teachers learn to diagnose educational failure and to plan remedial instruction for retarded pupils; institutes and consultative programs; and informal help through letters, telephone calls, and visits.

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 Alaska and all sons and daughters of University of Washington alumni. The College of Education, 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 16-22.

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 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 air-mailed 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 or who does not meet the current grade-point minimum of the College of Education of the University of Washington (see Nonresident Scholarship Requirement, page 18).

All entering freshmen are 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.

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; 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 19 for applicants who have had college work.

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

The College of Education scholarship requirement is a high school grade-point average of 2.20 (equivalent to a C+ average on the state of Washington grading system). Graduates of accredited high schools who cannot meet the 2.20 (C+) grade-point requirement may apply for admission to the College of Arts and Sciences (2.00 grade-point requirement) which offers a pre-education program described in the *College of Arts and Sciences Bulletin*.

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

The University scholarship requirement for nonresidents* or students residing outside the state of Washington or the territory of Alaska 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 or who does not meet the current grade-point minimum of the College of Education of the University of Washington (see Nonresident Scholarship Requirement, page 17).

* Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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 and the University 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 units¹ (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. For admission to the College of Education, the 9 academic units must include:

English	3 units	One foreign language*	2 units
Elementary algebra	1 unit	Social science	1 unit
Plane geometry or second-year algebra	1 unit	One laboratory science	1 unit

* Less than 1 unit in a foreign language will not be counted. The entrance requirement in foreign language may be met with 15 University credits in a foreign language and/or in any University English courses except English 101, 102, and 103.

¹ 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 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 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 \$22.00 per course) and do not carry University credit.

ADMISSION BY EXAMINATION

A graduate of a *nonaccredited* 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

Applicants are admitted to the University and to the College of Education by transfer from accredited colleges, universities, and junior colleges under the following 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.

All transfer students should have a personal copy of their transcripts with them at the time of the first conference with an academic adviser in order to secure an evaluation of work already completed.

2. *Applicants who are legal residents of the state of Washington or territory of Alaska and all those who are sons or daughters of University of Washington alumni* must have a grade-point average of 2.20 (C+) for admission to the College of Education.

Applicants who cannot meet the 2.20 (C+) grade-point requirement may apply

for admission to the College of Arts and Sciences (2.00 grade-point requirement) which offers a pre-education program described in the *College of Arts and Sciences Bulletin*.

3. *Applicants who are not legal residents* of the state of Washington or territory of Alaska, 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 or territory of Alaska 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 or the territory of Alaska 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 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. This rule shall apply to students who enter the University of Washington in the 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. A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit and, in addition, shall be allowed up to a maximum of 90 quarter credits from the junior college exclusive of physical education activity credits.

6. 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.

7. 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 members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination.

8. 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 Division of Adult Education and Extension Services. 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.

9. 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.

10. 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 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 18 and 19.

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 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 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 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.

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

UNIVERSITY OF WASHINGTON APTITUDE AND GRADE PREDICTION TESTS

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 50 (Basic Grammar) 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 three 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 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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

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.

APPOINTMENTS

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 4). Students in residence may obtain appointments at the time announced in the Calendar.

ADVISING

After notification of admission, and before registration, new students should visit the College of Education Advisory Office, 221 Miller Hall, for help in planning their course programs. All education students are advised by staff members who have had teaching experience and are familiar with the policies of the State Board of Education, the University, the College of Education, and the Graduate School.

REGISTERED CREDITS ALLOWED EACH QUARTER

Except with the consent of his dean, no student may be registered for less than 12 credits (or its equivalent) or more than 16 credits (or its 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 its 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.

SCHOLARSHIP AND MINIMUM CREDITS

Students in the College of Education must maintain a 2.20 grade-point average. A cumulative 2.20 average is required for the Provisional General Certificate and degrees. Grade points are awarded on the following basis: a grade of A earns 4 points per credit; 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, 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 Education requires that 9 credits in English 101, 102, and 103 (English Composition) and a minimum of 9 credits in education courses be included in the total for a degree. 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.

SENIOR-YEAR RESIDENCE

Senior standing is attained when 135 credits have been earned and the required quarters of ROTC and physical education have been completed. In 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 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 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 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 exemption on the 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.

Exemptions from the 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 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 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 one year or more of active service. This exemption does not grant credit. Veterans with less than one year 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, 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, a course in health education, 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

A resident student is one who has been domiciled in Washington or Alaska 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

Prospective students are classified as nonresidents when their credentials come from schools outside Washington and Alaska. 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 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) 3.00-5.00

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 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 is charged for each additional copy.

Transcript Fee .50

One transcript is furnished without charge; the fee is charged, payable in advance, for each additional copy. Supplementary transcripts are 50 cents each.

Graduation Fee 10.00**Directed (Practice) Teaching Fee, \$1.00 per credit** 8.00**Bureau of Teacher Service and Placement Fees**

Initial registration in senior year 5.00

Maintenance on active list each subsequent year 2.50

Teaching Certificate Fee 2.50

This does not include the legal registration fee of \$1.00, which is paid to the county school superintendent who first registers the certificate.

SPECIAL FEES

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00 per credit; and for removal of an Incomplete, \$2.00.

MUSIC FEES, per quarter are: Private lessons, one-half hour a week (2 credits), \$25.00; 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, \$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. Riding Fee is payable to riding academy and varies in amount.

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 \$183.00

Full-time nonresident student 408.00

Athletic Admission Ticket (optional) 3.00-5.00

Accident Insurance (optional) 3.75

Special Fees and Deposits 38.50

Military uniform deposit, breakage ticket, and locker fees.

Books and Supplies 75.00

Board and Room

Room and meals in Men's Residence Halls 600.00

Room and meals in Women's Residence Halls 540.00-630.00

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 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.

EDUCATION CLUB

Membership in the Education Club is open to all students in the College of Education. Club meetings provide opportunities for students to become better acquainted with each other and with their instructors, and to hear guest speakers discuss topics of interest in the educational field.

PROFESSIONAL ORGANIZATIONS

Phi Delta Kappa, for men, and Pi Lambda Theta, for women, are national professional organizations for education students. Upper-division and graduate students who maintain high scholarship and show outstanding professional promise may be invited to join one of these organizations.

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.

Scholarships and awards specifically for education students include three annual continuing scholarships of \$150 awarded by the Washington Congress of Parents and Teachers to freshmen with outstanding high school records in the state of Washington, and an annual scholarship of Autumn Quarter tuition for a freshman woman awarded by Pi Lambda Theta. Other awards are made from time to time, such as the Soroptimist Club grant of \$1,500 to an advanced-degree candidate in education, and the Boeing teacher-training scholarship.

An emergency loan fund available to all University students is administered by the Office of the Dean of Students.

DEPARTMENTAL ASSISTANTSHIPS

Application for teaching assistantships (fellowships) and graduate assistantships should be made in the Office of the Dean of the College of Education. A limited number is available depending on enrollment.

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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical 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. Housing is available to women in the Women's Residence Halls. For further information write to 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 which 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.

PLACEMENT

The College of Education maintains a Bureau of Teacher Service and Placement to help qualified students and graduates find teaching and administrative positions. Those who wish to use this service should register with the Bureau, 113 Miller Hall, during their senior year, and should obtain recommendations before leaving the University, while their work and personal qualities are clear in the minds of their instructors. These records are kept in the Bureau's files for use when needed.

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. Placement in jobs on the campus is handled by the Personnel Department and the ASUW Personnel Office.



THE PROGRAMS IN EDUCATION

THE PROGRAMS IN EDUCATION

THE COLLEGE OF EDUCATION offers curricula leading to public school certification on the elementary and secondary levels, and to the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Arts in Elementary Education, and Bachelor of Science in Home Economics Education. Courses leading to the degrees of Master of Education, Master of Arts, Doctor of Education, and Doctor of Philosophy are offered through the Department of Education in collaboration with the Graduate School.

BACHELOR'S DEGREES

Students working toward any bachelor's degree in education must meet certain general requirements of the University and the College as well as the particular course requirements for one degree. General requirements for graduation include military training, physical education, scholarship and minimum credits, group and major requirements, and senior-year residence.

Application for a bachelor's degree and a teaching certificate should be made through the College advisory office 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; however, he must meet the current requirements for teacher certification. 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. Education students are required to remove high school deficiencies during their first year in residence at the University of Washington.

BACHELOR OF ARTS. To obtain the Bachelor of Arts degree, education students may major in art, business education, chemistry, civics, drama, economics, English, French, geography, German, health education, history, industrial education, journalism, Latin, mathematics, music, physical education, political science, sociology, Spanish, or speech. The requirements for each major are included in the first area of concentration in that subject (see pages 37-58).

BACHELOR OF SCIENCE. To obtain the Bachelor of Science degree, students may major in biology, geology, health education, physics, or psychology. The requirements for each major are included in the first area of concentration in that subject (see pages 37-58).

BACHELOR OF ARTS IN ELEMENTARY EDUCATION. Students who wish to emphasize elementary school teaching choose the major in elementary education. A minimum of 36 credits in elementary education is required for this major. Courses include Education 209, 360, 370E, 371K or 371E, 374, 376, 377X-377Y, 378C, 378D, 389, and 390, or approved substitutes.

BACHELOR OF SCIENCE IN HOME ECONOMICS EDUCATION. The requirements for a major for this degree are included in the first area of concentration in home economics (see page 39). The program is intended for prospective Smith-Hughes (vocational) home economics teachers.

GROUP REQUIREMENTS

Academic courses taken by education students are in three main groups: humanities, social sciences, and sciences. Each student must complete 30 credits in one group, 20 credits in another, and 10 credits in the remaining group. Health Education 110 and 175, English 101, 102, and 103, and courses taken to remove entrance deficiencies (except foreign language and English courses taken to remove a language deficiency) may not be used to fulfill group requirements.

The subjects included in these groups are:

<i>I. Humanities</i>	<i>II. Social Sciences</i>	<i>III. Sciences</i>
Architecture	Anthropology	Anatomy 301
Art	Economics	Astronomy
Classics	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	Fisheries
literature	Physical 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, 102
Music		Physics
Radio-Television		Zoology
Romance languages and literature		
Scandinavian languages and		
literature		
Slavic languages and literature		
Speech		

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* as well as the general departmental requirements listed below. The Department of Education requires candidates for advanced degrees 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 Education 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 a written final examination and present an acceptable thesis on an approved topic.

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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 Education 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 a written final examination 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 Education 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 Education 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.

TEACHER CERTIFICATION

The State Board of Education, charged by law with the responsibility of establishing the types and kinds of teaching certificates in the state of Washington, has by official action instituted the Provisional and Standard General Certificates in this state. It is no longer possible for a student with no previous experience or preparation to start work toward an elementary or secondary certificate as such, since these were abolished as original certificates September 1, 1951, at which time the Provisional General Certificate replaced them.

Transfer students who have been graduated from an approved four-year teacher-training institution in the state of Washington are accepted on a graduate basis, but they must meet all the professional undergraduate requirements before a teaching certificate is issued by the University of Washington. Claims for exemption from specific requirements are passed upon by the Registrar and by the Dean of the College of Education. Transfer students must present a grade-point average of 2.20 for admittance to education courses leading to certification. After a transfer student has spent three quarters at the University of Washington, his grade point

is based on grades received at this institution and must meet the 2.20 requirement if he is to qualify for a teaching certificate.

Transfer students who have obtained a degree from a properly accredited institution in another state may certify through the State Department of Public Instruction in Olympia. Any requirements outlined by that office may be met at the University of Washington.

Transfer students working toward the Provisional General Certificate through the University of Washington must earn 9 credits in education courses, 10 credits in the first broad area of concentration or basic academic field, and 5 credits in the second broad area of concentration at this University.

Requirements for a teaching certificate shall be those currently in force at the time the certificate is granted.

PROVISIONAL GENERAL CERTIFICATE

The Provisional General Certificate is valid for a maximum of five years in all grades (kindergarten through twelfth), and an approved renewal must be registered annually with a county superintendent. During the term of the Provisional General Certificate, the teacher must meet the requirements for a Standard General Certificate (see page 58).

Requirements for the Provisional General Certificate are:

- I. A degree of Bachelor of Arts, Bachelor of Science, Bachelor of Arts in Elementary Education, or Bachelor of Science in Home Economics Education.
- II. Evidence of such general scholarship and personal and moral qualities as give promise of success.
- III. A cumulative grade-point average of 2.20 or above; an average of C or above in all education courses, with a C or above in Education 371K, 371E, 371X, or 371S; and an average of C or above in each area of concentration or basic academic field.
- IV. A signed oath of allegiance as a citizen of the United States.
- V. A health examination within six months before the certificate is granted.
- VI. Academic work (excluding physical education activities) to total a minimum of 180 quarter credits, including the following:

A. EMPHASIS (either 1 or 2 may be chosen)

1. Elementary emphasis, kindergarten through grade six
 - a. Major in elementary education, for the degree of Bachelor of Arts in Elementary Education—minimum of 36 credits in approved elementary education courses
 - b. One basic academic field (see B)
 - c. A second area of concentration (see B)
 - d. General education (see C)
 - e. General education for elementary teachers (see D)
 - f. Professional education (see E)
2. Secondary emphasis, grades seven through twelve
 - a. First area of concentration, which includes major requirements for the degree of Bachelor of Arts, Bachelor of Science, or Bachelor of Science in Home Economics Education (see B)
 - b. Second area of concentration (see B)
 - c. General education (see C)
 - d. Professional education (see E)

B. A BASIC ACADEMIC FIELD AND A SECOND AREA OF CONCENTRATION (FOR ELEMENTARY EMPHASIS) OR FIRST AND SECOND AREAS OF CONCENTRATION (FOR SECONDARY EMPHASIS). Specific departmental requirements for each field and area are listed on pages 37-58.

1. The basic academic field or first area of concentration is chosen from one department in one of the five broad areas listed below.

2. The second area of concentration is chosen from two or more departments in one of the four remaining broad areas.

The areas of concentration and basic academic fields are chosen from the following broad areas as outlined by the State Board of Education.

<i>Fine and Applied Arts</i>	<i>Health and Physical Education</i>	<i>Language Arts</i>	<i>Sciences and Mathematics</i>	<i>Social Studies</i>
Art Education	Health Education	Drama	Biology	Civics
Business Education	Physical Education (Men)	English	Chemistry	Economics
Home Economics	Physical Education (Women)	French	Geology	Far Eastern (second area only)
Industrial Education		German	Mathematics	Geography
Music		Journalism	Physics	History
		Latin		Political Science
		Librarianship		Psychology
		(second area only)		Sociology
		Spanish		
		Speech		

C. GENERAL EDUCATION including the following or their equivalents (required in both elementary and secondary emphases):

COURSES	CREDITS
English 101, 102, 103 English Composition	9
Physical Education Activities	3
Health Education 110 or 175 Health Education (women) or Personal Health (men)	2
Speech 100 Basic Speech Improvement	5
Psychology 100 General Psychology	5
Education 402 Child Study and Development	3
or Psychology 306 Child Psychology (by permission)	5
Music 107 Survey of Music or substitute (secondary emphasis)	2-5
or Education 377X-377Y Music for Elementary Teachers (elementary emphasis)	6
Art 100 Introduction to Art or substitute (secondary emphasis)	2-5
or Education 376 and 389 Art in the Elementary School, Industrial Education for Elementary Teachers (elementary emphasis)	10
Public Health 461 School and Community Health Programs	5
History 464 History of Washington and the Pacific Northwest	5

D. PERSONS ELECTING AN ELEMENTARY EMPHASIS for the degree of Bachelor of Arts in Elementary Education must present 20 credits from the following specific courses or their equivalents:

COURSES	CREDITS
Drama 437 Creative Dramatics with Children	3
Geography 100 Introductory Human Geography	5
History 241 Survey of the History of the United States	5
Home Economics 300 Nutrition	2
Librarianship 451 Children's Books or 452 Storytelling	3
Sociology 110 Survey of Sociology	5
Sociology 352 The Family	5
or Home Economics 356 Family Relationships	3

E. PROFESSIONAL EDUCATION COURSES in the following sequence:

COURSES	CREDITS
Education 209 Educational Psychology. Prerequisites, Psychology 100, a course in child development, and sophomore standing	3
Education 370 Introduction to Teaching Procedures (including 2 credits in laboratory experiences). Prerequisite, 209	5
Education 370E Elementary School Methods (including 2 credits in laboratory experiences). Prerequisite, 370	5
Education 360 Principles of Education (including curriculum study)	3
Education 372E, 372X, or 372S Professional Laboratory Experiences (taken on level different from directed teaching). Prerequisites, 370 and junior standing	3
Education 374 Fundamentals of Reading Instruction. Prerequisite, 370E, or taken concurrently	5
Education 390 Evaluation in Education. Prerequisite, 370	3
Education 373 Washington State Manual	2
Special Methods for High School Teaching (prerequisite, 370), or 378C, 378D Physical Education for the Elementary School and 379 Arithmetic for Elementary Teachers	2-9
Education 371K or 371E Directed Teaching—Kindergarten or Elementary School. Prerequisites, 374, 376, 377X-377Y, and 378C, 378D	8
or Education 371X or 371S Directed Teaching—Junior or Senior High School. Prerequisites, 370E and Special Methods	8

AREAS OF CONCENTRATION AND BASIC ACADEMIC FIELDS

The areas established by the State Board of Education are given below, together with the specific requirements for each area and field as defined by the College of

Education. It is the responsibility of the student to consult the department in which he plans to take his area of concentration or basic academic field to verify the requirements as listed.

AREA I, FINE AND APPLIED ARTS ART EDUCATION

FIRST AREA OF CONCENTRATION. The requirements are 72 credits in art and 5 credits in related fields, including the following:

COURSES	CREDITS
Art 105, 106, 107 Drawing	9
Art 109, 110, 111 Design	9
Art 129 Appreciation of Design	2
Art 201 Ceramic Art	3
Art 205 Lettering	3
Art 212, 213, 214 History of Western Art through the Renaissance	6
Art 253, 254, 255 Two- and Three-Dimensional Design	9
Art 256 Painting	3
Art 258 Water Color	3
Art 261 Elementary Interior Design	2
Art 272 Sculpture	3
Art 290, 291, 292 Art Education (craft)	6
Art 300 Design in Leather	2
Art 302 Bookbinding	2
Art 350 Introduction to Printmaking	3
or Art 357 Metal Design	3
or Art 358 Jewelry Design	3
Art 360 or 361 or 362 Life	3
Art 367 Commercial Design	3
Art 463 or 464 or 465 Composition	3
Humanities 102 The Arts	5

The following courses are suggested for the thirteenth quarter. They may be taken either before or after teaching experience.

COURSES	CREDITS
Art 262 Essentials of Interior Design	2
Art 273 Sculpture	3
Art 320 History of Modern Sculpture	2
Art 340 Design for Printed Fabrics	3
Art 357 Metal Design	3
Art 358 Jewelry Design	3
Art 359 Enameling	3
Art 450, 451 Advanced Printmaking	10
Art 464 Composition	3
Art 467 Commercial Design	5

BASIC ACADEMIC FIELD. The requirements are 40 credits in art and 5 credits in education, including the following:

COURSES	CREDITS
Art 105, 106, 107 Drawing	9
Art 109, 110, 111 Design	9
Art 212, 213, 214 History of Western Art through the Renaissance	6
Art 253, 254, 255 Two- and Three-Dimensional Design (3,3,3)	9 to total 6
Art 256 Painting	3
Art 258 Water Color	3
Art 290 or 291 or 292 Art Education (craft)	2
Art 302 Bookbinding	2
Education 376 Art in the Elementary School	5

SECOND AREA OF CONCENTRATION. This program should be planned in consultation with an adviser.

BUSINESS EDUCATION

FIRST AREA OF CONCENTRATION. The requirements are 54 credits*, including the following and 10 approved credits from secretarial training, accounting, or marketing courses. Upon consultation with the Department, this 54-credit requirement may be reduced because of previous training in shorthand or typewriting.

COURSES	CREDITS
Secretarial Training 10 Typewriting	1
Secretarial Training 111 Secretarial Training (Intermediate Typewriting)	2
Secretarial Training 112 Secretarial Training (Advanced Typewriting)	2
Secretarial Training 115 Office Machines	3
Secretarial Training 120-121 Gregg Shorthand	6
Secretarial Training 122 Advanced Gregg Shorthand	3

Secretarial Training 320	Secretarial Practice	5
General Business 101	Introduction to Business	5
Accounting 150	Fundamentals of Accounting	4
Accounting 151	Fundamentals of Accounting	3
Business Law 201	Business Law	5
Marketing 301	Principles of Marketing	5

BASIC ACADEMIC FIELD. The requirements are 36 credits*, including the following. Upon consultation with the Department, this requirement may be reduced because of previous training in shorthand or typewriting.

COURSES		CREDITS
Secretarial Training 10	Typewriting	1
Secretarial Training 111	Secretarial Training (Intermediate Typewriting)	2
Secretarial Training 112	Secretarial Training (Advanced Typewriting)	2
Secretarial Training 120-121	Gregg Shorthand	6
Secretarial Training 122	Advanced Gregg Shorthand	3
Secretarial Training 320	Secretarial Practice	5
General Business 101	Introduction to Business	5
Accounting 150	Fundamentals of Accounting	4
Accounting 151	Fundamentals of Accounting	3
Business Law 201	Business Law	5

SECOND AREA OF CONCENTRATION. The requirements are 26 credits*, including the following. Upon consultation with the Department, this requirement may be reduced because of previous training in shorthand or typewriting.

COURSES		CREDITS
Secretarial Training 10	Typewriting	1
Secretarial Training 111	Secretarial Training (Intermediate Typewriting)	2
Secretarial Training 112	Secretarial Training (Advanced Typewriting)	2
Secretarial Training 120-121	Gregg Shorthand	6
Secretarial Training 122	Advanced Gregg Shorthand	3
Secretarial Training 320	Secretarial Practice	5
Accounting 150	Fundamentals of Accounting	4
Accounting 151	Fundamentals of Accounting	3

* Also required are (see professional education course requirements, page 37):

Education 324	Teachers' Course in Business Education: Bookkeeping and General Business	2
Education 325	Teachers' Course in Business Education: Typewriting, Shorthand, Transcription, and Business Communications	2

HOME ECONOMICS

FIRST AREA OF CONCENTRATION. The requirements are 60 credits, including the following, and prerequisites (Art 109, Chemistry 100 or 110, 120, and Economics 200) and any recommended courses to complete the area. Students who plan to teach homemaking in Washington high schools follow this prescribed curriculum which meets the course requirements for a Temporary Vocational Certificate as well as the course requirements for the Provisional General Certificate.

COURSES		CREDITS
Home Economics 101	Introduction to Home Economics (not required of transfer students)	1
Home Economics 115	Food Preparation	3
Home Economics 125	Textiles	3
Home Economics 134	Clothing Construction and Selection	3 or 5
Home Economics 215	Meal Planning and Preparation	3
Home Economics 234	Costume Design and Construction	3
Home Economics 248	The House, Its Equipment, and Management	3
Home Economics 307	Nutrition	5
Home Economics 315	Advanced Food Selection and Preparation	5
Home Economics 338	Clothing for the Family	3
Home Economics 347	Home Furnishing	5
Home Economics 348	Home-Management House (reservation required)	3
Home Economics 354	Family Economics and Finances	5
Home Economics 356	Family Relationships	3
Home Economics 457	Child Nutrition and Care	3
Home Economics	elective selected from 407 Advanced Nutrition (3), 434 Costume Design and Construction (3), 447 Advanced Home Furnishing (3), or 495 Special Problems in Home Economics (3)	to total 3
Nursing 100	Care and Prevention of Illness in the Home	3
Psychology 306	Child Psychology	5
or Education 402	Child Study and Development	3
Psychology 320	Directed Observation of Child Behavior in the Nursery School	2

BASIC ACADEMIC FIELD. The requirements are 45 credits, including the following, and a 2- or 3-credit elective in home economics, and prerequisites (Art 109, Chemistry 100 or 110, 120, and Economics 200) and any recommended courses to complete the field.

COURSES	CREDITS
Home Economics 101	Introduction to Home Economics (not required of transfer students) . . . 1
Home Economics 115	Food Preparation . . . 3
Home Economics 125	Textiles . . . 3
Home Economics 134	Clothing Construction and Selection . . . 3 or 5
Home Economics 215	Meal Planning and Preparation . . . 3
Home Economics 234	Costume Design and Construction . . . 3
Home Economics 248	The House, Its Equipment, and Management . . . 3
Home Economics 307	Nutrition . . . 3
Home Economics 347	Home Furnishing . . . 3
Home Economics 354	Family Economics and Finances . . . 3
Home Economics 356	Family Relationships . . . 3
Home Economics 457	Child Nutrition and Care . . . 3

SECOND AREA OF CONCENTRATION. Students may select one of four sequences. The requirements are 15 credits.

The requirements for the general courses are the following:

COURSES	CREDITS
Home Economics 110	Food and Nutrition . . . 5
or Home Economics 115	Food Preparation . . . 3
Home Economics 125	Textiles . . . 3
Home Economics 134	Clothing Construction and Selection . . . 3 or 5
Home Economics 248	The House, Its Equipment, and Management . . . 3
Home Economics 300	Nutrition . . . 2

The requirements for specialization in textiles, clothing, and art are the following:

COURSES	CREDITS
Home Economics 125	Textiles . . . 3
Home Economics 134	Clothing Construction and Selection . . . 3 or 5
Home Economics 234	Costume Design and Construction . . . 3
Home Economics 347	Home Furnishing . . . 5

Suggested electives in Home Economics include:

Home Economics 321	Needlecraft . . . 2
Home Economics 322	Needlecraft . . . 2
Home Economics 329	Hand Weaving . . . 2
Home Economics 334	Costume Design and Construction . . . 3
Home Economics 338	Clothing for the Family . . . 3
Home Economics 432, 433	History of Costume and Textiles . . . 8
Home Economics 434	Costume Design and Construction . . . 3

The requirements for specialization in foods, nutrition, and health are the following:

COURSES	CREDITS
Home Economics 101	Introduction to Home Economics (not required of transfer students) . . . 1
Home Economics 110	Food and Nutrition . . . 5
or Home Economics 115	Food Preparation . . . 3
Home Economics 215	Meal Planning and Preparation . . . 3
Home Economics 300	Nutrition . . . 2
Home Economics 350	Managing Family Finances . . . 3
Home Economics 457	Child Nutrition and Care . . . 3

The requirements for specialization in family relationships and child welfare are the following:

COURSES	CREDITS
Home Economics 110	Food and Nutrition . . . 5
or Home Economics 115	Food Preparation . . . 3
Home Economics 350	Managing Family Finances . . . 3
Home Economics 356	Family Relationships . . . 3
Home Economics 457	Child Nutrition and Care . . . 3
Psychology 320	Directed Observation of Child Behavior in the Nursery School . . . 2

INDUSTRIAL EDUCATION

FIRST AREA OF CONCENTRATION. The requirements are 41 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Education 180	Mechanical Drawing for Industrial Education Teachers . . . 3
Education 181	Mechanical Drawing for Industrial Education Teachers . . . 3
Education 182	General Shop for Industrial Education Teachers . . . 5
Education 280	Fundamentals of Woodwork for Industrial Education Teachers . . . 3
Education 281	General Metalwork for Industrial Education Teachers . . . 3
Education 380	Tools and Materials for Industrial Education Teachers . . . 2
Education 383-384	Advanced Woodwork for Industrial Education Teachers . . . 2
Education 386	Home Planning for Industrial Education Teachers . . . 4
Education 388	Selection and Organization of Industrial Education Subject Matter . . . 3
Mechanical Engineering 201	Metal Casting . . . 1

Mechanical Engineering 202	Welding	1
Mechanical Engineering 312	Machine Tool Fundamentals	3
Architecture 105	The House	2
Art 253	Two- and Three-Dimensional Design	3

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are the following and any recommended courses to complete the area.

COURSES		CREDITS
Education 180	Mechanical Drawing for Industrial Education Teachers	3
Education 181	Mechanical Drawing for Industrial Education Teachers	3
Education 182	General Shop for Industrial Education Teachers	5
Education 280	Fundamentals of Woodwork for Industrial Education Teachers	3
Education 281	General Metalwork for Industrial Education Teachers	3
Education 388	Selection and Organization of Industrial Education Subject Matter	3
Mechanical Engineering 201	Metal Casting	1
Mechanical Engineering 202	Welding	1
Mechanical Engineering 312	Machine Tool Fundamentals	3

MUSIC

Every prospective music student will be interviewed by members of the faculty of the School of Music to determine his (a) musical sensitivity; (b) musicianship: pitch, rhythm, singing or playing at sight, and vocal or instrumental facility; (c) musical skill through performance as a vocalist or as an instrumentalist; (d) ability to play, at 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; to read at sight music of the difficulty of the average hymn; and to identify keys and key signatures. If a student meets the first three requirements but is unable to qualify at the piano, he may begin his studies in music on condition that he enroll in Music 110A (Class Instruction: Piano) until he is able to satisfy this requirement.

Music 104 (Sight Singing) is required of all music students 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 become a member of one or more music ensembles throughout his four years. No credit can be earned for this experience during the freshman and sophomore years; from 6 to 12 credits can be earned during the junior and senior years. 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 the chosen performance field, either as a soloist or as a member of a small music ensemble.

Preparatory to registration in Music 344 (Elementary School Music) or 346J (Teachers' Course in Secondary School Music), an examination in piano and voice is given.

For graduation, students are required to earn a grade-point average of 2.50 in music courses.

With the approval of the music education faculty, a student who has exceptional qualifications may be permitted to concentrate his studies in such a way as to permit some degree of specialization in either the choral or instrumental field. A student who wishes to specialize in one of these fields should file an application with his adviser in the School of Music, whereupon substitute courses will be arranged.

PIANO. The requirements are: (1) play ten traditional community songs from memory; (2) improvise a suitable accompaniment to a melody in any given key; (3) play singly or in combination parts of a choral or instrumental composition suitable for use in the public schools; (4) transpose simple melodies; and (5) perform in a musical manner a group of short compositions suitable for use in the elementary grade school program.

VOICE. The requirements are: (1) demonstrate an understanding of the elements of good voice production by singing from memory a repertoire of folk and art songs; (2) sing at sight one part in two- and four-part songs; (3) evaluate constructively the vocal performances of students in the class.

FIRST AREA OF CONCENTRATION. The requirements are 84 credits, including the following:

COURSES	CREDITS
Music 101, 102, 103 First-Year Music Theory	6
Music 104 Sight Singing	3
Music 202, 203 Second-Year Music Theory	6
Music 207, 208 Music Literature	4
Vocal or instrumental instruction beginning with:	
Music 130 Vocal or Instrumental Instruction (2-3, maximum 18), and/or	
Music 110A Class Instruction: Piano (3) and	
Music 110C Class Instruction: Voice (3)	to total 24
Music 124, 125, 224, 225, 226 Orchestral Instruments Laboratory	5
Music 244 Orchestra Laboratory	1
Music 245 Choral Laboratory	1
Music 304 Choral Literature	1
Music 344 Elementary School Music	4
Music 346J Teachers' Course in Secondary School Music	4
Music 384, 385, and 386 or 495 Conducting, Choral Conducting	4-6
Music theory, upper-division	12
Music history, upper-division	4
Twelve quarters of vocal and instrumental ensemble as arranged with School of Music adviser.	6

BASIC ACADEMIC FIELD. The requirements are 45 credits, including the following:

COURSES	CREDITS
Music 101, 102, 103 First-Year Music Theory	6
Music 104 Sight Singing	3
Music 207 or 208 Music Literature	2
Music 110A Class Instruction: Piano (3) and Music 110C Class Instruction: Voice (3)	
and/or Music 130 Vocal or Instrumental Instruction (2-3, maximum 18)	to total 12
Music 124, 125, 224, 225, 226 Orchestral Instruments Laboratory (1 each)	to total 4
Music 244 Orchestra Laboratory	1
Music 245 Choral Laboratory	1
Music 304 Choral Literature	1
Music 385 Conducting	2
Education 377X-377Y Music for Elementary Teachers	6
or Music 344 Elementary School Music (by permission)	4
Two years of music ensemble	0

SECOND AREA OF CONCENTRATION. The requirements for a vocal area are 33 credits, including the following:

COURSES	CREDITS
Music 101, 102, 103 First-Year Music Theory	6
Music 104 Sight Singing	3
Music 110A Class Instruction: Piano (or exemption)	3
Music 130C Vocal or Instrumental Instruction: Voice	6
Music 245 Choral Laboratory	1
Music 304 Choral Literature	1
Music 385 Conducting	2
Music 495 Choral Conducting	3
Music 346J Teachers' Course in Secondary School Music	4
Upper-division choral ensemble	3

The requirements for an instrumental area are 35 credits, including the following:

COURSES	CREDITS
Music 101, 102, 103 First-Year Music Theory	6
Music 104 Sight Singing	3
Music 110A Class Instruction: Piano (or exemption)	3
Music 130 B,D,F or G Vocal or Instrumental	
Instruction: Violin, Violoncello, Woodwind, or Brass	6
Music 124, 125, 224, 225, 226 Orchestral Instruments Laboratory	5
Music 244 Orchestra Laboratory	1
Music 384, 386 Conducting	2
Music 346J Teachers' Course in Secondary School Music	4
Upper-division instrumental ensemble	3

HEALTH EDUCATION (PUBLIC HEALTH EMPHASIS)

FIRST AREA OF CONCENTRATION. The professional requirements are 46-51 credits, including the following, and any recommended courses to complete the area.

PREPROFESSIONAL COURSES

CREDITS

Lower-division preprofessional requirements in addition to certification requirements:

Sociology 110	Survey of Sociology	5
Chemistry 100	General Chemistry	4
or Chemistry 110	General Chemistry	3
Chemistry 120	General and Organic Chemistry	5
Biology 101J-102J	General Biology	10
Zoology 208	Elementary Human Physiology	5
or Zoology 118, 118L	Survey of Physiology, Elementary Physiology Laboratory	6
Speech 332	Principles of Group Discussion	5
Anthropology 390	Introduction to Anthropology	5
or Anthropology 102	Principles of Anthropology: Social Customs	5
Physics 100	Survey of Physics	5

44-45

COURSES

CREDITS

Professional requirements:

Health Education 292	First Aid and Safety	3
Health Education 453	Methods and Materials in Health Teaching	3
Public Health 420, 421, 422, 423	Principles of Public Health I, II, III, IV	11
Public Health 461	School and Community Health Programs (included in general education requirements)	5
Public Health 464	Community Health Education Techniques	3
Public Health 482	Field Practice in Public Health	6
Conjoint 496	Concept of the Child	3
or Psychology 306	Child Psychology	5
or Education 402	Child Study and Development	3
Home Economics 300	Nutrition	2
Home Economics 356	Family Relationships	3
or Sociology 352	The Family	5
Psychiatry 450	Principles of Personality Development	2
or Education 408	Mental Hygiene for Teachers and Administrators	3
Microbiology 301	General Microbiology	5

46-51

BASIC ACADEMIC FIELD. The requirements are 45 credits and group requirements in science to be selected from the same courses as listed for the first area of concentration in health education (Department of Public Health and Preventive Medicine). Selection of courses for the basic academic field should be made with guidance from a health education adviser in the Department of Public Health and Preventive Medicine.

SECOND AREA OF CONCENTRATION. The requirements are 24 credits, including the following, and any recommended courses to complete the area.

COURSES

CREDITS

Psychiatry 450	Principles of Personality Development	2
or Education 408	Mental Hygiene for Teachers and Administrators	3
Home Economics 300	Nutrition	2
Health Education 292	First Aid and Safety	3
Health Education 453	Methods and Materials in Health Teaching	3
Public Health 421	Principles of Public Health II	3
Public Health 422	Principles of Public Health III	3
Public Health 423	Principles of Public Health IV	3
Public Health 461	School and Community Health Programs (included in general education requirements)	5

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HEALTH EDUCATION (SCHOOL OF PHYSICAL AND HEALTH EDUCATION)

FIRST AREA OF CONCENTRATION. The requirements are the following and any recommended courses to complete the area:

COURSES

CREDITS

Health Education 291	Personal and General Hygiene	3
Health Education 292	First Aid and Safety	3
Health Education 453	Methods and Materials in Health Teaching	3
Anatomy 301	General Anatomy	4
Zoology 118, 118L	Survey of Physiology, Elementary Physiology Laboratory	6
or Zoology 208	Elementary Human Physiology	5
Biology 101J-102J	General Biology	10
Chemistry 100	General Chemistry	4
or Chemistry 110	General Chemistry	3
Chemistry 120	General and Organic Chemistry	5

Sociology 110	Survey of Sociology	5
Conjoint 496	Concept of the Child	3
or Education 402	Child Study and Development (included in general education requirements)	3
Home Economics 300	Nutrition	2
Microbiology 301	General Microbiology (or approved substitute)	5
Psychiatry 267	Introduction to Mental Hygiene	2
or Psychiatry 450	Principles of Personality Development	2
or Education 408	Mental Hygiene for Teachers and Administrators	3
Psychology 100	General Psychology	5
Public Health 420, 421, 422, 423	Principles of Public Health I, II, III, IV	11
Public Health 461	School and Community Health Programs (included in general education requirements)	5
Public Health 464	Community Health Education Techniques	3
Sociology 353	Social Factors in Marriage	3
or Home Economics 356	Family Relationships	3
Speech 100	Basic Speech Improvement	5

BASIC ACADEMIC FIELD. The requirements are 45 credits and group requirements in science to be selected from the same courses as listed for the first area of concentration in health education (School of Physical and Health Education). Selection of courses for the basic academic field should be made with guidance from a health education adviser in the School of Physical and Health Education.

SECOND AREA OF CONCENTRATION. The requirements are the following and any recommended courses to complete the area.

COURSES		CREDITS
Health Education 291	Personal and General Hygiene	3
Health Education 292	First Aid and Safety	3
Health Education 453	Methods and Materials in Health Teaching	3
Public Health 421, 422, 423	Principles of Public Health I, II, III, IV	9
Public Health 461	School and Community Health Programs (included in general education requirements)	5
Home Economics 300	Nutrition	2

PHYSICAL EDUCATION FOR MEN

FIRST AREA OF CONCENTRATION. The requirements are a total of 99 credits, including the following:

HEALTH EDUCATION

HEALTH EDUCATION			CREDITS
COURSES			
Health Education 291	Personal and General Hygiene		3
Health Education 292	First Aid and Safety		3
Health Education 465	The School Health Education Program		3

PHYSICAL EDUCATION

Physical Education 161	Skills and Materials in Aquatics	2
Physical Education 162	Skills and Materials in Gymnastics	2
Physical Education 163	Skills and Materials in Team Sports	2
Physical Education 190	Introduction to Physical and Health Education	2
Physical Education 264	Skills and Materials in Boxing and Wrestling	2
Physical Education 265	Skills and Materials in Low-Organized Games	2
Physical Education 266	Skills and Materials in Individual Sports	2
Physical Education 293	Physiology of Muscular Exercise	2
Physical Education 309	The School Dance Program	3
Physical Education 322	Kinesiology	3
Physical Education 340	Administration of Intramural Sports	3
Physical Education 345	Principles of Physical Education	3
Physical Education 358	Methods of Teaching Gymnastics	3
Physical Education 361	Methods of Teaching Boxing and Wrestling	2
Physical Education 363	Methods of Teaching Sports	2
Physical Education 364	Methods of Teaching Aquatics	2
Physical Education 447	Tests and Measurements	3
Physical Education 450	The School Physical Education Program	3
Physical Education 493	Problems in Athletics	3
Physical Education	electives selected from 370 Coaching of Football (2), 371 Coaching of Basketball (2), 372 Coaching of Track and Field (2), 373 Coaching of Baseball (2)	to total 6

RECREATION EDUCATION

Recreation Education 294	Introduction to Recreation	2
Recreation Education 324	Recreation Programs	3

RELATED COURSES

Anatomy 301	General Anatomy	4
Psychology 100	General Psychology (included in general education requirements)	5
Sociology 110	Survey of Sociology	5
Speech 100	Basic Speech Improvement (included in general education requirements)	5

THE PROGRAMS IN EDUCATION

45

Biology 101J-102J General Biology	10
or Zoology 111, 112 General Zoology	10
Zoology 118 Survey of Physiology	5
or Zoology 208 Elementary Human Physiology	5
or Zoology 358 Vertebrate Physiology	6

BASIC ACADEMIC FIELD. The requirements are a total of 50 credits, including the following:

HEALTH EDUCATION

COURSES	CREDITS
Health Education 292 First Aid and Safety	3

PHYSICAL EDUCATION

Physical Education 161 Skills and Materials in Aquatics	2
Physical Education 162 Skills and Materials in Gymnastics	2
Physical Education 163 Skills and Materials in Team Sports	2
Physical Education 190 Introduction to Physical and Health Education	2
Physical Education 264 Skills and Materials in Boxing and Wrestling	2
Physical Education 265 Skills and Materials in Low-Organized Games	2
Physical Education 266 Skills and Materials in Individual Sports	2
Physical Education 293 Physiology of Muscular Exercise	3
Physical Education 309 The School Dance Program	2
Physical Education 322 Kinesiology	3
Physical Education 340 Administration of Intramural Sports	3
Physical Education 345 Principles of Physical Education	3
Physical Education 358 Methods of Teaching Gymnastics	2
Physical Education 361 Methods of Teaching Boxing and Wrestling	2
or Physical Education 364 Methods of Teaching Aquatics	2
Physical Education 363 Methods of Teaching Sports	2
Physical Education 370 Coaching of Football	2
Physical Education 371 Coaching of Basketball	2
Physical Education 450 The School Physical Education Program	3
Physical Education 493 Problems in Athletics	3

RECREATION EDUCATION

Recreation Education 324 Recreation Programs	3
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SECOND AREA OF CONCENTRATION. The requirements are 27 credits, including the following:

PHYSICAL EDUCATION

COURSES	CREDITS
Physical Education 161 Skills and Materials in Aquatics	2
Physical Education 162 Skills and Materials in Gymnastics	2
Physical Education 163 Skills and Materials in Team Sports	2
Physical Education 264 Skills and Materials in Boxing and Wrestling	2
Physical Education 265 Skills and Materials in Low-Organized Games	2
Physical Education 266 Skills and Materials in Individual Sports	2
Physical Education 345 Principles of Physical Education	3
Physical Education 358 Methods of Teaching Gymnastics	2
or Physical Education 361 Methods of Teaching Boxing and Wrestling	2
or Physical Education 363 Methods of Teaching Sports	2
or Physical Education 364 Methods of Teaching Aquatics	2
Physical Education 370 Coaching of Football	2
or Physical Education 371 Coaching of Basketball	2
or Physical Education 372 Coaching of Track and Field	2
or Physical Education 373 Coaching of Baseball	2
Physical Education 450 The School Physical Education Program	3

RELATED COURSES

Zoology 118 Survey of Physiology	5
or Zoology 208 Elementary Human Physiology	5
or Zoology 358 Vertebrate Physiology	6

PHYSICAL EDUCATION FOR WOMEN

FIRST AREA OF CONCENTRATION. Students who plan to complete a first area of concentration will follow the program listed below:

COURSES	CREDITS
FIRST YEAR: 49 credits	
Health Education 110 Health Education	2
Physical Education 115 Archery	1
Physical Education 121 Bowling	1
Physical Education 157 Canoeing	1
Physical Education 181, 182, 185, 283 Physical Education Backgrounds	4
Physical Education 190 Introduction to Physical and Health Education	2
Physical Education 281 or 284 Physical Education Backgrounds	1
English 101, 102, 103 Composition	9
Chemistry 100 General (or one year high school chemistry)	5

Physics 170 and 170L Introduction to Health Sciences Physics and Laboratory	6
Sociology 110 Survey of Sociology	5
Speech 100 Basic Speech Improvement (included in general education requirements)	5
Electives and teacher-training requirements	7

SECOND YEAR: 45 credits

Physical Education 282 and 281 or 284 Physical Education Backgrounds	2
Health Education 292 First Aid and Safety	3
Physical Education 304 or 305 or 306 Officiating	2
Physical Education 312 Elementary School Athletic Program	3
Physical Education 318 Analysis of Rhythm	3
Recreation Education 344 Organization and Administration of Camp Programs	3
Anatomy 301 General Anatomy	4
Psychology 100 General Psychology (included in general education requirements)	5
Electives and professional education requirements	20

THIRD YEAR: 45 credits

Physical Education 293 Physiology of Muscular Exercise	3
Physical Education 301 Methods and Materials in Gymnastics, Stunts, and Tumbling	3
Physical Education 311 Rhythmic Activities for Small Children	2
Physical Education 362 Methods and Materials in Teaching Folk, Tap, and Clog Dancing	2
Physical Education 363 Methods and Materials in Teaching Sports	3
Physical Education 364 Methods and Materials in Teaching Aquatics	3
Physical Education N466 Coaching (two quarters)	0
Home Economics 300 Nutrition	2
Public Health 421 Principles of Public Health II (if not accompanied by health education area)	3
Zoology 118 and 118L Survey of Physiology and Elementary Physiology Laboratory	6
Electives and professional education requirements	18

FOURTH YEAR: 45 credits

Health Education 453 Methods and Materials in Health Teaching (if not accompanied by health education area)	3
Physical Education 322 Kinesiology	3
Physical Education 345 Principles of Physical Education	3
Physical Education 356 Methods and Materials in Teaching Modern Dance	2
Physical Education 435 Adapted Activities	3
Physical Education 450 The School Physical Education Program	2
Physical Education N466 Coaching (one quarter)	0
Physical Education 480 Principles of Movement	3
Electives and professional education requirements	26

BASIC ACADEMIC FIELD. The requirements are 45 credits and the following courses to satisfy general University requirements. It is recommended that students confer with the Department concerning appropriate selection of activities before registering.

COURSES	CREDITS
Physical Education Activities	3
Zoology 118 and 118L Survey of Physiology and Elementary Physiology Laboratory	6
Anatomy 301 General Anatomy	4

Basic academic field course requirements include:

FIRST YEAR

Physical Education 181, 182, 183 Physical Education Backgrounds	3
Physical Education 283 Physical Education Backgrounds	1

SECOND YEAR

Health Education 292 First Aid and Safety	3
Physical Education 281, 282, 284 Physical Education Backgrounds	3
Physical Education 318 Analysis of Rhythm	3
Recreation Education 344 Organization and Administration of Camp Programs	3

THIRD YEAR

Physical Education 304, 305, 306 Officiating (two courses)	4
Physical Education 363 Methods and Materials in Teaching Sports	3
Physical Education electives selected from 356 Methods and Materials in Teaching Modern Dance (2), 362 Methods and Materials in Teaching Folk, Tap, and Clog Dancing (2), 309 The School Dance Program (2), 364 Methods and Materials in Teaching Aquatics (3)	to total 4 or 5

FOURTH YEAR

Health Education 453 Methods and Materials in Health Teaching	3
Physical Education 450 The School Physical Education Program	2
Physical Education 480 Principles of Movement	3
Physical Education electives selected from 293 Physiology of Muscular Exercise (3), 322 Kinesiology (3), 345 Principles of Physical Education (3), one additional officiating course, one additional methods course from elective group	to total 9 or 10

SECOND AREA OF CONCENTRATION. The requirements are the following and any

recommended courses to complete the area, chosen in consultation with an adviser.

COURSES	CREDITS
Health Education 292 First Aid and Safety	3
Physical Education 181, 182, 183 Physical Education Backgrounds	3
Physical Education 309 The School Dance Program	2
Physical Education 312 Elementary School Athletic Program	3
Physical Education 345 Principles of Physical Education	3
Physical Education 363 Methods and Materials in Teaching Sports	3
Zoology 118 Survey of Physiology	5
or Zoology 208 Elementary Human Physiology	5
or Zoology 358 Vertebrate Physiology	6

AREA III, LANGUAGE ARTS

DRAMA

FIRST AREA OF CONCENTRATION. The requirements are 63 credits in drama and 20 credits in English, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Drama 101, 102 Introduction to the Theatre	4
Drama 146, 147, 148 Theatre Speech	9
Drama 251, 252, 253 Acting	9
Drama 403 Scene Construction	3
Drama 404 Scene Design	3
Drama 405 Historic Costume for the Stage	3
Drama 406 Make-up	3
Drama 414 Stage Lighting	3
Drama 421 or 423 Advanced Acting	3
Drama 422 Advanced Acting	3
Drama 427, 428, 429 History of the Theatre	6
Drama 451, 452, 453 Representative Plays	9
Drama 481 or 482 or 483 Directing	3
Drama 497 Theatre Organization and Management	2
English electives selected from 264 Literary Backgrounds (5), 265 Literary Backgrounds (5), 370 Shakespeare (5), 371 Shakespeare (5), 372 Shakespeare (5)	to total 20

BASIC ACADEMIC FIELD. The requirements are 40 credits, including the following, and any recommended courses to complete the field.

COURSES	CREDITS
Drama 101, 102 Introduction to the Theatre	4
Drama 146, 147, 148 Theatre Speech	6
Drama 251, 252 Acting	6
Drama 434, 436 Children's Theatre	6
Drama 437, 438, 439 Creative Dramatics with Children	9
Drama 499 Undergraduate Research	3
Drama electives (approved by School of Drama)	6

SECOND AREA OF CONCENTRATION. The requirements are 33 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Drama 101, 102 Introduction to the Theatre	4
Drama 146, 147, 148 Theatre Speech	9
Drama 251, 252 Acting	6
Drama electives selected from 403 Scene Construction (3), 404 Scene Design (3), 405 Historic Costume for the Stage (3), 406 Make-up (3), 414 Stage Lighting (3)	to total 6
Drama electives selected from 427 History of the Theatre (2), 428 History of the Theatre (2), 429 History of the Theatre (2), 451 Representative Plays (3), 452 Representative Plays (3), 453 Representative Plays (3)	to total 6
Drama 497 Theatre Organization and Management	2

ENGLISH

FIRST AREAS OF CONCENTRATION. The requirements for specialization in advanced writing are 50 credits in English and 10 credits in education and speech, including the following, and recommended courses in advanced writing, literature, and related fields to complete the area.

COURSES	CREDITS
English 258 Introduction to Fiction	5
English 264 Literary Backgrounds	5
or English 370 Shakespeare	5
English 362 or 363 American Literature	5
or English 466 Modern American Literature	5
English 377 Early Nineteenth-Century Literature	5
or English 374 Late Nineteenth-Century Literature	5

English 387 English Grammar	5
or English 417 History of the English Language	5
English 448 or 449 The English Novel	5
English electives selected from 251 Factual Writing (3), 252 Factual Writing (3), 261 Verse Writing (5), 262 Verse Writing (5), 263 Verse Writing (5), 328 Dramatic Composition (3), 329 Dramatic Composition (3), 277 Narrative Writing (3), 278 Narrative Writing (3)	to total 6
Upper-division writing courses, 10 credits in consecutive courses	15
Education 326 Teachers' Course in English (included in professional education requirements)	5
Speech 240 Oral Interpretation	5

The requirements for specialization in literature are 50 credits in English and 10 credits in education and speech, including the following, and any recommended courses in upper-division literature, advanced writing, and foreign literature in translation to complete the area.

COURSES	CREDITS
English 257 Introduction to Poetry	5
or English 258 Introduction to Fiction	5
English 351 Chaucer and His Contemporaries	5
English 370 Shakespeare	5
English 344 or 345 Eighteenth-Century English	5
or English 367 or 368 or 369 Seventeenth-Century Literature	5
English 374 or 375 Late Nineteenth-Century Literature	5
or English 377 or 378 or 379 Early Nineteenth-Century Literature	5
English 361 or 362 or 363 American Literature	5
English 387 English Grammar	3
or English 417 History of English Language	5
Courses which continue or are closely related in period or subject matter to two of those already chosen	10
Education 326 Teachers' Course in English (included in professional education requirements)	5
Speech 240 Oral Interpretation	5
Advanced writing	3

BASIC ACADEMIC FIELD. The requirements are 45 credits, including the following, and any recommended courses to complete the field.

COURSES	CREDITS
English 257 Introduction to Poetry	5
or English 258 Introduction to Fiction	5
English 351 Chaucer and His Contemporaries	5
English 370 Shakespeare	5
English 344 or 345 Eighteenth-Century English	5
or English 367 or 368 or 369 Seventeenth-Century Literature	5
English 374 or 375 Late Nineteenth-Century Literature	5
or English 377 or 378 or 379 Early Nineteenth-Century Literature	5
English 361 or 362 or 363 American Literature	5
English electives, 10 credits of which continue or are closely related to two of the upper-division courses already chosen	15

SECOND AREAS OF CONCENTRATION. One area requires 36 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Speech 240 Oral Interpretation	5
English 387 English Grammar	3
or English 417 History of the English Language	5
Advanced writing	3
Literature electives, including Shakespeare and nineteenth-century English and American literature	to total 23-25

The other area requires 24 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Speech 240 Oral Interpretation	5
Advanced writing and literature (one course each)	6-10
Electives, preferably including either:	
English 264, 265, 266 Literary Backgrounds	15
or English 257 Introduction to Poetry (5) and English 258 Introduction to Fiction (5) and English 387 English Grammar (3) or English 417 History of the English Language (5)	to total 13-15

FRENCH

FIRST AREA OF CONCENTRATION. The requirement is study supervised by an adviser in the Department of Romance Languages and Literature, normally 47 credits beyond French 101-102, 103 Elementary (5-5,5) or beyond two high school years, including the following:

COURSES	CREDITS
French 201, 202, 203 Intermediate (or a third high school year)	9
French 301, 302, 303 Advanced Composition	6
French 327 or 328 or 329 Advanced Conversation	2
or French 330 Conversational French	2½-4
French 358 Advanced Syntax	2
French 409 Advanced Phonetics	3
Electives in Romance Department courses numbered above 400, with some additional directed reading	12
Romance 401 Introduction to Romance Linguistics	2
Education 329 Teachers' Course in French (included in professional education requirements)	2

BASIC ACADEMIC FIELD. The requirement is the same as for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirement is study supervised by an adviser in the Department of Romance Languages and Literature, normally 26 credits in French approved by that Department, Romance 401 Introduction to Romance Linguistics (2), and Education 329 Teachers' Course in French (2), totaling 30 credits beyond French 101-102, 103 Elementary (5-5,5) or beyond two high school years. See Modern Language Association of America, "Subject-Matter Qualifications for the Secondary School Teacher of a Modern Foreign Language."

GERMANIC LANGUAGES AND LITERATURE

FIRST AREA OF CONCENTRATION. The requirements are 36 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
German 207 Second-Year Grammar Review	3
German 230 Conversation	3
German 300 Phonetics	2
German 301, 302, 303 Grammar and Conversation	6
German 401, 402, 403 Grammar and Composition	6
Education 330 Teachers' Course in German (included in professional education requirements)	2

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 20 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
German 207 Second-Year Grammar Review	3
German 300 Phonetics	2
German 301, 302, 303 Grammar and Conversation	6
German 401, 402, 403 Grammar and Composition	6
Education 330 Teachers' Course in German	2

For students who enter the University with no high school German, the recommended courses are German 101-102, 103 First-Year Speaking German (5-5,5). For students who enter with two years of high school German, the recommended courses are German 205 Second-Year Reading (3); 210 Advanced Second-Year Reading (3); 310, 311 Introduction to the Classical Period (3,3); and 312 Introduction to the German Novelle (3).

JOURNALISM

All journalism courses must be scheduled by arrangement with the Director of the School of Communications through the curriculum adviser. A 3.00 minimum grade-point average must be maintained in all journalism courses, otherwise credits may be applied only toward a second area of concentration.

FIRST AREA OF CONCENTRATION. The requirements are 45 credits, including the following:

COURSES	CREDITS
Advertising 226 Introduction to Advertising	3
Journalism 200 News Writing	5

Journalism 301	Copy Editing	3
Journalism 320	Legal Aspects of Journalism	3
Journalism 375J	Teachers' Course in Journalism (included in professional education requirements)	3
Journalism 381	Graphic Arts and Typography	3
Communications 303	Public Relations	3
Communications 316	Contemporary Affairs	3
Electives selected from Advertising 340	Advertising Procedures (5), Communications 414 History of Journalism (3), Journalism 318, 319 Reporting (3,3)	3
347	Newspaper Operation (5), 391 Photographic Laboratory (1), 404 Magazine Article Writing (3), 413 Editorial Writing, Policies, and Research (3)	to total 14

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 21 credits, including the following, and any recommended courses to complete the area.

COURSES		CREDITS
Advertising 226	Introduction to Advertising	3
Journalism 200	News Writing	5
Journalism 300	Laboratory Work on <i>University Daily</i>	3
Journalism 301	Copy Editing	3
Journalism 375J	Teachers' Course in Journalism	3
Journalism 381	Graphic Arts and Typography	3

LATIN

FIRST AREA OF CONCENTRATION. The requirements are 27 credits in upper-division Latin courses, 9 credits chosen with the consent of the Department from upper-division Latin and Greek courses, and the following and any recommended courses to complete the area.

COURSES		CREDITS
Classics 430	Greek and Roman Mythology	3
Classics 440	Greek and Roman Critics in English	3
History 201-202	Ancient History	10
History 403	The Roman Republic	3
History 404	The Roman Empire	3
Philosophy 320	History of Ancient and Medieval Philosophy	5

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 20 credits in Latin courses numbered above 300, including the following, and any recommended courses to complete the area.

COURSES		CREDITS
Latin 309	Advanced Grammar and Composition	1-4

LIBRARIANSHIP

A high school librarian's certificate is required of all librarians in accredited high schools. Applicants must hold a teaching certificate. Course requirements are as follows:

1. For librarianship in schools with enrollment of 100 or less: a minimum of 7½ quarter credits in approved courses in library science.
2. For librarianship in schools with enrollment of 100 to 200: a minimum of 15 quarter credits in approved courses in library science.
3. For librarianship in schools with enrollment of 200 to 500: one year of training in an approved library school recommended. The minimum requirement for schools in this group is the same as that in 2 above.
4. For librarianship in schools with enrollment of 500 or more: one year of training in an approved library school.

SECOND AREA OF CONCENTRATION. The requirements are 19 credits, including the following and any recommended courses to complete the area.

COURSES		CREDITS
Librarianship 451	Children's Books	3
Librarianship 460	School Library Administration	3
Librarianship 461	School Library Materials	3
Librarianship 462	Reading of Young People	3
Librarianship 463	Elementary Classification and Cataloging	4
Librarianship 464	Elements of Technical Processes	3

SPANISH

FIRST AREA OF CONCENTRATION. The requirement is study supervised by an adviser from the Department of Romance Languages and Literature, normally 47 credits beyond Spanish 101-102, 103 Elementary (5-5,5) or beyond two high school years, including the following:

COURSES	CREDITS
Spanish 201, 202, 203 Intermediate (or a third high school year)	9
Spanish 301, 302, 303 Advanced Composition and Conversation	9
Spanish 304, 305, 306 Survey of Spanish Literature	9
Spanish 327 or 328 or 329 Advanced Conversation	2
or Spanish 330 Conversational Spanish	2½-4
Spanish 409 Phonetics, Pronunciation, Intonation	3
Electives in Romance Department courses numbered 400, with some additional directed reading	11
Romance 401 Introduction to Romance Linguistics	2
Education 343 Teachers' Course in Spanish (included in professional education requirements)	2

BASIC ACADEMIC FIELD. The requirement is the same as for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirement is study supervised by an adviser from the Department of Romance Languages and Literature, normally 26 credits in Spanish approved by that Department, Romance 401 Introduction to Romance Linguistics (2), and Education 343 Teachers' Course in Spanish (2), totaling 30 credits beyond Spanish 101-102, 103 Elementary (5-5,5) or beyond two high school years. See Modern Language Association of America, "Subject-Matter Qualifications for the Secondary School Teacher of a Modern Foreign Language."

SPEECH

FIRST AREA OF CONCENTRATION in general speech (secondary emphasis). The student must pass proficiency tests in extempore speaking and oral reading. The requirements are 40 credits in speech, including the following:

COURSES	CREDITS
Speech 100 Basic Speech Improvement	5
Speech 120 Introduction to Public Speaking	5
Speech 230 Essentials of Argument	5
Speech 240 Oral Interpretation	5
Speech 310 Voice Science	5
Speech 332 Principles of Group Discussion (3 credits can be earned in extension; 5 in residence)	3 or 5
Speech 352 Introduction to the Teaching of Speech	2
Speech 470 Speech Correction (3 credits can be earned in extension; 5 in residence)	3 or 5
Education 342 Teachers' Course in Speech (included in professional education requirements)	3
At least 2 credits from:	
Speech 339 Public Discussion Workshop	1-3
or Speech 349 Oral Interpretation Workshop	1-3
or (by special permission) Radio-TV 350 Laboratory Work on KUOW	2-5
or Radio-TV 465 Television Workshop Laboratory	4
In case of individual need:	
Speech 110 Voice Improvement	2
and/or Speech 111 Articulation Improvement	2
Education 326 Teachers' Course in English (included in professional education requirements)	5
Drama 426 High School Play Production	3
Approved American and/or English literature courses	13

In the fifth year, the student must elect an additional 15 credits in speech approved by the Department of Speech including Speech 400 Backgrounds in Speech (5), unless it has already been completed.

BASIC ACADEMIC FIELD in general speech (elementary emphasis). The student must pass proficiency tests in extempore speaking and oral reading. The requirements are 40 credits in approved speech courses, including the following:

COURSES	CREDITS
Speech 100 Basic Speech Improvement	5
Speech 120 Introduction to Public Speaking	5
Speech 240 Oral Interpretation	5
Speech 310 Voice Science	5

Speech 332 Principles of Group Discussion (3 credits can be earned in extension; 5 in residence)	3 or 5
Speech 352 Introduction to the Teaching of Speech	2
Speech 359 Speech in the Classroom	3
Speech 470 Speech Correction (3 credits can be earned in extension; 5 in residence)	3 or 5
At least 2 credits from:	
Speech 339 Public Discussion Workshop	1-3
or Speech 349 Oral Interpretation Workshop	1-3
or (by special permission) Radio-TV 350 Laboratory Work on KUOW	2-5
or Radio-TV 465 Television Workshop Laboratory	4
In case of individual need:	
Speech 110 Voice Improvement	2
and/or Speech 111 Articulation Improvement	2

In the fifth year, the student must elect an additional 15 credits in speech approved by the Department of Speech including Speech 400 Backgrounds in Speech (5), unless it has already been completed.

SECOND AREA OF CONCENTRATION in general speech. The requirements are 25 credits in speech, including the following:

COURSES	CREDITS
Speech 100 Basic Speech Improvement	5
Speech 120 Introduction to Public Speaking	5
Speech 230 Essentials of Argument	5
or Speech 240 Oral Interpretation	5
Speech 352 Introduction to the Teaching of Speech	2
Speech 470 Speech Correction (3 credits can be earned in extension; 5 in residence)	3 or 5
Education 342 Teachers' Course in Speech (secondary emphasis)	3
or Speech 359 Speech in the Classroom (elementary emphasis)	3

In the fifth year, the student must elect an additional 5 credits in courses approved by the Department of Speech.

FIRST AREA OF CONCENTRATION in speech correction and hearing. The student must pass proficiency tests in extempore speaking and oral reading. The requirements are 45 credits, including the following:

COURSES	CREDITS
Speech 100 Basic Speech Improvement	5
Speech 310 Voice Science	2
Speech 352 Introduction to the Teaching of Speech	2
Speech 470 Speech Correction (3 credits can be earned in extension; 5 in residence)	3 or 5
Speech 471 Speech Correction	5
Speech 473 Diagnostic Methods in Speech Correction	5
Speech 474 Clinical Practice in Speech Correction	8
and/or Speech 484 Clinical Practice in Aural Rehabilitation	8
Speech 480 Introduction to Hearing (3 credits can be earned in extension; 5 in residence)	3 or 5
Speech 481 Principles and Methods of Aural Rehabilitation	5
Speech 487 Audiometry	2
In case of individual need:	
Speech 110 Voice Improvement	2
and/or Speech 111 Articulation Improvement	2

In the fifth year, the student must elect an additional 15 credits in speech approved by the Department of Speech including Speech 400 Backgrounds in Speech (5), unless it has already been completed. It is expected that students who emphasize speech correction and hearing will also elect additional approved courses in psychology during the fifth year.

BASIC ACADEMIC FIELD in speech correction and hearing. The requirements are the same as those for the first area of concentration in speech correction and hearing.

AREA IV, SCIENCES AND MATHEMATICS

BIOLOGY

FIRST AREA OF CONCENTRATION. The requirements are 60 credits, most of which are in specific courses or areas as follows:

The entering student may elect to begin his program with the 10-credit sequence Biology 101J-102J General Biology (10). In this case, he will continue his elementary training with Botany 112 and 113 Elementary Botany (5,5) and Zoology 112 General Zoology (5). Or he may begin his program with either Botany 111

Elementary Botany (5) or Zoology 111 General Zoology (5) and continue his program as if he had completed General Biology. Beyond the elementary program, the required courses in botany include either Botany 371 Elementary Plant Physiology (5) or 472 Plant Physiology (5). Required courses in zoology include: either Zoology 358 Vertebrate Physiology (6) or 400 General Physiology (5); 330 Natural History of Marine Invertebrates (5) or 433, 434 Invertebrate Zoology (10) or 444 Entomology (5) or Biology 472 Principles of Ecology (5); and Zoology 362 Natural History of the Vertebrates (5) or 463 Natural History of Amphibia and Reptiles (5) or 464 Natural History of Birds (Ornithology) (5) or 465 Natural History of Mammals (5). Other required courses are Microbiology 301 General Microbiology (5) and Biology 451 Genetics (3 or 5).

Depending upon the sequence selected, the student will complete 50 to 60 credits in this program. If 10 more credits are needed, he must elect them usually from the following approved courses: Botany 201 and 202 Plant Propagation (2,2) or 331 Ornamental Plants (3), Biology 401 Cytology (3), Zoology 433, 434 Invertebrate Zoology (10), 456 Vertebrate Embryology (5), and Biology 473 Limnology (5).

BASIC ACADEMIC FIELD. The requirements are 45 credits, including the following:

COURSES	CREDITS
Botany 111, 112, 113 Elementary Botany	15
Zoology 111, 112 General Zoology	10
Twenty credits including at least 5 credits in botany and 10 credits in zoology from the following: Botany 201 Plant Propagation (2), Botany 202 Plant Propagation (2), Botany 203 Plant Propagation (2), Botany 331 Ornamental Plants (3), Botany 371 Elementary Plant Physiology (5), Zoology 330 Natural History of Marine Invertebrates (5), Zoology 362 Natural History of Vertebrates (5), Zoology 118 Survey of Physiology (5)	to total 20

SECOND AREA OF CONCENTRATION. The requirements are 30 credits, including either 1. Botany 111 Elementary Botany (5), and 10 credits selected from 112 Elementary Botany (5), and 113 Elementary Botany (5), or 371 Elementary Plant Physiology (5); or 2. Biology 101J-102J General Biology (5-5), Botany 112 Elementary Botany (5), or 113 Elementary Botany (5), and 371 Elementary Plant Physiology (5); and either 1. Zoology 111 General Zoology (5), and 112 General Zoology (5), and any 5-credit upper-division laboratory course in zoology; or 2. Biology 101J-102J General Biology (5-5), with a grade of A or B and 10 credits in any upper-division laboratory courses in zoology (if the grade in Biology 101J-102J is C, Zoology 112 must precede the laboratory courses in zoology); and any recommended courses to complete the area.

CHEMISTRY

Grades of C or above must be obtained in all chemistry courses counted to meet the minimum requirements for a first or second area of concentration or a basic academic field.

FIRST AREA OF CONCENTRATION. The requirements are 36 credits, including the following, one year of college physics, and mathematics through Mathematics 153 (Analytic Geometry and Calculus).

COURSES	CREDITS
Chemistry 100 or 110 General Chemistry	4 or 3
Chemistry 150 General Chemistry	4
Chemistry 160 General Chemistry	3
Chemistry 170 Qualitative Analysis	3
Chemistry 221 Quantitative Analysis	5
Chemistry 231 Organic Chemistry	3
Chemistry 232 Organic Chemistry	3
Chemistry 241 Organic Chemistry Laboratory	2
Chemistry 242 Organic Chemistry Laboratory	2
Chemistry 355 Physical Chemistry	4
Approved Chemistry electives selected from 333, 356, 358, 425 or other electives chosen in consultation with the Department.	

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 26 credits, including the following, one year of high school or college physics, and any recommended courses to complete the area.

COURSES	CREDITS
Chemistry 100 or 110 General Chemistry	4 or 3
Chemistry 150 General Chemistry	4
Chemistry 160 General Chemistry	3
Chemistry 170 Qualitative Analysis	3
Chemistry 221 Quantitative Analysis	5
Chemistry 231 Organic Chemistry	3
Chemistry 232 Organic Chemistry	3
Chemistry 241 Organic Chemistry Laboratory	2

GEOLOGY

FIRST AREA OF CONCENTRATION. The requirements are 36 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Geology 205 Rocks and Minerals	5
Geology 206 Elements of Physiography	5
Geology 207 Historical Geology	5
Geology 412 Physiography of the United States	5

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 20 credits, including the following, and approved electives and any recommended courses to complete the area.

COURSES	CREDITS
Geology 101 Survey of Geology	5
Geology 205 Rocks and Minerals	5
Geology 206 Elements of Physiography	5

MATHEMATICS

Grades of C or above must be obtained in all mathematics courses counted to meet the minimum requirements for a first or second area of concentration or a basic academic field.

FIRST AREA OF CONCENTRATION. The requirements are 45 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Mathematics 105 College Algebra	5
Mathematics 120 Introduction to Mathematical Thinking	2
Mathematics 153 Analytic Geometry and Calculus	5
Mathematics 251 Analytic Geometry and Calculus	5
Mathematics 252 Analytic Geometry and Calculus	5
Mathematics 253 Analytic Geometry and Calculus	3
Approved electives, including 5 credits in advanced algebra and 5 credits in advanced geometry	20

The only approved lower-division electives are Mathematics 112 Mathematics of Business (5), 121 Basic Ideas of Algebra (3), and 281 Elements of Statistical Method (5).

BASIC ACADEMIC FIELD. The requirements are 33 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Mathematics 105 College Algebra	5
Mathematics 120 Introduction to Mathematical Thinking	2
Mathematics 153 Analytic Geometry and Calculus	5
Mathematics 251 Analytic Geometry and Calculus	5
Mathematics 252 Analytic Geometry and Calculus	5
Approved electives	11

The only approved lower-division electives are Mathematics 112 Mathematics of Business (5), 121 Basic Ideas of Algebra (3), 253 Analytic Geometry and Calculus (3), and 281 Elements of Statistical Method (5).

SECOND AREA OF CONCENTRATION. The requirements are 25 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Mathematics 105 College Algebra	5
Mathematics 120 Introduction to Mathematical Thinking	2

Mathematics 153	Analytic Geometry and Calculus	5
Approved electives		13

The only approved lower-division electives are Mathematics 112 Mathematics of Business (5), 121 Basic Ideas of Algebra (3), 251, 252, 253 Analytic Geometry and Calculus (5,5,3), and 281 Elements of Statistical Method (5).

PHYSICS

Grades of C or above must be obtained in all physics courses counted to meet the minimum requirements for a first or second area of concentration or a basic academic field.

FIRST AREA OF CONCENTRATION. The requirements are 41 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Physics 121, 122, 123 General Physics	9
Physics 131, 132, 133 General Physics Laboratory	6
Physics 221, 222 Mechanics	6
Physics 225, 226 Electric Circuits	8
Physics 320 Introduction to Modern Physics	3
Physics 323 Introduction to Nuclear Physics	3
Physics 371, 372 Properties of Matter	6

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 25 credits, including the following, or approved substitutions.

COURSES	CREDITS
Physics 121, 122, 123 General Physics	9
Physics 131, 132, 133 General Physics Laboratory	6
Physics 221 Mechanics	3
Physics 225 Electric Circuits	4
Physics 320 Introduction to Modern Physics	3

AREA V, SOCIAL STUDIES

CIVICS

FIRST AREA OF CONCENTRATION. The requirements are 41 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Political Science 201 Modern Government	5
Political Science 360 The American Constitutional System	3
Political Science 376 State and Local Government and Administration	5
Economics 160 American Economic History	5
Sociology 110 Survey of Sociology	5
Political science electives	13
Economics or sociology electives	5

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 26 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Political Science 201 Modern Government	5
Political Science 360 The American Constitutional System	3
Economics 160 American Economic History	5
or Sociology 110 Survey of Sociology	5
Political science electives	13

ECONOMICS

FIRST AREA OF CONCENTRATION. The requirements are the specific courses listed below plus 25 additional credits in economics, other social sciences, or business administration, to be approved by an adviser in the Department of Economics.

COURSES	CREDITS
Economics 200 Introduction to Economics	5
Economics 201 Principles of Economics	5
Economics 301 National Income Analysis	5
Economics 302 Intermediate Economics	5
Economics 312 Current Economic Problems	5
Accounting 150 Fundamentals of Accounting	4

Accounting 255	Basic Accounting Analysis	3
Business Statistics 201	Statistical Analysis	5
or Mathematics 281	Elements of Statistical Method	5
or Psychology 301	Statistical Methods	5
or Sociology 223	Social Statistics	5

BASIC ACADEMIC FIELD. The requirements are 45 credits chosen from the courses required for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 25 credits, including the following, and two upper-division courses from two different fields of specialization and any recommended courses to complete the area.

COURSES		CREDITS
Economics 200	Introduction to Economics	5
Economics 201	Principles of Economics	5

FAR EASTERN

A 2.20 grade-point average is required in Far Eastern courses.

SECOND AREA OF CONCENTRATION. The requirements are 18 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Far Eastern 110 The Far East in the Modern World	5
or Far Eastern 310 The Far East in the Modern World	5
Far Eastern 240 Chinese Civilization	5
or Far Eastern 242 Korean Civilization	3
or Far Eastern 243 Russian Civilization	5
or Far Eastern 296J History of Japanese Civilization	5
or Far Eastern 314J Peoples of Central and Northern Asia	3
or Far Eastern 443 Chinese Social Institutions	5
Far Eastern 423J Recent Russian History	5
or Far Eastern 447 Modern Chinese History	5
or Far Eastern 454J Modern Japanese History	5
Approved electives carrying Far Eastern credit	3 or 5

GEOGRAPHY

FIRST AREA OF CONCENTRATION. The requirements are 50 credits, including the following, and any recommended courses to complete the area.

COURSES		CREDITS
Geography 100	Introductory Human Geography	5
Geography 102	Introductory Physical Geography	5
Geography 202	Anglo-America	3
Geography 207	Introductory Economic Geography	5
Geography 210	The Pacific Northwest	3
Geography 258	Maps and Map Reading	2
Geography 325	Historical Geography of America	3
Additional	upper-division courses	24

BASIC ACADEMIC FIELD. The requirements are 45 credits, including the following, and any recommended courses to complete the field.

COURSES		CREDITS
Geography 100	Introductory Human Geography	5
Geography 102	Introductory Physical Geography	5
Geography 202	Anglo-America	3
Geography 207	Introductory Economic Geography	5
Geography 210	The Pacific Northwest	3
Geography 258	Maps and Map Reading	2
Geography 325	Historical Geography of America	3
Additional	upper-division courses	19

SECOND AREA OF CONCENTRATION. The requirements are 26 credits, including the following, and any recommended courses to complete the area.

COURSES		CREDITS
Geography 100	Introductory Human Geography	5
Geography 102	Introductory Physical Geography	5
Geography 202	Anglo-America	3
Geography 210	The Pacific Northwest	3
Geography 325	Historical Geography of America	3
Geography 370	Conservation of Natural Resources	3
One additional	geography course on the 400-level	5

HISTORY

A 2.50 grade-point average is required in history courses.

FIRST AREA OF CONCENTRATION. The requirements are 50 credits, including the following, and any recommended upper-division courses to complete the area.

COURSES	CREDITS
History 101 Medieval European History	5
and History 102 Modern European History	5
or Social Science 101 History of Civilization: The Great Cultural Traditions	5
or Social Science 102 History of Civilization: The Western Tradition in World Civilization	5
or Social Science 103 History of Civilization: The Contemporary World	5
History 201-202 Ancient History	10
History 241 Survey of the History of the United States	5
History 464 History of Washington and the Pacific Northwest	5

BASIC ACADEMIC FIELD. The requirements are 45 credits, including the same courses as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 30 credits, including the following, and any recommended upper-division courses to complete the area.

COURSES	CREDITS
History 101 Medieval European History	5
and History 102 Modern European History	5
or Social Science 101 History of Civilization: The Great Cultural Traditions	5
or Social Science 102 History of Civilization: The Western Tradition in World Civilization	5
or Social Science 103 History of Civilization: The Contemporary World	5
History 241 Survey of the History of the United States	5
History 464 History of Washington and the Pacific Northwest	5

POLITICAL SCIENCE

FIRST AREA OF CONCENTRATION. The requirements are 40 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Political Science 201 Modern Government	5
Political Science 202 American Government and Politics	5
Political Science 321 American Foreign Policy	3
or Political Science 336 National Power and International Politics	5
Political Science 351 The American Democracy	5
Political Science 360 The American Constitutional System	2 of these
Political Science 450 Political Parties and Elections	
Political Science 445 Comparative Political Institutions	
Political Science 376 State and Local Government and Administration	

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 20 credits, including the following, and any recommended courses to complete the area.

Political Science 202 American Government and Politics	5
Political Science 360 The American Constitutional System	3
or Political Science 450 Political Parties and Elections	5
Political Science 376 State and Local Government and Administration	5

PSYCHOLOGY

A 2.50 grade-point average is required in psychology courses.

FIRST AREA OF CONCENTRATION. The requirements are 36 credits, including the following:

COURSES	CREDITS
Psychology 100 General Psychology	5
Psychology 200 Advanced General Psychology	5
Psychology 301 Statistical Methods	5
Psychology 400 Psychology of Learning	5
or Psychology 416 Animal Behavior	3
or Psychology 427 Conditioning	5
Psychology 406 Experimental Psychology	5
or Psychology 426 Animal Laboratory	5
or Psychology 441 Perception	5
or Psychology 484 Laboratory in Child Behavior	5
or Psychology 499 Undergraduate Research	3
Psychology electives selected from 305 Abnormal Psychology (5), 306 Child Psychology (5), 307 Psychology of Adolescence (3), 309 Psychology of Exceptional Children (3)	
to total 11-13	

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 18 credits, including the following, and any recommended courses to complete the area.

COURSES	CREDITS
Psychology 100 General Psychology	5
Psychology 305 Abnormal Psychology	5
or Psychology 309 Psychology of Exceptional Children	3

SOCIOLOGY

FIRST AREA OF CONCENTRATION. The requirements are 40 credits, including the following:

COURSES	CREDITS
Sociology 110 Survey of Sociology	5
or Sociology 310 General Sociology	5
Sociology 223 Social Statistics	5
Sociology 230 Introduction to Human Ecology	5
or Sociology 331 Population Problems	5
or Sociology 430 Human Ecology	5
Sociology 240 Group Behavior	5
Sociology 450 Contemporary American Institutions	5
or Sociology 352 The Family	5
Sociology electives chosen after consultation regarding the special field of interest.....	15

BASIC ACADEMIC FIELD. The requirements are the same as those for the first area of concentration.

SECOND AREA OF CONCENTRATION. The requirements are 27 credits, including the following:

COURSES	CREDITS
Sociology 110 Survey of Sociology	5
or Sociology 310 General Sociology	5
Sociology 352 The Family	5
or Sociology 331 Population Problems	5
or Sociology 430 Human Ecology	5
Sociology electives chosen after consultation regarding the special field of interest.....	17

CERTIFICATE CONVERSION PROGRAM

The Standard General Certificate has been issued since August, 1951, and is valid in all grades (kindergarten through fourteen) so long as the holder teaches and five years thereafter. Candidates converting to the Standard General Certificate must plan their entire fifth year in advance under the supervision of advisers in the College of Education. Previous certificates and transcripts of all college work must be presented by the candidate when the conversion program is begun. The superintendent, principal, and/or supervisors in the school where the teacher is employed may have suggestions with reference to courses or areas in which additional work is needed. It is the responsibility of the teacher to have these suggestions available at the time of the interview with an adviser in 221 Miller Hall so that they may be considered in formulating the fifth-year program. It is possible that portions of the fifth year may apply toward an advanced degree. However, all work applied toward an advanced degree must have the approval of both the Graduate School and the major department.

The Standard General Certificate, issued by the State Department of Public Instruction, may be earned through the University of Washington, regardless of where the previous certificates were earned. Appropriate conversion programs are outlined below.

I. Candidates for conversion from the Provisional General Certificate to the Standard General Certificate must meet the following requirements.

A. A total of 45 quarter credits above the requirements for a bachelor's degree is required for the Standard General Certificate. These credits must meet the pattern for the fifth year as outlined.

- B. A maximum of 15 quarter credits in excess of degree requirements may be taken *before or during* the first year of teaching.
 - C. No less than 30 quarter credits must be taken after one year (180 days) of teaching experience.
 - D. A minimum of 30 quarter credits approved by the attesting institution must be completed *in residence* at one institution. These credits may be in the thirteenth, fourteenth, or fifteenth quarters.
 - E. If the Provisional General program has included 15 credits beyond the degree requirement, courses to apply toward the Standard General Certificate *may not* be taken before the completion of one year of teaching experience.
 - F. If the Provisional General program *has not* included any excess credits beyond the degree requirement, a maximum of 12 quarter credits by extension and/or correspondence or a maximum of 15 quarter credits in residence may be taken toward the fifth year before or during the first year of teaching.
 - G. A maximum of 12 quarter credits may be taken by correspondence and/or extension in the fifth year provided no transfer work from other institutions is included in the fifth-year pattern. Extension credits from teacher-training institutions which are not members of the National University Extension Association may be included in the attestation for the Standard General Certificate, although these credits cannot be recorded on the individual's record at the University of Washington.
 - H. Fifty per cent of the 45 quarter credits in the fifth year must be upper-division and/or graduate courses (numbered 300 and above).
 - I. A minimum grade-point average of 2.00 (C) must be maintained during the fifth year.
 - J. A petition for the Standard General Certificate should be filed in 221 Miller Hall when the conversion pattern is started.
 - K. An outline of the detailed current requirements for yearly renewal of the Provisional General Certificate and conversion to the Standard General Certificate should be obtained in 221 Miller Hall.
- II. Candidates for conversion from elementary *and* secondary certificates to the Standard General Certificate must meet the following requirements.
- A. Teachers who hold both a Three-Year or Six-Year Elementary *and* a Three-Year or Six-Year Secondary Certificate, or any other regular elementary *and* secondary certificates, are eligible for a Standard General Certificate provided they have had at least one year (180 days) of teaching experience.
 - B. File a petition for the Standard General Certificate with an adviser in 221 Miller Hall. TRANSCRIPTS OF ALL COLLEGE WORK MUST ACCOMPANY THE PETITION.
- III. Candidates for conversion of elementary certificates to the Standard General Certificate must meet the following requirements.
- A. A total of 45 quarter credits above the requirements for a bachelor's degree is required for the Standard General Certificate.
 - B. Candidates must take the following courses (or present their equivalents):
- | COURSES | QUARTER CREDITS |
|--|-----------------|
| Education 370 Introduction to Teaching Procedures..... | 5 |
| Education 372X or S Professional Laboratory Experiences (on the secondary school level)..... | 3 |
| Special Methods in the First Broad Area of Concentration for Secondary School Teaching | 2-5 |
- C. A minimum of 30 quarter credits must be in residence at the University of Washington or from an approved institution.
 - D. No less than 30 quarter credits must be taken after one year (180 days) of teaching experience.
 - E. A maximum of 12 quarter credits may be taken by correspondence and/or

- extension in the fifth year provided no transfer work from other institutions is included in the fifth-year pattern. Extension credits from teacher-training institutions which are not members of the National University Extension Association may be included in the recommendation for the Standard General Certificate, although these credits cannot be recorded on the individual's record at the University of Washington.
- F. A minimum grade-point average of 2.00 (C) must be maintained during the fifth year.
 - G. All candidates will be required to have had directed teaching on the elementary level.
 - H. Candidates must complete a major of 45 credits in one academic division.
 - I. Fifty per cent of the course work must be upper-division and/or graduate courses (numbered 300 or above).
 - J. An acceptable bachelor's degree must have been completed.
 - K. File a petition for the Standard General Certificate with an adviser in 221 Miller Hall when beginning the conversion work. **TRANSCRIPTS OF ALL COLLEGE WORK MUST ACCOMPANY THE PETITION.**
 - L. An outline of the detailed current requirements for conversion should be obtained in 221 Miller Hall.
- IV. Candidates for conversion of secondary certificates to Standard General Certificates must meet the following requirements.
- A. A total of 45 quarter credits above the requirements for a bachelor's degree is required for the Standard General Certificate.
 - B. Candidates must take the following courses or their equivalents to total 24 credits in elementary education:
- | COURSES | QUARTER CREDITS |
|--|-----------------|
| Education 370E Elementary School Methods | 5 |
| Education 374 Fundamentals of Reading Instruction | 5 |
| Education 402 Child Study and Development or Psychology 306 Child Psychology | 3-5 |
| Education 372E Professional Laboratory Experiences (on the elementary level) | 3 |
| Electives from the following or other approved courses in elementary education: | |
| Education 376 Art in the Elementary School | 5 |
| Education 377X-Y Music for Elementary Teachers | 6 |
| Education 378C,D Physical Education for the Elementary School | 6 |
| Education 379 Arithmetic for Elementary Teachers | 3 |
| Education 475S Improvement of Teaching: Science | 3 |
- C. A minimum of 30 quarter credits must be in residence at the University of Washington or from an approved institution.
 - D. No less than 30 quarter credits must be taken after one year (180 days) of teaching experience.
 - E. A maximum of 12 credits may be taken by correspondence and/or extension in the fifth year, provided no transfer work from other institutions has been included in the fifth-year pattern. Extension credits from teacher-training institutions which are not members of the National University Extension Association may be included in the recommendation for the Standard General Certificate, although these credits cannot be recorded on the individual's record at the University of Washington.
 - F. A minimum grade-point average of 2.00 (C) must be maintained during the fifth year.
 - G. All candidates will be required to have had directed teaching on the secondary level.
 - H. A major of 45 credits must be completed in one academic division.
 - I. Fifty per cent of the courses must be upper-division and/or graduate courses (numbered 300 and above).
 - J. An acceptable bachelor's degree must have been completed.
 - K. File a petition for the Standard General Certificate with an adviser in 221 Miller Hall when beginning the conversion work. **TRANSCRIPTS OF ALL COLLEGE WORK MUST ACCOMPANY THE PETITION.**
 - L. An outline of the detailed, current requirements for conversion should be obtained in 221 Miller Hall.

- V. Candidates for conversion of elementary certificates to Standard Elementary Certificates must meet the following requirements.
 - A. Persons holding a Three-Year or Six-Year Elementary Certificate or its equivalent who wish to convert to the Standard Elementary Certificate with the University of Washington as the recommending institution must have verification as to the completion of 45 quarter credits beyond the total credits required for a bachelor's degree.
 - B. In order to obtain the recommendation from the University of Washington 30 of the 45 credits must be taken in residence at the University of Washington.
 - C. Of the 45 credits, 30 must be taken after one year (180 days) of teaching experience.
 - D. Twelve of the 45 credits may be taken by correspondence and/or extension, provided no transfer work from other institutions has been included in the fifth-year pattern. Extension credits from teacher-training institutions which are not members of the National University Extension Association may be included in the recommendation for the Standard Elementary Certificate, although these credits cannot be recorded on the individual's record at the University of Washington. (Students working on advanced degrees should obtain the approval of their graduate adviser before registering for extension work.)
 - E. Fifty per cent of the 45 credits must be in upper-division courses and/or graduate courses (those numbered 300 and above).
 - F. A minimum grade-point average of 2.00 (C) must be maintained during the fifth year.
 - G. Candidates for the Standard Elementary Certificate should file a petition with an adviser in 221 Miller Hall when beginning the conversion program. TRANSCRIPTS OF ALL COLLEGE WORK MUST ACCOMPANY THE PETITION.
 - H. An outline of the detailed, current requirements for conversion should be obtained in 221 Miller Hall.
- VI. Teachers holding a Six-Year Elementary Certificate or the equivalent may remain certified by earning 9 quarter credits during the life of each Six-Year Certificate.
- VII. Persons holding a Six-Year Secondary Certificate or any other regular secondary certificate who wish to convert to the Standard Secondary Certificate should contact the State Department of Public Instruction for routines.

RENEWAL OF CERTIFICATES

Renewal of all teaching certificates must be made through the State Office of Public Instruction, in Olympia, Washington, some time before the expiration date of the original certificate, since a *lapsed certificate may be reinstated only upon completion of additional course work.*

OUT-OF-STATE TRANSFERS AND EMERGENCY CERTIFICATES

Information about out-of-state transfers, emergency and special types of certificates and credentials is contained in the state bulletin, *Certification of Teachers and Administrators*, which may be obtained from the State Office of Public Instruction in Olympia, Washington.

ADMINISTRATORS' CREDENTIALS

The requirements for administrative credentials are in process of modification. Since the State Department of Public Instruction handles the evaluations for these credentials, applicants should write to that Department and obtain a written statement of requirements before beginning a program of studies.

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, though 400 courses may carry graduate credit for graduate students.

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 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*.

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.

COURSES FOR UNDERGRADUATES

Courses 320 to 346J and course 375J are special methods courses in secondary subjects.

- | | |
|---|----------------------|
| 180, 181 Mechanical Drawing for Industrial Education Teachers (3,3) | Baily |
| Freehand sketching; orthographic projection; pictorial representation; dimensioning; lettering; developments; working drawing and blueprint reading. Prerequisite for 181, 180 or General Engineering 101. | |
| 182 General Shop for Industrial Education Teachers (5) | Baily, Horst |
| Introduction to industrial education; the common tools, materials, processes, and products of industry. | |
| 209 Educational Psychology (3) | Foa, Powers |
| The psychological basis of education. Recent experimentation. Prerequisites, Psychology 100 and a course in child development. | |
| 280 Fundamentals of Woodwork for Industrial Education Teachers (3) | Baily, Horst |
| Hand tool processes; elementary machine operations; methods of assembling and fastening; simple wood finishing. Prerequisites, 180 and 181, or equivalent. | |
| 281 General Metalwork for Industrial Education Teachers (3) | Baily, Horst |
| Tools, materials, and processes used in sheet metal, forging, casting, bench metal, ornamental iron work, welding, machining, and finishing of metal. Prerequisites, 180 and 181, or equivalent. | |
| 319 Supervision of Elementary Art Education (2) | Staff |
| Prerequisites, 370E and senior standing. | |
| 320 Teachers' Course in Art (3) | Johnson |
| Prerequisites, 209, 370, and senior standing. | |
| 321 Teachers' Course in Biology (2) | Blaser, Hatch |
| Prerequisites, 209, 370, and 25 credits in biology. | |
| 322 Teachers' Course in Chemistry (2) | Cady |
| Prerequisites, 209, 370, and at least 20 credits in college chemistry with a grade-point average of 3.00. | |
| 323 Teachers' Course in Civics (2) | Hitchner |
| Prerequisites, 209 and 370. | |
| 324 Teachers' Course in Business Education: Bookkeeping and General Business (2) | Briggs |
| Prerequisites, 209, 370, and 7 credits in accounting. | |
| 325 Teachers' Course in Business Education: Typewriting, Shorthand, Transcription, and Business Communications (2) | Brown |
| Prerequisites, 209, 370, Secretarial Training 111, 122, or permission. | |
| 326 Teachers' Course in English (5) | Emory |
| Two credits count as education and 3 as English. Prerequisites, 209 and 370. | |
| 327 Teachers' Course in Trade and Industrial Education (3) | Baily |
| Prerequisites, 209 and 370. | |
| 329 Teachers' Course in French (2) | Simpson |
| To acquaint prospective teachers with materials; methods and problems; current programs and experiments. May be taken concurrently with French 303 and 358. Prerequisites, 209 and 370, or permission of both the College of Education and of the instructor. | |

- 330 Teachers' Course in German (2)** **Meyer**
Prerequisites, 209 and 370, and either German 303 or permission.
- 331 Teachers' Course in History (2)** **Gates**
Prerequisites, 209 and 370.
- 332 Teachers' Course in Home Economics (3)** **McAdams**
Two credits count as education and 1 as home economics. Prerequisites, 209 and 370, and 25 credits in home economics.
- 333 Methods of Teaching for Institution Administration Students (5)** **McAdams**
Prerequisites, junior standing and 25 credits in home economics, including Home Economics 307.
- 334 Teachers' Course in Geography (2)** **Staff**
Prerequisites, 209 and 370, and permission.
- 335 Teachers' Course in Latin (2)** **Grummel, Pascal**
Prerequisites, 209 and 370 and 20 credits in upper-division Latin courses, or permission.
- 336 Teachers' Course in Mathematics (3)** **Staff**
Emphasis is upon a critical understanding of subject matter; supplementary topics include teaching aids and classroom problems. Two credits count as education and 1 as mathematics. Prerequisites, 209, 370, and Mathematics 253 or equivalent.
- 339 Teachers' Course in Physical Education for Men (2)** **Peek**
Prerequisites, 209 and 370, and Physical Education 363.
- 340 Teachers' Course in Health and Physical Education for Women (2)** **Fox**
Prerequisites, 209, 370, Physical Education 356, 362, 363, 364, Health Education 453, and Education 371E, X, or S taken concurrently.
- 342 Teachers' Course in Speech (3)** **Nelson**
Two credits count as education and 1 as speech. Prerequisites for majors in speech, 209, 370, and at least 20 credits in speech, including Speech 352. Prerequisites for nonmajors, 209, 370, and permission.
- 343 Teachers' Course in Spanish (2)** **Simpson**
To acquaint prospective teachers with materials; methods and problems; current programs and experiment. May be taken concurrently with Spanish 358. Prerequisites, 209 and 370, or permission of both the College of Education and of the instructor.
- 346J Teachers' Course in Secondary School Music (4)** **Staff**
Two credits count as education and 2 as music. Prerequisites, 209, 370, Music 344, and 385.
- 360 Principles of Education (3)** **Draper**
Analytical studies in the areas of professionalization of teachers, foreign education systems, guidance and counseling, vocational education, extraclass activities, and curriculum improvement. Each student will prepare a resource unit in his major field.
- 370 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. Classroom teaching situations are observed on the elementary, junior, and senior high school levels. Audio-visual laboratory experiences are provided. Prerequisite, 209.
- 370E Elementary School Methods (5)** **MacDonald**
Basic principles, techniques, and methods of teaching in the elementary school, from the kindergarten through the intermediate grades. Classroom observations are scheduled in the city schools. Prerequisites, 209 and 370.
- 371K Directed Teaching, Kindergarten (3-8)** **Corbally, MacDonald, Powers**
All directed teaching is done in the public schools, and all morning must be left free for an assignment. Assignments are made by the Director of Cadet Teaching the first day of each quarter. Fee, \$1.00 per credit. Prerequisites, 209, 370, 370E, 373, 374, 376, 377X-377Y, 378C, 378D, 390, or approved equivalents.
- 371E Directed Teaching, Elementary (Grades One Through Six) (3-8)** **Corbally, MacDonald, Powers**
All directed teaching is done in the public schools, and all morning must be left free for an assignment. Assignments are made by the Director of Cadet Teaching the first day of each quarter. Fee, \$1.00 per credit. Prerequisites, 209, 370, 370E, 373, 374, 376, 377X-377Y, 378C, 378D, 390, or approved equivalents.
- 371X Directed Teaching, Junior High (3-8)** **Corbally, Boroughs, Powers**
All directed teaching is done in the public schools, and all morning must be left free for an assignment. Assignments are made by the Director of Cadet Teaching the first day of each quarter. Fee, \$1.00 per credit. Prerequisites, 209, 370, 370E, 373, secondary subject matter methods, 390, or approved equivalents.
- 371S Directed Teaching, Senior High (3-8)** **Corbally, Boroughs, Powers**
All directed teaching is done in the public schools, and all morning must be left free for an assignment.
Vocational home economics cadets must take Home Economics 348 and 495 with 371S to make a total of 15 credits for the quarter.
Women's physical education cadets do directed teaching in Winter Quarter only.
Assignments are made by the Director of Cadet Teaching the first day of each quarter. Fee, \$1.00 per credit. Prerequisites, 209, 370, 370E, 373, secondary subject matter methods, 390, or approved equivalents.

- 372E, 372X, 372S Professional Laboratory Experiences (3,3,3)** **Corley**
Professional experiences arranged on opposite level from directed teaching; participation in and acquaintance with pupil and community activities. Prerequisites, 370 and junior standing.
- 373 Washington State Manual (2)** **Corbally, Jessup**
State Constitution and excerpts from school code. Required by law of all applicants for Washington State teaching certificates. Prerequisites, 209 and 370.
- 374 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. Prerequisite, 370E or taken concurrently.
- 375J Teachers' Course in Journalism (3)** **Brier**
Prerequisites, 209, 370, and Journalism 200 and 301.
- 376 Art in the Elementary School (5)** **Fuller, Johnson**
The place of creative art in the school curriculum. Emphasis is on content, methods of presentation, and evaluation; areas include drawing, painting, design, and crafts. Laboratory experience, with some lectures, discussion, and reading. Prerequisite, 370E.
- 377X-377Y Music for Elementary Teachers (3-3)** **Staff**
377X-: development of the music program in the public schools from kindergarten through grade three, with emphasis on rhythmic and melodic experience. Prerequisites, 370E, Music 110Y and 110Z, or equivalent as determined by examination. -377Y: development of the music program in the public schools from grade four through six, with emphasis on music reading, music background, listening, and harmonic and rhythmic experience. Prerequisite, 377X-.
- 378C Physical Education for the Elementary School (3)** **Horne, Peek**
Special methods and practice for the teaching of activities included in the physical education program in the elementary schools. Program planning and related problems. Analysis and practice of games, sports, story plays, mimetics, apparatus, stunts, tumbling, and special events. Prerequisite, 370E.
- 378D Physical Education for the Elementary School (3)** **Horne, Peek**
Special methods and practice for teaching the program relating to posture and body mechanics, activities for the handicapped child, fundamentals of rhythm, the place of singing games, dramatic and creative rhythms, simple and intermediate folk dances, and the program of special events relating to these phases of the curricular content. Prerequisites, 370E and 378C.
- 379 Arithmetic for Elementary Teachers (3)** **Staff**
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 taught in grades one through eight. One credit may count as mathematics toward the basic academic field and 2 as education.
- 380 Tools and Materials for Industrial Education Teachers (2)** **Baily**
Sources, specifications, and costs of shop materials and equipment. Care, repair, and sharpening of hand and machine tools.
- 383-384 Advanced Woodwork for Industrial Education Teachers (3-2)** **Baily, Horst**
Design, construction, and finishing of projects in wood, involving machine operations, air-brush finishing, and upholstery. Prerequisite, 280 for 383-.
- 386 Home Planning for Industrial Education Teachers (4)** **Baily**
Consumer knowledge and information in the problems involved in purchasing, planning, financing, and building a home are emphasized. Students draw, blueprint, and write specifications for a complete set of house plans. Prerequisites, 180, 181, or equivalent.
- 387 Special Problems in Industrial Education (1-5, maximum 5)** **Baily**
The student works on an individual basis, conferring with the staff as needs arise on one or more problems in industrial education that are of special interest to him. An outline and an organized plan of procedure are to be presented to the adviser. Prerequisite, permission.
- 388 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.
- 389 Industrial Education for Elementary Teachers (5)** **Baily, Horst**
Planning and preparing a representative unit in some area of the elementary school program, with emphasis upon constructional activity; development of basic skills in the use of common hand tools; study of materials used in elementary handwork.
- 390 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.
- UPPER-DIVISION COURSES CARRYING GRADUATE CREDIT**
- 401 Advanced Educational Psychology (3)** **Fea**
Consideration of the major topics in the general field of educational psychology with emphasis upon the applied psychology of learning.

- 402 Child Study and Development (3)** **Staff**
Stages of child development; child welfare agencies; theories of some of the great 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 attitudes of others on a child's behavior and adjustment. Prerequisite, permission.
- 403 Psychology of Elementary School Subjects (3)** **Staff**
A study of important and recent research in the subjects of the elementary school curriculum and a consideration of its practical implications for teaching.
- 404 Education of Exceptional Children (5)** **Hayden**
Atypical children studied from the point of view of the classroom teacher. Prerequisite, permission.
- 405 Problems of Adolescence (5)** **Staff**
A survey of the problems of adolescence, with analysis and discussion of their educational and social implications.
- 406 Character Education (3)** **Staff**
Experimental background of the modern effort toward character development. Prerequisite, permission.
- 408 Mental Hygiene for Teachers and Administrators (3)** **Salzer**
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 are emphasized. Some background in educational psychology is recommended, but is not a prerequisite.
- 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 Department of Psychology. (Offered Summer Quarter only.) 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 Department of Psychology. (Offered Summer Quarter only.) Prerequisite, permission.
- 410 Educational Sociology (3)** **Jessup**
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. The relationship of the school to the community. Prerequisite, permission.
- 415 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 role of the teacher in promoting safety.
- 415D Principles of Safety Education: Driver Education (5)** **Corbally**
Course qualifying for A.A.A. certification of teachers for behind-the-wheel driver training.
- 417 Adult Education (3)** **Jessup**
Principles and methods of directing the continued educational growth of adults. Prerequisite, permission.
- 420 Theory and Technique of Kindergarten and Primary Teaching (3)** **MacDonald**
General analysis of techniques used to help young children develop an interested, responsive approach to school life.
- 421 Remedial Education (3)** **Foa**
Experience in and study of analysis of difficulties in school subjects with special reference to language arts and mathematics. Experience in and study of appropriate remedial instruction. Analysis and instruction will be that which is both feasible and practical for the classroom teacher working with individuals or with a group.
- 422 Remedial Education Clinic (3)** **Foa**
Laboratory observation and practical experience using the more elaborate techniques and equipment unique to the laboratory. The objective of such experience is to aid teachers in referral of pupils and explanation to parents and to give a more complete understanding of the nature and importance of remedial education. Prerequisite, 425 or equivalent.
- 425 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.
- 430 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.

- 431 School Finance (3)** **Strayer**
Basic principles of public finance; development of school support; principles of school finance; school accounting forms and procedures; administration of the annual budget; interpretation of finance facts to the public; desirable improvements in school finance practices. Prerequisite, 430 or permission.
- 433 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.
- 434 High School Organization and Administration (3)** **Strayer**
General plans for secondary school organization and administration; types of junior and senior high schools; advantages and disadvantages of 8-4, 6-3-3, 6-6, 6-4-4, and 7-5 plans; program making; pupil adjustment; principal and department heads; extension of the programs to include the thirteenth and fourteenth years. Prerequisite, permission.
- 435 Administration and Supervision of Junior High Schools (3)** **Staff**
Special functions; curricula and courses of study; co-curricular activities; pupil accounting, classification, and counseling; personnel selection, organization and training; community resources and activities; evaluation of the program; business problems relating to school plant, budget, and equipment.
- 437 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. Prerequisite, permission.
- 439 Pupil Personnel and Progress Reporting (3)** **Vopni**
To aid teachers, counselors, and administrators in developing purposeful reports of student progress and in utilizing practical techniques of pupil personnel accounting for assistance in evaluation and interpretation of educational objectives and achievements in teacher-pupil-parent and school-community relationships.
- 445V Principles and Objectives of Vocational Education (3)** **Baily**
Aims and objectives of vocational education; materials of instruction; standards of work; judging measurement of work. Prerequisite, permission.
- 447 Principles of Guidance (3)** **Salyer**
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.
- 448 Improvement of Guidance Techniques (3)** **Salyer**
Designed for teachers, administrators, and counselors. Special emphasis is given to the improvement of guidance techniques.
- 455 Auditory and Visual Aids in Teaching (3)** **Hayden**
The utilization of audio-visual equipment and materials to improve instruction. Prerequisite, permission.
- 456 Auditory and Visual Aids in Teaching (3)** **Hayden**
Designed to assist teachers in the preparation and presentation of teaching materials appropriate to the different subject-matter areas and learning levels. Students provide their own materials for their projects. Prerequisite, 455 or equivalent.
- 457 Audio-visual Aids Management (3)** **Hayden**
- 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 Department of Public Health and Preventive Medicine. (Offered Summer Quarter only.) Prerequisite, permission.
- 461 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. Prerequisite, permission.
- 466 Workshop in Curriculum Improvement (1-15, maximum 15)** **Draper**
Individual or committee work on problems in the area of curriculum improvement in elementary and secondary schools. Special emphasis will be given to conservation education at all levels in the public schools, and to techniques of organizing the fused curriculum, correlated curricula, and core curriculum programs in the large block of time at the junior high school level. Prerequisite, 467 or permission.
- 467 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. Individual projects will be developed.
- 470 Historical Backgrounds of Educational Methods (3)** **Corley**
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. Prerequisite, permission.
- 474 Workshop in the Improvement of Teaching (5)** **Staff**
A study through individual research projects of the adaptation of instruction to meet individual differences.

- 475 Improvement of Teaching (3)** **Staff**
To help teachers (1) understand the physical, psychological, emotional, and social needs of children, (2) adapt instruction to the needs of the children, (3) select the approaches and instructional resources which will provide the soundest learning experiences, and (4) to help teachers and students in the appraisal of themselves and their work.
- 475A Improvement of Teaching: Secondary Mathematics (3)** **Staff**
An exploration of some modern mathematical concepts for the purpose of improving the teaching of secondary school mathematics.
- 475B 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. Prerequisite, teaching experience or permission.
- 475H Improvement of Teaching: Language Arts (3)** **Fea**
A study of important and recent research in elementary and high school language arts, and a consideration of its practical implications for teaching. Students will work intensively in one area of special interest.
- 475I Improvement of Teaching: Industrial Education (3)** **Baily**
An analysis of the types of teaching, instructional materials, and evaluation devices used in industrial education, with emphasis upon the improvement of existing methods and techniques.
- 475LJ Improvement of Teaching: Latin (5)** **Grummel**
New techniques and materials for classroom presentation of high school Latin: survey of Latin word formation and syntax in light of recent linguistic research, illustrated by excerpts from Latin literature; of practical value to modern language teachers and English teachers who have had some Latin. Offered jointly with the Department of Classics. (Offered Summer Quarter only.)
- 475M Improvement of Teaching: Social Studies (3)** **Boroughs**
Procedures in the social studies. Techniques; source materials; contribution of the various social sciences to the educational program.
- 475S Improvement of Teaching: Science (3)** **Vopni**
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.
- 476D Materials and Methods of Teaching Typewriting (2½)** **Staff**
Psychological and physiological factors in the methodology of typewriting; objectives and evaluation; procedures for developing advanced and applied skills. (Offered Summer Quarter only.)
- 476E Materials and Methods of Teaching Office and Clerical Practice (2½)** **Staff**
Objectives and content of office practice and general clerical practice courses; plans for organizing classes and methods of teaching specific machines and subject matter; laboratory study of new inventions in office machines. (Offered Summer Quarter only.)
- 476H Workshop in Current Problems of Distributive Education (2½, maximum 5)** **Staff**
Immediate problems in the field of distributive education; student employment; local, state, and national retailers' clubs; trends in adult training; special problems of the new coordinator. For present and prospective coordinators. (Offered Summer Quarter only.)
- 476K Coordination of Distributive Education and Diversified Occupational Programs (3)** **Staff**
Stresses fundamentals, records and reports, the use of advisory committees, course titles, qualifications, coordinating activities, course content, and work training stations. Prerequisite, permission.
- 476L Materials and Methods of Teaching Gregg Shorthand and Transcription (2½)** **Staff**
Recent research and experimentation in teaching shorthand and transcription are emphasized. Psychology of skill development; comparison of the various methods of teaching shorthand; evaluation of teaching materials; consideration of standards, objectives, and teaching techniques. An advanced course for experienced teachers. (Offered Summer Quarter only.)
- 476M Principles and Problems of Business Education (2½)** **Staff**
Objectives, history, trends, and issues of business education; federal participation in vocational education; economic, occupational, and population trends and their implications in business education; leaders in business education; research and problems. (Offered Summer Quarter only.)
- 476N Materials and Methods of Teaching Bookkeeping and General Business Subjects (2½)** **Staff**
Techniques of teaching bookkeeping and general business subjects; relationship to the curriculum; standards to be achieved; content and organization of the subject matter; tests and teaching materials; new trends in the field; motivational devices; visual aids. (Offered Summer Quarter only.)
- 477 The Teaching of Reading (3)** **Fea**
The teaching of reading in the intermediate and upper grades of the elementary school and high school including comprehension and speed, reading in the content fields, and motivation of voluntary reading. Students will work intensively in one area of special interest.
- 480 History of Education (5)** **Jessup**
A social interpretation of 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 newer concepts involving the world-wide spread of democracy and education. Prerequisite, permission.

- 482 Advanced Tools and Materials (3)** **Baily**
A study of the fundamental concepts and principles in planning industrial education areas to produce safe, efficient, and effective teaching-learning situations. An analysis of the problems encountered in the selecting, purchasing, locating, and installing of equipment, tools, materials, and services.
- 483 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.
- 484 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. Prerequisite, permission.
- 485 Advanced General Shop for Industrial Education Teachers (3)** **Baily**
An advanced general shop course in industrial education involving a study of the common tools, materials, processes, and products of industry. Prerequisite, 182 or equivalent, or permission.
- 486 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.
- 487 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.
- 488 Philosophy of Education (3)** **Staff**
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.
- 489 Current Problems in Industrial Education (3)** **Baily**
A study of the current events, problems, and researches in industrial education and their application in the field.
- 490 Educational Statistics (5)** **Dvorak**
Statistical methods applicable in educational administration and research: central tendency; variability; probability; sampling and reliability; experimental hypotheses; linear, curvilinear, bi-serial, partial, and multiple correlation; regression; reliability; application of various statistical procedures to specific problems. Familiarization with high-speed computers and other punch card machine operation and statistical programming. Prerequisite, 390.
- 491 Advanced Educational Measurements (3)** **Dvorak**
Construction, scaling, evaluation, and limitations of educational tests and scales; application of test and scale results in educational diagnosis, guidance, and administration. Prerequisites, 390 and 490, or Psychology 301, or equivalent.
- 499 Undergraduate Research (2-5)** **Staff**
Instructor and field must be designated in registration. (See 600 for list of fields.) Prerequisite, permission of instructor and director of graduate studies in education.

COURSES FOR GRADUATES ONLY

- 501 Seminar in Educational Psychology (3)** **Foa**
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)** **Foa**
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. 541: special emphasis on tests and measurements; 542: special emphasis on vocational guidance; 543: special emphasis on organization and administration of guidance services. 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 the 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)** **Draper**
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)** **Draper**
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)** **Draper**
Research studies in the areas of extraclass activities, curriculum improvement, guidance and counseling, foreign educational systems, and the professionalization of secondary school teachers. Prerequisite, 467 or special permission.
- 570, 571 Problems in Modern Methods (3,3)** **Corley**
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 of movement.
- 587, 588, 589 Seminar in Philosophy of Education (3,3,3)** **Boroughs**
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 Method 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

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 *in absentia* by special permission.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF ENGINEERING
1957-1959

BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes two general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; and publications of the Division of Adult Education and Extension Services, the correspondence study and extension 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 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 ARTS AND SCIENCES
COLLEGE OF BUSINESS ADMINISTRATION
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EXTENSION CLASSES

BULLETIN
UNIVERSITY OF WASHINGTON

General Series No. 911

May, 1957

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CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

SUMMER QUARTER, 1957

REGISTRATION PERIOD

JUNE 5-JUNE 7	Registration for all students. (<i>Registration appointments for students in residence Spring Quarter, 1957, and for former students not in residence Spring Quarter, 1957, may be obtained from the Registrar's Office beginning April 22. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 17-JUNE 21	

ACADEMIC PERIOD

JUNE 24-MONDAY	Instruction begins
JUNE 25-TUESDAY	Last day to add a course for the first term
JUNE 28-FRIDAY	Last day to add a course for the full quarter
JULY 4-THURSDAY	Independence Day holiday
JULY 24-WEDNESDAY	First term ends
JULY 25-THURSDAY	Second term begins
JULY 26-FRIDAY	Last day to add a course for the second term
AUG. 23-FRIDAY	Instruction ends

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

SEPT. 9-OCT. 1	Registration for students in residence Spring Quarter, 1957. (<i>Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.</i>)
SEPT. 13-OCT. 1	Registration for former students not in residence Spring Quarter, 1957. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.</i>)
SEPT. 16-SEPT. 27	Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 26, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)
SEPT. 16-OCT. 1	Registration for new transfer students with at least full sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 26, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

SEPT. 30—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
OCT. 2—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 8—TUESDAY	Last day to add a course
NOV. 11—MONDAY	State Admission Day holiday
NOV. 27-DEC. 2	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 20—FRIDAY	Instruction ends (6 p.m.)

WINTER QUARTER, 1958

REGISTRATION PERIOD

NOV. 25-DEC. 13	Registration for students in residence Autumn Quarter, 1957. (<i>Registration appointments will be issued on presentation of ASUW cards beginning October 25.</i>)
JAN. 2-JAN. 3	Registration for former students not in residence Autumn Quarter, 1957. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.</i>)
JAN. 2-JAN. 3	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

JAN. 6—MONDAY	Instruction begins
JAN. 10—FRIDAY	Last day to add a course
FEB. 22—SATURDAY	Washington's Birthday and Founder's Day holiday
MAR. 21—FRIDAY	Instruction ends

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26-MAR. 14	Registration for students in residence Winter Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 24.</i>)
MAR. 26-MAR. 28	Registration for former students not in residence Winter Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.</i>)
MAR. 26-MAR. 28	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

MAR. 31—MONDAY	Instruction begins
APR. 4—FRIDAY	Last day to add a course
MAY 23—FRIDAY	Governor's Day
MAY 30—FRIDAY	Memorial Day holiday
JUNE 8—SUNDAY	Baccalaureate Sunday
JUNE 13—FRIDAY	Instruction ends
JUNE 14—SATURDAY	Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4—JUNE 6	Registration for all students. (<i>Registration appointments for students in residence Spring Quarter, 1958, and for former students not in residence Spring Quarter, 1958, may be obtained from the Registrar's Office beginning April 21. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 16—JUNE 20	

ACADEMIC PERIOD

JUNE 23—MONDAY	Instruction begins
JUNE 24—TUESDAY	Last day to add a course for the first term
JUNE 27—FRIDAY	Last day to add a course for the full quarter
JULY 4—FRIDAY	Independence Day holiday
JULY 23—WEDNESDAY	First term ends
JULY 24—THURSDAY	Second term begins
JULY 25—FRIDAY	Last day to add a course for the second term
AUG. 22—FRIDAY	Instruction ends

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 8—SEPT. 30	Registration for students in residence Spring Quarter, 1958. (<i>Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.</i>)
SEPT. 12—SEPT. 30	Registration for former students not in residence Spring Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.</i>)
SEPT. 15—SEPT. 26	Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 26, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)

SEPT. 15-SEPT. 30

Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 26, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

SEPT. 29-MONDAY

Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

OCT. 1-WEDNESDAY

Instruction begins (8 a.m.) for all other students

OCT. 7-TUESDAY

Last day to add a course

NOV. 11-TUESDAY

State Admission Day holiday

NOV. 26-DEC. 1

Thanksgiving recess (6 p.m. to 8 a.m.)

DEC. 19-FRIDAY

Instruction ends (6 p.m.)

WINTER QUARTER, 1959

REGISTRATION PERIOD

NOV. 20-DEC. 12

Registration for students in residence Autumn Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning October 23.*)

DEC. 29-DEC. 31

Registration for former students not in residence Autumn Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 23.*)

DEC. 29-DEC. 31

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

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

MAR. 20-FRIDAY

Instruction ends

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24-MAR. 13

Registration for students in residence Winter Quarter, 1959. (*Registration appointments will be issued on presentation of ASUW cards beginning January 23.*)

MAR. 25-MAR. 27

Registration for former students not in residence Winter Quarter, 1959. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.*)

MAR. 25-MAR. 27

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

MAR. 30—MONDAY	Instruction begins
APR. 3—FRIDAY	Last day to add a course
MAY 22—FRIDAY	Governor's Day
MAY 30—SATURDAY	Memorial Day holiday
JUNE 7—SUNDAY	Baccalaureate Sunday
JUNE 12—FRIDAY	Instruction ends
JUNE 13—SATURDAY	Commencement

SUMMER QUARTER, 1959

REGISTRATION PERIOD

JUNE 3-JUNE 5	<i>Registration for all students. (Registration appointments for students in residence Spring Quarter, 1959, and for former students not in residence Spring Quarter, 1959, may be obtained from the Registrar's Office beginning April 20. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.)</i>
JUNE 15-JUNE 19	

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 4—SATURDAY	Independence Day holiday
JULY 22—WEDNESDAY	First term ends
JULY 23—THURSDAY	Second term begins
JULY 24—FRIDAY	Last day to add a course for the second term
AUG. 21—FRIDAY	Instruction ends

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 the time are matriculated in the University. The University also reserves the right to withdraw courses and change fees at any time.

ADMINISTRATION

BOARD OF REGENTS

THOMAS BALMER, <i>President</i>	Seattle
HAROLD S. SHEFFELMAN, <i>Vice-President</i>	Seattle
MRS. J. HERBERT GARDNER	La Conner
CHARLES M. HARRIS	Entiat
JOHN L. KING	Seattle
WINLOCK W. MILLER	Seattle
LYOYD L. WIEHL	Yakima
HELEN E. HOAGLAND, <i>Secretary</i>	

OFFICERS OF ADMINISTRATION

HENRY SCHMITZ, Ph.D.	<i>President of the University</i>
HAROLD P. EVEREST, M.A.	<i>Vice-President of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Business Manager</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
HAROLD E. WESSMAN, Ph.D.	<i>Dean of the College of Engineering</i>
JAMES W. SOUTHER, M.A.	<i>Assistant Dean</i>

COLLEGE OF ENGINEERING EXECUTIVE COMMITTEE, 1956-1957

DEAN H. E. WESSMAN, <i>Chairman</i>
J. W. SOUTHER, <i>Secretary</i>
V. M. GANZER, <i>Aeronautical Engineering</i>
R. W. MOULTON, <i>Chemical Engineering</i>
R. B. VAN HORN, <i>Civil Engineering</i>
A. V. EASTMAN, <i>Electrical Engineering</i>
E. R. WILCOX, <i>General Engineering</i>
S. W. CHAPMAN, <i>Humanistic-Social Studies</i>
B. T. MCMINN, <i>Mechanical Engineering</i>
F. B. FARQUHARSON, <i>Engineering Experiment Station</i>
E. C. ROBERTS, R. C. WEIKEL, J. A. HIGBEE, <i>Members at Large</i>

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, <i>Assistant Professor of Aeronautical Engineering</i> 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), <i>Professor of Aeronautical Engineering</i> B.S. in E.E., 1925, Washington; M.S., 1929, Massachusetts Institute of Technology
Ganzer, Victor Martin, 1947 (1953), <i>Professor of Aeronautical Engineering;</i> <i>Executive Officer of the Department of Aeronautical Engineering</i> B.A. in Math., 1933, Augustana College (Illinois); B.S. in A.E., 1941, Washington
Joppa, Robert Glenn, 1945 (1957), <i>Associate Professor of Aeronautical Engineering</i> B.S. in A.E., 1945, M.S. in A.E., 1951, Washington
Martin, Harold Clifford, 1948 (1952), <i>Professor of Aeronautical Engineering</i> B.S. in M.E., 1934, M.S., 1937, New York; Ph.D., 1950, California Institute of Technology
Street, Robert Elliott, 1948 (1955), <i>Professor of Aeronautical Engineering</i> B.S. in Physics, 1933, Rensselaer Polytechnic Institute; M.A., 1934, Ph.D., 1939, Harvard
Weikel, Raymond Chester, 1948 (1954), <i>Associate Professor of Aeronautical Engineering</i> A.B., 1932, Wabash College; A.M., 1939, Illinois

CHEMICAL ENGINEERING

- 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
- Davis, Earl James, 1957, *Instructor in Chemical Engineering*
B.S. in Ch.E., 1956, Gonzaga
- Himmelblau, David Mautner, 1955, *Instructor in Chemical Engineering*
B.S., 1947, M.I.T.; M.B.A., 1950, Northwestern; M.S. in Ch.E., 1956, Washington
- Johanson, Lennart Nobel, 1951 (1956), *Associate Professor of Chemical Engineering*
B.S., 1942, Utah; M.S., 1943, Ph.D., 1948, Wisconsin
- McCarthy, Joseph Le Page, 1941 (1952), *Professor of Chemical Engineering*
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
- Vasishth, Ramesh Chander, 1956, *Instructor in Chemical Engineering*
B.S., 1949, East Punjab University, India

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 (1952), *Associate 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
- 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 (1956), *Assistant 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
- 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
- Smith, Frederick Charnley, 1926 (1954), *Professor Emeritus of Civil Engineering; Research Consultant*
B.S. in C.E., 1926, C.E., 1929, Washington
- Stark, Walter, 1956, *Instructor in Civil Engineering*
B.S. in C.E., 1950, Missouri; M.S. in Regional Planning, 1957, 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
- 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, Dezso, 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

- Bates, Howard Francis, 1955, *Acting Instructor in Electrical Engineering*
B.S., Oregon State, 1950
- 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
- Betten, Carl Buford, 1956, *Acting Instructor in Electrical Engineering*
B.S. in E.E., 1950, Washington State
- Biggs, Albert Wayne, 1955, *Acting Instructor in Electrical Engineering*
B.S. in E.E., 1947, Washington University; M.B.A., 1949, Stanford
- Bjorkstam, John Ludwig, 1955 (1957), *Assistant Professor of Electrical Engineering*
B.S. in E.E., 1949, M.S. in E.E., 1952, Washington
- Carlyle, Jack Webster, 1955, *Acting Instructor in Electrical Engineering*
B.A., 1954, Washington
- Chao, Robert Yuan-hui, 1956, *Acting Instructor in Electrical Engineering*
B.S., 1954, National Taiwan University; M.S., 1956, Ohio State University
- Cochran, Lyall Baker, 1934 (1952), *Professor of Electrical Engineering*
B.S. in E.E., 1923, E.E., 1936, 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

- Fechter, Harry Robert, 1955, *Assistant Professor of Electrical Engineering*
B.S., 1944, Washington, M.S., 1950, Ph.D., 1954, Stanford
- Fisher, James Hayden, 1953 (1956), *Associate Professor of Electrical Engineering*
B.S. in M.E., 1944, B.S. in E.E., 1947, Washington; M.S. in M.E., 1950, Ph.D., 1953, Purdue
- 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
- Hasserdjian, Gerard, 1954, *Instructor in Electrical Engineering*
B.S. in E.E., 1950, M.E.E., 1954, Rensselaer Polytechnic Institute
- 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*
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
- Ishimaru, Akira, 1954, *Instructor in Electrical Engineering*
B.S. in E.E., 1951, Tokyo
- Johnson, David Laurence, 1955 (1952), *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
- Leach, Paul Clark, 1954, *Acting Instructor in Electrical Engineering*
B.S. in E.E., 1949, 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
- McNelis, David Donald, 1955, *Instructor in Electrical Engineering*
B.S. in E.E., 1952, Gonzaga; M.S. in E.E., 1957, Washington
- Rama, Leighton Clark, 1956, *Acting Instructor in Electrical Engineering*
B.S. in E.E., 1949, Washington
- 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
- Saugen, John Louis, 1955, *Acting Instructor in Electrical Engineering*
B.S. in E.E., 1955, Washington
- Schrader, David Hawley, 1954, *Acting Instructor in Electrical Engineering*
B.S. in E.E., 1951, Kansas
- 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
- 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
- Wall, Robert Edgar, Jr., 1954, *Instructor in Electrical Engineering*
B.S. in E.E., 1949, M.S. in E.E., 1953, Washington

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, *Instructor in 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
- 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*
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; Technical and Research Director, Motion Picture Unit Education*
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
- 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
- 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, *Acting Instructor in General Engineering*
B.S. in M.E., 1952, Washington State
- Rowlands, Thomas McKie, 1928 (1954), *Professor of General Engineering*
B.S. in Nav. Arch. and Marine Engrg., 1926, Massachusetts Institute of Technology
- Sawhill, Charles Francis, 1956, *Acting Instructor in General Engineering*
B.S. in Ind.E., 1952, Montana State
- Seabloom, Robert Wendell, 1954 (1956), *Assistant Professor in 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
- Shaffer, Harry Winfield, 1957, *Instructor in General Engineering*
B.S. in E.E., 1948, in Ind. Ed., 1954, Washington
- Stern, Paul Herman, 1956, *Instructor in General Engineering*
B.C.E. 1954, Cooper Union; M.S. in C.E., 1956, Washington
- 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; Executive Officer of the Department 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, *Assistant 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
- 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*
B.A., 1947, M.A., 1948, Washington
- Trimble, Louis Preston, 1956, *Instructor in Humanistic-Social Studies*
B.A., 1950, Ed.M., 1953, Eastern Washington
- White, Myron Lester, 1947 (1950), *Instructor in Humanistic-Social Studies*
B.A., 1943, 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
- 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
- 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
- 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, Washington
- Kenny, Lyle Duane, 1956, *Instructor in Mechanical Engineering*
B.S. in M.E., 1956, Washington
- Kieling, William Clayton, 1956, *Instructor in Mechanical Engineering*
B.S. in M.E., 1950, Washington
- McIntyre, Harry John, 1919 (1943), *Professor 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
- 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
- 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
- Winslow, Arthur Melvin, 1918 (1952), *Professor Emeritus of Mechanical Engineering; Research Consultant*
Ph.B., 1903, Brown; B.S., 1906, Massachusetts Institute of Technology
- Zylstra, Laurence Bernard, 1949 (1957), *Associate Professor of Mechanical Engineering*
B.S. in M.E., 1950, Washington; M.S. in M.E., 1951, Illinois

MINERAL ENGINEERING

- Anderson, Donald Lorraine, 1947 (1957), *Acting 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
- Mueller, Edward Eugene, 1953 (1955), *Associate Professor of Ceramic Engineering*
B.S. in Cer.E., 1948, Missouri School of Mines; M.S. in Cer.E., 1952, Ph.D., 1953, Rutgers
- 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, *Assistant Professor of Metallurgical Engineering*
B.S., 1951, British Columbia; M.S., 1953, Toronto; Ph.D., 1955, British Columbia

Roberts, Earl Champion, 1954, *Associate 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

Hemenway, Isabel W., 1947 (1951), *Editor*
B.A., 1909, Nebraska; M.A., 1912, Chicago

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 PROGRAMS

AIR SCIENCE

Banks, Col. Jack Ralph, 1955, *Professor of Air Science*
B.S., 1949, Oregon State

Barr, Maj. Frederick Jay, 1955, *Assistant Professor of Air Science*
B.S., 1938, Iowa

Bingham, Capt. Melvin Edgar, 1955, *Assistant Professor of Air Science*
B.A., 1950, Texas

Bowman, Capt. Jack L., 1957, *Assistant Professor of Air Science*
B.S., Idaho

Crail, Capt. William James, 1955, *Assistant Professor of Air Science*
1950, Southern California

Floyd, Capt. Rex Warren, 1955, *Assistant Professor of Air Science*
B.A., 1946, Peru State, Nebraska; M.S., 1950, Boston

Kranidas, Capt. Evans, 1955, *Assistant Professor of Air Science*
B.S., 1955, Maryland

Lavagnino, Lt. Col. William Louis, 1956, *Assistant Professor of Air Science*
B.A., 1940, Michigan State University

Madson, Capt. Ralph William, 1955, *Assistant Professor of Air Science*
Ph.B., 1941, Wisconsin

Ramirez, Maj. Norbert D., 1957, *Assistant Professor of Air Science*
B.S., 1941, California

Trimble, Capt. Robert Finley, 1956, *Assistant Professor of Air Science*
B.S., 1945, United States Military Academy; M.B.A., 1951, Michigan

MILITARY SCIENCE AND TACTICS

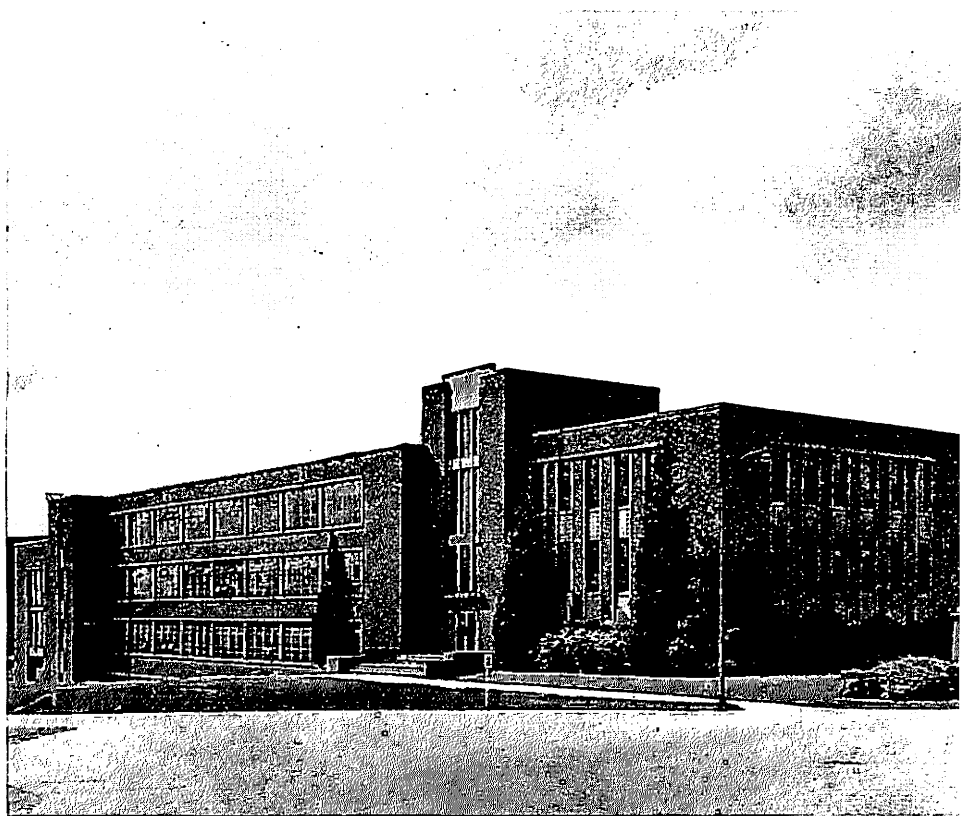
Anderson, Maj. Edward Gustav, 1955, *Assistant Professor of Military Science and Tactics*
B.S., 1942, Washington; M.S., 1953, Stanford; M.E., 1950, Agriculture and Mechanical College of Texas

Christopher, Capt. John Dean, Jr., 1955, *Assistant Professor of Military Science and Tactics*
B.S., 1941, Clemson College, South Carolina

- Craig, Lt. Col. James Terry, 1953, *Assistant Professor of Military Science and Tactics*
B.S., 1938, United States Military Academy; M.B.A., 1947, Alabama
- Jones, Capt. Harry Thomas, 1955, *Assistant Professor of Military Science and Tactics*
B.A., 1948, California at Los Angeles
- MacGregor, Maj. Alan Alexander, 1956, *Assistant Professor of Military Science and Tactics*
B.S., 1939, Connecticut
- Meads, Maj. William Jewett, 1955, *Assistant Professor of Military Science and Tactics*
B.A., 1941, Florida; M.A., 1949, Florida
- McFarland, Capt. Andrew Jackson Briggs, Jr., 1955, *Assistant Professor of Military Science and Tactics*
B.S., 1950, United States Military Academy
- McGuire, Maj. Paul Melville, 1954, *Assistant Professor of Military Science and Tactics*
B.A., 1938, New Mexico College of Agricultural and Mechanical Arts; M.A., 1941, Texas Technological College; A.M., 1949, Missouri
- Rose, Capt. Peter Wayne, 1956, *Assistant Professor of Military Science and Tactics*
B.A., 1950, Willamette
- Rude, Col. Walter Allen, 1953, *Professor of Military Science and Tactics*
B.S., 1932, United States Military Academy
- Sims, Maj. Deward Waldo, 1956, *Assistant Professor of Military Science and Tactics*
- Welch, Capt. Frederick James, 1956, *Assistant Professor of Military Science and Tactics*
B.S., 1940, California Maritime Academy

NAVAL SCIENCE

- Backels, Lt. Jack F., 1956, *Assistant Professor of Naval Science*
B.S., M.S., 1953, Michigan
- Hanley, Cdr. Robert Timothy, 1955, *Associate Professor of Naval Science*
B.S., 1940, Montana School of Mines
- Kemp, T. Sgt. James A., 1956, *Instructor of Naval Science*
- Langen, Capt. Thomas D. F., 1956, *Professor of Naval Science*
B.S., 1932, U.S. Naval Academy
- Messinger, GMC Raymond Elwin, 1954, *Instructor in Naval Science*
- Neander, Lt. Stanley B., 1956, *Assistant Professor of Naval Science*
B.S., 1950, U.S. Naval Academy
- Newbery, BM1 Robert Walter, 1957, *Instructor in Naval Science*
- Peterson, Maj. Richard F., 1957, *Assistant Professor of Naval Science*
B.A., 1947, Washington State College
- Sumser, Lt. Raymond J., 1957, *Assistant Professor of Naval Science*
B.A., 1952, University of Utah
- Tinney, Lt. Richard T. (SC), 1955, *Assistant Professor of Naval Science*
B.S., 1945, U.S. Naval Academy
- Tisdell, QMC Francis Wood, 1957, *Instructor in Naval Science*
- Totten, LCdr. Clifford H., 1957, *Assistant Professor of Naval Science*
B.S., M.S., 1951, University of Southern California
- Wade, SKCA Francis Joseph, 1957, *Instructor in Naval Science*



GENERAL INFORMATION

GENERAL INFORMATION

IN 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 in 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 Aeronautical 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.

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 thirty members. In 1956 some twenty-two hundred undergraduate and two hundred graduate students were enrolled in engineering curricula.

BUILDINGS AND FACILITIES

The departments of the College of Engineering occupy six major campus buildings: More Hall (Civil), Hydraulics Laboratory (Civil), Electrical Engineering Building, Roberts Hall (School of Mineral Engineering), Guggenheim Hall, (Aeronautical and Mechanical Engineering), and Engineering Hall (Mechanical Engineering and Humanistic-Social Studies). In addition to numerous smaller isolated laboratories, substantial portions of the following buildings are also used: Bagley Hall (Chemical Engineering), Miller Hall (General Engineering), and Engineering Shops (Mechanical Engineering). Brief descriptions of the departmental facilities are given in the following paragraphs.

AERONAUTICAL ENGINEERING

Six different wind tunnels, including a small supersonic laboratory, are available for class instruction and research in the field of aerodynamics. The F. K. Kirsten Aeronautical Laboratory, largest of the wind tunnels, has been used for aerodynamic research and industrial testing since it was completed in 1937. It has a test section measuring 8 by 12 feet and a maximum air speed of 250 mph. Special laboratory equipment is available for studying the behavior of typical aircraft structures under load. Universal testing machines ranging in load capacity from 60,000 to 2,400,000 pounds are available in the Civil Engineering Structural Research Laboratory.

The Department maintains a well-equipped and well-staffed machine and model shop which assists students constructing equipment for research or special projects.

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 electrochemistry. 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, and microscopic analysis of water, sewage, and industrial wastes 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. The main laboratories are classified as follows: electrical machinery, communications, microwaves, servomechanisms, transients, impulse generator (high-voltage), power transmission line, computer, industrial control, and electrical measurement. Smaller laboratories are available for research and special uses.

The large machinery laboratory is exceptionally well equipped for the study and testing of direct- and alternating-current motors and generators, transformers, induction regulators, and other auxiliary equipment. Experiments involving the operation of electrical machines are also run in the adjacent industrial controls laboratory, where power rectifiers, electronic apparatus, relays, and other control devices are available. The communications laboratory has the latest facilities for the study of vacuum-tube and transistor circuits and equipment; wire transmission, including line characteristics, filters, and other terminal apparatus; and ultra-high-frequency theory and practice. The electrical measurements laboratory is equipped for measuring a wide variety of electrical and magnetic quantities in addition to the basic measurement of voltage, current, and power.

Graduate students, working on thesis research, are assigned to one of a number of special laboratories which accommodate from two to six students each. Among the special laboratories available to graduate students are a penthouse, designed to house radio transmitting equipment, with antenna towers on the roof nearby; analog and digital computer laboratories; a microwave antenna and circuits laboratory; a free-field sound room; nuclear engineering laboratories.

GENERAL ENGINEERING

The department of General Engineering is on the third and fourth floors of Miller Hall. In addition to twelve well-equipped and well-lighted classrooms for drafting and computation courses, there are a sound projection room seating 125, a library-study room, and a blueprinting room with a high-speed printing and developing machine.

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 maintains a projection room and a music room, with equipment for most of the audio-visual activities now common in teaching, including the recording and playing back of students' talks. All of these facilities are steadily being expanded and improved.

MECHANICAL ENGINEERING

Mechanical engineering laboratory facilities are in three main groups. One group serves the field of manufacturing methods and includes modern equipment for the foundry, weldery, and machine shop; several special machines are included in this tooling. Testing and gauging apparatus includes physical testing equipment for foundry and core sands, together with interferometer and other precision measuring equipment.

A second laboratory is equipped to exemplify practices and to provide for research projects in the heat-power field. It contains all of the common types of heat-power and refrigeration machines, steam engines and turbines, gas, gasoline, and diesel engines, with the necessary auxiliary equipment, such as dynamometers, condensers, and heat exchangers, for the study of heat balances. Facilities are available for determining heat transfer coefficients for structural panels and for solar-heat studies. A gas turbine unit is arranged with complete instrumentation for a wide range of tests, with provision for alternate combustion chambers and for water injection. A nonoperating turbo-jet unit and a pulse-jet unit are available for study. Auxiliary equipment for flame propagation investigations in jet combustion chambers is available, and equipment for standard tests on centrifugal fans is also part of this laboratory. An adjunct laboratory is equipped for the testing of lubricating oils and fuels.

A third laboratory provides for the study of engineering materials, experimental stress analysis, instrumentation, and vibration. Its materials-testing facilities include universal testing machines, a torsion machine, an impact machine, fatigue-testing machines, hardness testers, metallographic equipment, and apparatus for crack-detection by magnetic-particle inspection, dye-penetrant inspection, fluorescent penetrant inspection, and electrostatic particle inspection. The materials laboratory also has equipment for X-ray radiography and for molding small plastic parts. The facilities for experimental stress analysis include mechanical and electrical strain gauges and associated equipment, photoelastic apparatus, and a brittle-lacquer unit for determining stress concentration. There is also an interferometer-type strain-gauge calibrator. The instrumentation laboratory includes facilities for the experimental study of automatic control. The vibration laboratory has a balancing machine, a torsigraph, vibrometers, and special models and assemblies for the study of vibration phenomena.

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. A well-equipped foundry with a cupola and electric melting furnaces is available in conjunction with courses in foundry. Frequent 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 testing machines of the latest design. Mining practices are studied with the aid of models, maps, and frequent field trips. A full equipment catalogue 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 large, 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 laboratory facilities. A wide variety of ores are in storage and available for experimental testing. In cooperation with the U. S. Bureau of Mines, the School 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. These facilities include equipment for study in such areas as chemical processing (Chemical Engineering), radioactive waste disposal (Civil Engineering), nuclear reactor instrumentation and control (Electrical Engineering), heat transfer (Mechanical Engineering), and metallurgy of nuclear reactor materials

(Metallurgical Engineering). Substantial additions are planned in each of these areas during the next few years. Further details regarding particular items of equipment can be obtained directly from the department concerned.

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 fifty 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 reprinted each year for distribution to the principle Engineering libraries at home and abroad.

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 Alaska 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 26-31.

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 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 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 air-mailed 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 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 (see Nonresident Scholarship Requirement, page 28).

All entering freshmen are 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 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 29 for applicants who have had college work.

Legal Residents of the State of Washington and the Territory of Alaska 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 plus) 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 units¹ conforming to the following subject matter requirements:

Elementary algebra	1 unit	Chemistry	1 unit
Advanced algebra	$\frac{1}{2}$ unit	English ^o	3 units
Plane geometry	1 unit	Other academic subjects	3 units
Trigonometry	$\frac{1}{2}$ unit	Electives ^{oo}	5 units
Physics	1 unit		

^oEffective September, 1958, the English requirement will be increased to 3½ units and "other academic subjects" reduced to 2½ units. The English credits must include a course in Senior Composition.

^{oo}The elective units may be entirely vocational or entirely academic, or a combination of both.

¹To 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.

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 and the Territory of Alaska

The University scholarship requirement for nonresidents* or students residing outside the state of Washington or the territory of Alaska 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.

* Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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.

ADMISSION BY EXAMINATION

A graduate of a *nonaccredited* 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 Engineering are urged to pattern their schedules after the curricula of this College, in order to 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 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 or territory of Alaska 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 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^o of the state of Washington or territory of Alaska, 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^o of the state of Washington or territory of Alaska and who have completed 45 or more standard college credits* must have a 2.70 (B-) average in their standard college courses.

^o Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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 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.

6. 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. No credit will be allowed in the senior year.

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

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.

A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit, and, in addition, shall be allowed up to a maximum of 90 quarter credits from the junior college exclusive of physical education activity credits.

7. 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.

8. 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.

9. 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 Division of Adult Education and Extension Services. 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.

10. 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.

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 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 28 and 29.

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 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 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 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.

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 37).

REQUIRED TESTS AND EXAMINATIONS

UNIVERSITY OF WASHINGTON APTITUDE AND GRADE PREDICTION TESTS

New students of freshman standing (including transfer students with less than 45 quarter hours of college credit 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 50 (Elementary Composition) 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 three 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.

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 Notification 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, 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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

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, filing his class cards, and depositing his registration book at Sections.

APPOINTMENTS

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 4). Students in residence may obtain appointments at the time announced in the Calendar.

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 its equivalent) or more than 16 credits (or its 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 its 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.

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, plus the required credits in ROTC and physical education, have been earned. In 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 may be earned either in residence or in this University's extension or correspondence courses.

QUARTERLY HIGH SCHOLARSHIP LISTS

The quarterly 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 or to require him to withdraw from the college.

PROBATION OR DROP

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 dropped from the college, or when, because of an improvement in his work, he shall be removed from probation.

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 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.

Exemptions from the requirement are granted to:

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 Department of Physical Education for Men or Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfitted to join regular classes will be assigned by the Executive Officer of the Department of Physical 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 one year or more of active service. This exemption does not grant credit. Veterans with less than one year 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, 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, a course in health education, within the first three quarters of residence. This requirement may be satisfied by passing a health-knowledge examination given during the Autumn Quarter registration period for women entering the University for the first time. 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

A resident student is one who has been domiciled in Washington or Alaska 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

Prospective students are classified as nonresidents when their credentials come from schools outside Washington and Alaska. If they believe they are residents, they may petition the Nonresident Tuition 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), per year	3.00-5.00
Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00; Spring Quarter, \$3.00.	
Military Uniform Deposit , per year	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 is charged for each additional copy.	
Transcript Fee	.50
One transcript is furnished without charge; the fee is charged for each additional copy. Supplementary transcripts are 25 cents each.	
Graduation Fee	10.00

SPECIAL FEES

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00 per credit; and for removal of an Incomplete, \$2.00.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter are: Bowling, \$3.00. 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. Riding fee is payable to riding academy and varies in amount.

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	\$183.00
Full-time nonresident student	408.00
Athletic Admission Ticket (optional)	3.00-5.00
Accident Insurance (optional)	(Approximately) 3.75
Special Fees and Deposits	38.50
Military uniform deposit, breakage ticket, and locker fees.	

<i>Books and Supplies</i>	75.00
<i>Board and Room</i>	
Room and meals in Men's Residence Halls	600.00
Room and meals in Women's Residence Halls	540.00-630.00
Room and meals in fraternity or sorority house	660.00-700.00
Initial cost of joining a fraternity or sorority is not included; this information may be obtained from the Interfraternity or Panhellenic Council.	
<i>Personal Expenses</i>	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.

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 \$150 a month for twelve months, or a total of \$1,800, and recipients are exempt from tuition fees. 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.

ASPHALT PAVING ASSOCIATION SCHOLARSHIP, \$500. Awarded to graduate student in civil engineering.

ASSOCIATED GENERAL CONTRACTORS SCHOLARSHIP, \$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.

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 SCHOLARSHIPS, \$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.

GLADDING McBEAN & COMPANY SCHOLARSHIPS IN CERAMICS, \$350. Awarded to 2 freshman students in ceramic engineering.

GLADDING McBEAN & COMPANY FELLOWSHIP IN CERAMIC ENGINEERING, \$1,500. Awarded to graduate student.

HEWLETT-PACKARD WASHINGTON ALUMNI SCHOLARSHIP, \$600. Awarded to undergraduate student in engineering.

HOOVER ELECTROCHEMICAL COMPANY RESEARCH FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,500. For graduate students.

CLIFFORD A. HOULAHAN SCHOLARSHIP IN CERAMIC ENGINEERING, \$100. Awarded to undergraduate student in ceramic 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.

PACIFIC NORTHWEST PAINT AND VARNISH PRODUCTION CLUB FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,300. Awarded to graduate student.

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 in electrical engineering.

RICHFIELD OIL CORPORATION FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,500. Awarded to graduate student.

SQUARE D SCHOLARSHIP, \$250. Two 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.

TECHNICAL ASSOCIATION OF PULP AND PAPER INDUSTRY FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,620. Awarded to graduate student.

TEXAS COMPANY FELLOWSHIP IN CHEMICAL ENGINEERING, \$1,620. 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, \$300. Awarded to undergraduate student in civil engineering, electrical engineering, or mechanical engineering.

WESTINGHOUSE ACHIEVEMENT SCHOLARSHIP IN ELECTRICAL ENGINEERING, \$500. Awarded to undergraduate in electrical engineering.

An Engineering Student Loan Fund is 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 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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical psychologists, works closely with other student services and supplements the academic advisory program.

HOUSING

A limited number of accommodations are available to men in the Men's Residence Halls, 1201 Campus Parkway, Seattle 5, Washington. Interested students should write to the Manager, the Men's Residence Halls. Housing is available to women in the Women's Residence Halls. For further information write to 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

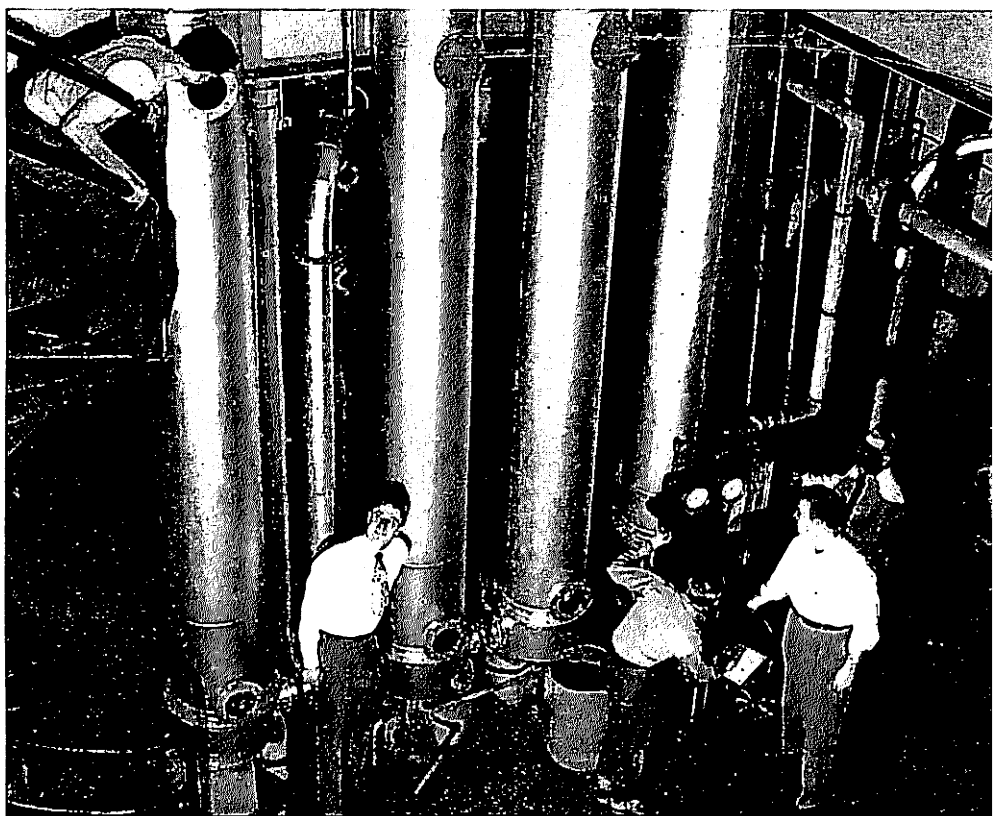
The University maintains a health center and infirmary which help to guard against infectious diseases and incipient ill health.

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 has been established in Seattle. 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. 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

THE DEPARTMENTAL PROGRAMS

CURRICULA 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, 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 program consists of an integrated series of courses offered by the cooperating departments. Courses are listed below. Descriptions of the courses will be found in the sections devoted to the respective departments:

Chemical Engineering 484	Introduction to Nuclear Engineering
Chemical Engineering 580	Nuclear Engineering
Civil Engineering 559	Control of Radioactive Wastes
Electrical Engineering 497	Nuclear Instruments
Electrical Engineering 500	Nuclear Reactor Theory
Electrical Engineering 501	Nuclear Reactor Theory
Mechanical Engineering 487	Tracer Techniques in Mechanical Engineering Measurements
	Heat Transfer
Mechanical Engineering 531	Nuclear Power Plants
Mechanical Engineering 538	Nuclear Metallurgy
Metallurgical Engineering 444	Nuclear Metallurgy Laboratory
Metallurgical Engineering 445	

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
Chemistry 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 421 (Differential Equations); Physics 320 (Introduction to Modern Physics); Physics 323 (Introductory Nuclear Physics); Metallurgical Engineering 441 (Physical Metallurgy); Metallurgical Engineering 442 (Physical Metallurgy Laboratory); and Chemical Engineering 484 (Introduction to Nuclear Engineering).

Questions concerning the program should be addressed to Dr. R. W. Moulton.

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 45-85). 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. 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 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

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 courses 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 chemical, civil, and electrical 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. The choice of bulletin (see page 46) 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.

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*.

GENERAL ENGINEERING

Executive Officer: E. R. WILCOX, 311 Miller Hall

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, students enter the curriculum of the department in which they have decided to major.

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 103 the first quarter. 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		Gen. Engr. 102 Drawing	3	Gen. Engr. 103 Applied	
Orientation	1	Gen. Engr. 112 Problems	3	Descriptive Geom.	3
Gen. Engr. 101 Drawing	3	Chem. 150 General	4	Gen. Engr. 121 Plane	
Gen. Engr. 111 Problems	3	Math. 153 Analytic		Surveying	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			Phys. Educ. 175 Health	2
				Phys. Educ. activity	1
				ROTC	2-3
	16-19		16-19		17-20

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 Drawing (3)** **Boehmer, Staff**
Orthographic projection including three-view drawing and related views; use of instruments, sections, sketching, and isometric and scale practice; reading of drawings and techniques of lettering and line work. Simple line and plane problems.
- 102 Engineering Drawing (3)** **Messer, Staff**
Machine drawing. Study of drawing standards, notes, conventions, shop language, and proper dimensioning. Practice in free-hand sketching and the making of acceptable shop drawings; ink and pencil tracings; reading of drawings. 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.
- 107 Engineering Drawing (3)** **Hoag, Staff**
Short course for forestry and art students. An abbreviated course in 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 or concurrent with trigonometry.
- 112 Engineering Problems (3)** **Hammer, Staff**
Fundamental principles of statics; mathematical and graphical analysis of simple force, systems; stresses in frames, trusses, and simple mechanisms. Prerequisites, 101, 111, and trigonometry.
- 121 Plane Surveying (3)** **McNeese, 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.
- 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: VICTOR M. GANZER, 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 47), and Master of Aeronautical Engineering.

BACHELOR OF SCIENCE IN AERONAUTICAL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 47).

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mech. Engr. 201 Metal Castings	1	Aero. Engr. 200 Intro.	2	Mech. Engr. 220 Heat Engines	3
Mech. Engr. 260 Mechanism	3	Mech. Engr. 202 Welding	1	Math. 421 Diff. Equations	3
H.S.S. 265 Tech. of Commun.	3	Civil Engr. 291 Dynamics	3	Civil Engr. 292 Mechanics of Mats.	3
Math. 252 Analytic Geom. & Calc.	5	H.S.S. 270 Engr. Report Writing	2	H.S.S. 331 Hum.-Soc. St.	3
Physics 217 Engr. Physics	4	Math. 253 Analytic Geom. & Calc.	3	Physics 219 Engr. Physics	4
ROTC	2-3	Physics 218 Engr. Physics	4	ROTC	2-3
	<hr/> 16-19	ROTC	<hr/> 2-3		<hr/> 16-19
			<hr/> 15-18		

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
Mech. Engr. 203 Metal Machining	1	Aero. Engr. 330 Aircraft Struct. Anal.	3	Aero. Engr. 320 Aerodyn. Lab.	3
Mech. Engr. 320 Thermodynamics	5	Aero. Engr. 360 Aircraft Engines	3	Aero. Engr. 331 Aircraft Struct. Anal.	3
Mech. Engr. 340 Engr. Mats.	3	Mech. Engr. 361 Machine Design	3	Mech. Engr. 341 Aircraft Mats.	2
Civil Engr. 293 Dynamics & Mechanics	3	H.S.S. 332 Hum.-Soc. St.	3	Elect. Engr. 300 Elem. of Elect. Engr.	5
	<hr/> 15		<hr/> 15		<hr/> 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	H.S.S. 491 Hum.-Soc. St.	2	Bus. Law 307 Bus. Law	3
Aero. Engr. 410 Aircraft Design	3	Econ. 211 General	3	Hum. Rel. 365 Indust. Rel.	3
Mech. Engr. 362 Machine Design	3	Tech. Electives	7	Tech. Electives	5
Elect. Engr. 400 Vacuum Tubes & Electronics	5		<hr/> 15		<hr/> 15
	<hr/> 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 505, 508, 516, -522, 530, 533, 553, 556, 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 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. 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.

COURSES FOR UNDERGRADUATES

- 200 Introduction to Aeronautics (2)** **Staff**
History, sources of information, nomenclature, and a summary of the field of aeronautical engineering showing important differences between it and other engineering fields.
- 300 Aerodynamics (3)** **Staff**
Air properties and their variation with altitude, the continuity and Bernoulli equations; pressure distribution; dimensional analysis and dynamic similarity; aerodynamic characteristics of airfoils in a perfect and real fluid; momentum and circulation theory of lift. Prerequisites, Civil Engineering 291, Physics 217, 218, 219, and Mathematics 251.
- 301 Aerodynamics (3)** **Staff**
Induced effects; airplane efficiency factor; spanwise lift distribution; viscosity and compressibility effects on bodies and in pipes. Prerequisites, 300 and Mechanical Engineering 320.
- 302 Aerodynamics (3)** **Staff**
Parasite drag and power required by an airplane; performance of propeller- and jet-driven aircraft; 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, Weikel**
Statically determinate plane and space trusses; bending stresses in the general unsymmetrical and tapered beam; deflections of determinate trusses and beams; introduction to stressed-skin structures. Prerequisites, Civil Engineering 292 and Mechanical Engineering 340.
- 331 Aircraft Structural Analysis (3)** **Dill, Weikel**
Shear stresses in stressed-skin structures; statically indeterminate airplane structures. Prerequisite, 330.
- 332 Aircraft Structural Analysis (3)** **Dill, Weikel**
Statically indeterminate rings and frames; buckling and instability problems; fitting analysis. Prerequisite, 331.
- 350 Aircraft Structure Laboratory (2)** **Dill, Weikel**
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)** **Eastman, 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; use of potential and stream functions; sources, sinks, and vortices; three-dimensional flow; two-dimensional flow; theory of airfoils and wings. Prerequisite, Mathematics 253.
- 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; pressure distribution, forces, and heat transfer. Prerequisite, 320.
- 425 Flight Test Laboratory (3)** **Joppa**
Theory of flight test; calibration of flight instruments, performance measurement in flight; reduction of flight test data. Prerequisite, 302.
- 441 Advanced Structural Design (3)** **Weikel**
Comprehensive approach to the aircraft structural design problem; such factors as materials, weight, and aerodynamic considerations will be taken into account. Prerequisite, 332.

- 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**
Problems in aerodynamics, structures, and dynamics which can be formulated as ordinary differential equations; their solution and interpretation. Prerequisite, Mathematics 421 or permission.
- 480 Elementary Dynamics (3)** **Ganzer, Martin**
Discussion of dynamics problems in aircraft design; equations of motion and solutions for selected problems; response of simple systems to applied loadings. Prerequisite, senior standing.
- 481 Elementary Aero-elasticity (3)** **Ganzer, Martin**
Discussion of aero-elastic problems in aircraft design; elementary development of static and dynamic aero-elastic problems. Prerequisite, senior standing.
- 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**
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.
- 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. Prerequisite, 505.
- 508 Aerodynamics of Compressible Fluids (3)** **Street**
Thermodynamics of ideal gases; isentropic flow in one dimension, shock waves, equations of motion in nonviscous flow; airfoils and wings; similarity laws.
- 509 Aerodynamics of Compressible Fluids (3)** **Street**
Theory of characteristics; equations in the hodograph plane, exact solutions; linearized supersonic flow over wings and bodies of revolution; laminar compressible boundary layer. Prerequisite, 508.
- 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)** **Martin, Weikel**
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)** **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)** **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)** **Martin**
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, 530, 553, and 572.
- 553 Aircraft Vibrations (3)** **Martin**
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)** **Martin**
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)** **Martin, 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.) Prerequisites, Mathematics 421 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. Prerequisites, Mathematics 421 for 571 and 573; 571 for 572.
- 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**
- 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 47), 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 47).

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. 421 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. N331	
Stoichiometry	4	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
	17		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 Inorganic		Chem. Engr. 482 Organic		Chem. Engr. 476 Unit	
Chem. Processes	3	Chem. Processes	3	Oper. Lab.	2
Chem. Engr. 498 Senior		Chem. Engr. 498 Senior		Chem. Engr. 483 Process	
Investigations	2	Investigations	2	Design	4
Econ. 211 General	3	Bus. Law 307 Bus. Law	3	H.-S.S. 493 Hum.-Soc. St.	2
H.-S.S. 491 Hum.-Soc. St.	2	Tech. Electives	3	*Tech. Electives	5
	15		16		16

* May include Senior Investigations 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 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 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; industrial analysis experiments; 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.
- 384 Industrial Stoichiometry (4)** **David**
Material balances and sources of data therefor. Introduction to first law of thermodynamics. Heat balances; thermophysics and thermochemistry. Prerequisite, 273 or permission.
- 385 Chemical Engineering Thermodynamics (4)** **McCarthy**
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)** **McCarthy**
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)** **Babb**
The laboratory experiments cover primarily the subject matter of 470. Prerequisite, 470.

- 475 Unit Operations Laboratory (2)** **Babb**
The laboratory experiments cover the subject matter of 471, together with evaporation and instrumentation. Prerequisite, 471.
- 476 Unit Operations Laboratory (2)** **Babb**
The laboratory experiments cover primarily the subject matter of 472 and 473. Prerequisite, 472.
- 481 Inorganic Chemical Processes (3)** **Moulton**
Fuels; coal distillation; carbon cement; potassium salts; fertilizers; sodium compounds; chlorine; electrochemical industries; sulfur and sulfuric acid; nitrogen industries. Prerequisite, 384 or permission.
- 482 Organic Chemical Processes (3)** **Babb, Moulton**
Nuclear engineering; petroleum chemicals and products; plastics, polymers; synthetic fibers; silvi chemicals; pulp and paper. Prerequisite, Chemistry 221 or equivalent.
- 483 Chemical Engineering Process Design (4)** **Babb, Moulton**
Process instrumentation; electrochemical corrosion and materials of construction; economics and marketing. Comprehensive design problem. Prerequisites, 472 and Chemistry 221 or equivalent.
- 484 Introduction to Nuclear Engineering (3)** **Babb, Moulton**
Survey course in nuclear engineering for seniors. Elements of nuclear physics; elementary nuclear reactor theory; design aspects of nuclear power reactors; materials of construction; radiation shielding. Prerequisites, Physics 320, Mathematics 421 or permission.
- 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.
- 498 Senior Investigations (1-6)** **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 1958-59.) 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 1957-58.) 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.
- 580 Nuclear Engineering (3)** **Babb**
An advanced course in engineering analysis and design of nuclear reactor systems. The course covers heat generation and distribution in nuclear reactor systems; the removal and utilization of heat for power production; transient behavior of reactor systems; fuel cycles and processing of irradiated reactor fuels; shielding of nuclear radiations. Prerequisites, 484 and Electrical Engineering 500.
- 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 1957-58.) 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 1958-59.) 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**
- 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 47), 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 47).

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. One of these electives must be in the sanitary engineering field, preferably 454. Students planning graduate work in structures should elect Mathematics 421 (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 Surv.	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 Econ. 211 General	3
Physics 217 Engr. Phys.	4	Math. 253 Analytic Geom. & Calc.	3	Physics 219 Engr. Phys.	4
ROTC	2-3	Physics 218 Engr. Phys.	4	ROTC	2-3
	15-18	ROTC	2-3		16-19
			15-18		

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. 300 Elem. of Elect. Engr.	5	Civil Engr. 371 Struct. Theory	3	Civil Engr. 372 Struct. Theory	3
H.-S.S. 491 Hum.-Soc. St.	2	Geol. 310 Engineering	5	Civil Engr. 373 Struct. Theory	3
	15		16	Mech. Engr. 325 Thermodynamics	3
					15

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Civil Engr. 466 Soil Mechanics	3	Civil Engr. 476 Struct. Design	3	Civil Engr. 477 Struct. Design	3
Civil Engr. 475 Struct. Design	3	Civil Engr. Tech. Elective	3	Civil Engr. Tech. Elective	3
Civil Engr. Tech. Elective or Physics 320 Modern	3	Civil Engr. Tech. Elective	3	Civil Engr. Tech. Elective	3
H.-S.S. 331 Hum.-Soc. St.	3	H.-S.S. 332 Hum.-Soc. St.	3	H.-S.S. 333 Hum.-Soc. St.	3
H.-S.S. 492 Hum.-Soc. St.	2	H.-S.S. 493 Hum.-Soc. St.	1	Bus. Law 307 Bus. Law	3
	14	Hum. Rel. 365 Indust. Rel.	3		15
			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

SURVEYING AND MECHANICS

- 214 Intermediate Surveying (3)** **Chittenden, Colcord, W. M. Miller**
Primary emphasis on control and topographic surveys as required for engineering projects approximating second-order accuracy. Includes adjustment of instruments, calibration of tapes, baseline measurement, engineering astronomy, triangulation, traversing, leveling, and topographic mapping. The course is built around a comprehensive field project extending through the quarter. All plotting data is expressed on the State Plane Coordinate System (Lambert Conformal Projection for Washington). Office and field time are about equally divided. Prerequisite, General Engineering 121.
- 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 153 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 153 or equivalent, and Physics 217; 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, Colcord**
Application of aerial photography to the problems of engineering and map making. 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. Prerequisites, General Engineering 121 and junior standing; permission for nonengineering students.

TRANSPORTATION ENGINEERING

- 212 Route Location (3)** **Chittenden, Colcord, W. M. Miller**
Alignment problems associated with the location of highways, railways, pipe lines and canals, including reconnaissance, preliminary and final location; curves, compensation for curvature and sight distance, location maps and problems of right of way. Prerequisite, General Engineering 121.
- 213 Earthwork Measurements (3)** **Chittenden, Colcord, W. M. Miller**
Grades, profiles, super-elevation, cross sections, earthwork quantities, including shrinkage and swell, and application of the mass diagram to the problems of haul. Prerequisite, General Engineering 121.
- 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.
- 403 Principles of Urban Planning (3)** **Horwood**
An introduction to modern urban planning. Recent historical developments. The interrelation of land uses and utilities. Enabling legislation and forms of municipal regulations. Prerequisite, senior or graduate 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 channel regulation; theory of waves. Prerequisites, 213 and 342.
- 424 Highway Design (3)** **Ekse**
Design for the intersection; emphasis on geometric design, traffic lane capacities, and grade separation; laboratory design and field control of bituminous paving mixtures; theories of flexible and rigid pavement design; culvert design with emphasis on types, size requirements, and strength requirements for resistance to earth pressures. Two lectures and one laboratory period. 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 Planning (3)** **Hennes, Horwood**
The planning, financing, and operation of highways. Studies in the overall cost of highway transportation. Capital improvements in relation to reduced vehicular operating costs. The economics of truck operation on grades. The theory of random arrival at intersections. The state and federal highway systems. Toll facilities, limited access highways, and roadside protection. Prerequisite, senior or graduate standing in engineering.
- 429 Traffic Engineering (3)** **Horwood, Sawhill**
Traffic engineering functions and administration. Street and intersection capacities. Urban arterial and freeway planning. Traffic and parking surveys. One-way street systems. Signal timing for traffic movement and traffic control warrants. Prerequisite, senior or graduate standing in engineering or graduate standing in urban planning.

HYDRAULIC ENGINEERING

- 342 Fluid Mechanics (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.
- 445 Hydraulic Machinery (3)** **Chenoweth, Moritz**
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 Hydraulic Power (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.

SANITARY ENGINEERING

- 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.
- 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.

ENGINEERING MATERIALS

- 362 Materials of Construction (3)** **Mittet**
Concrete, Portland cement, and concrete mixtures. Prerequisite, 292.
- 363 Materials of Construction (3)** **Hartz, Vasarhelyi**
Strength and physical characteristics of timber, steel, and structural aluminum alloys. Prerequisite, 292.
- 466 Soil Mechanics (3)** **Hennos, 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.
- 467 Earthwork Engineering (3)** **Hennos, 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)** **Hennos, 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.

STRUCTURAL ANALYSIS AND DESIGN

- 371 Structural Theory (3)** **Chenoweth, Clanton, Mittet**
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, Clanton, Hartz, Mittet**
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.
- 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, Sergev**
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.
- 491 Advanced Professional Design (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. 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.
- 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.
- 547 Advanced Hydraulic Power (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.
- 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.
- 559 Control of Radioactive Wastes (3)** **Bogan, Sylvester**
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. Prerequisites, Physics 320 or equivalent, and permission.
- 560 Photoelasticity (3)** **Sergev**
Introduction of stress determination using polarized light and transparent plastics. To gain familiarity with the polariscope, the making of models, and solution of some common engineering problems in two dimensions. Modern photoelastic theory, plastics and similitude. Prerequisite, graduate standing or permission.
- 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.
- 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.
- 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 Suspension Structures (3)** **Farquharson**
Fundamental principles of structural action as applied to suspension bridges, suspended pipe lines, conveyors, and transmission lines. Analysis for dead and live loading and static wind action. The mechanisms of wind excitation on typical cross sections and their application to various modes of vibration.
- 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).
- 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.
- Thesis (*)** **Staff**

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 47), 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 47).

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.		Elect. Engr. 232 Elect.		Elect. Engr. 234 Elect.	
Circuits I	5	Circuits Lab. I	1	Circuits Lab. II	1
Math. 252 Analytic		Elect. Engr. 233 Elect.		Elect. Engr. 243 D.C.	
Geom. & Calc.	5	Circuits II	5	Mach.	3
Physics 217 Engr. Physics 4		H.-S.S. 265 Tech. of		Civil Engr. 291 Dynamics	3
ROTC	2-3	Commun.	3	H.-S.S. 270 Engr. Report	
	14-17	Math. 253 Analytic		Writing	2
		Geom. & Calc.	3	Math. 421 Diff. Equations	3
		Physics 219 Engr. Physics 4		Physics 320 Intro. to	
		ROTC	2-3	Modern Physics	3
			16-19	ROTC	2-3
					15-18

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Elect. Engr. 331 Fields and Matls.	5	Elect. Engr. 311 Elect. Transients	4	Elect. Engr. 333 Vac. Tubes & Electronics	4
Elect. Engr. 340 A.C. Mach.	4	Elect. Engr. 312 Elec. Transients Lab.	1	Elect. Engr. 334 Electronics Lab.	1
Elect. Engr. 341 A.C. Mach. Lab.	2	Econ. 211 General	3	Civil Engr. 342 Fluid Mechanics	5
Civil Engr. 292 Mechanics of Matls.	3	H.-S.S. 332 Hum.-Soc. St. 3		H.-S.S. 333 Hum.-Soc. St. 3	
H.-S.S. 331 Hum. Soc. St. 3		Mech. Engr. 340 Materials	14	Mech. Engr. 368 Kinematics	3
	17				16

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Elect. Engr. Electives	5	Elect. Engr. Electives	5	Elect. Engr. Electives	5
Bus. Law 307 Bus. Law.	3	H.-S.S. 491 Hum.-Soc. St. 2		H.-S.S. 493 Hum.-Soc. St. 1	
Mech. Engr. 466 Mach. Design	4	Hum. Rel. 365 Indust. Rel. 3		Mech. Engr. 426 Thermodynamics	5
Electives	3	Mech. Engr. 325 Thermodynamics	3	Electives	3
	15		13		14

No options are designated but the 18 electrical engineering elective credits allow students to place special emphasis on a given area of study by suitable selection of senior courses in electrical engineering. One course in electronics must be included in this selection.

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.

COURSES FOR UNDERGRADUATES

- 200 Elementary Electronics (5) Staff**
Vacuum and gas-filled tubes, photocells; rectifiers, amplifiers, and simple control circuits; cathode-ray oscilloscope; elementary instrumentation. Short course for chemistry majors. Not open to engineering students. Includes one four-hour laboratory and one two-hour problem period on alternate weeks. Prerequisites, Physics 122 and Mathematics 252.
- 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 which may be taken concurrently.
- 232 Electric Circuits Laboratory I (1) Staff**
A four-hour laboratory on alternate weeks to follow 231, covering direct-current circuits.
- 233 Electric Circuits II (5) Staff**
Applications of the principles covered in 231 to circuits containing a-c sources. Includes some work with polyphase circuits and with nonsinusoidal wave forms. Prerequisites, 231, and Mathematics 252 which may be taken concurrently.
- 234 Electric Circuits Laboratory II (1) Staff**
A four-hour laboratory on alternate weeks to follow 233, covering alternating-current circuits.
- 243 Direct-Current Machinery (3) Staff**
Construction, operation, characteristics, and applications of direct-current machinery. Includes one four-hour laboratory on alternate weeks. Prerequisite, 231.
- 300 Elements of Electrical Engineering (5) Staff**
Short course in direct- and alternating-current circuits with introduction to electronics. For nonelectrical engineering majors. Includes one four-hour laboratory on alternate weeks. Prerequisites, Physics 218, Mathematics 153, and General Engineering 111.
- 301 Electrical Machinery (5) Staff**
Short course in electrical machinery. For nonelectrical engineering majors. Includes one three-hour laboratory per week. Prerequisite, 300.
- 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. Prerequisite, 233.
- 312 Electric Transients Laboratory (1) Staff**
A four-hour laboratory on alternate weeks. To be taken concurrently with 311.
- 331 Fields and Materials (5) Staff**
Formulation of Maxwell's equations and their application to problems in electrical engineering. Study of the interaction of physical materials and electromagnetic fields. Includes one four-hour laboratory on alternate weeks. Prerequisite, 233.
- 333 Vacuum Tubes and Electronics (4) Staff**
Electron emission; fundamentals of vacuum and gas-filled tubes; phototubes; elementary amplifier theory; theory of single-phase and polyphase rectifiers; control circuits. Prerequisite, 233.
- 334 Electronics Laboratory (1) Staff**
A four-hour laboratory on alternate weeks. To be taken concurrently with 333.
- 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**
Vacuum and gas-filled tubes, photocells; rectifiers, amplifiers, and simple control circuits; cathode-ray oscilloscope; oscillators and elementary instrumentation. Short course for nonelectrical engineering majors. Includes one four-hour laboratory and one two-hour problem period on alternate weeks. Prerequisite, 300.
- 430 Individual Projects (2-5, maximum 10) Staff**
Assigned construction or design projects carried out under the supervision of the instructor.

- 440 Vacuum Tube Circuits (6)** **Staff**
Short course for power majors covering the material of 460 and 461 with applications to the power and industrial control fields. Includes one four-hour laboratory on alternate weeks. Prerequisites, 333, 334.
- 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 (3)** **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.
- 460, 461 Vacuum Tube Circuits (5,5)** **Staff**
Analysis and design of voltage and power amplifiers; feedback theory; tuned amplifiers and oscillators; theoretical analysis of amplitude, frequency, and pulse modulation; modulator and demodulator circuits; applications in the communication field. Includes one four-hour laboratory on alternate weeks. Prerequisites, 333 for 460; 460 for 461.
- 469 Advanced Field Theory (4)** **Staff**
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.
- 470 Communication Networks (5)** **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. Includes one four-hour laboratory on alternate weeks. Prerequisite, 233.
- 473 High-Frequency Circuits (5)** **Cochran**
Wave shaping circuits including clipping circuits, square-wave generators, differentiator and integrator circuits, d-c restoration, and clamping. Free-running and driven trigger circuits, utilizing high-vacuum and gas-type tubes. Ringing circuits. Applications to high-frequency circuits including television and radar. Includes one four-hour laboratory on alternate weeks. Prerequisite, 460.
- 479 Radio Design (2)** **Cochran**
Problems of designing radio receivers and transmitters and audio and video amplifiers; selection of suitable components; proper layouts. Must be preceded or accompanied by 461.
- 497 Nuclear Instruments (3)** **Fechter**
Basic design and operation of instruments used in nuclear engineering, including associated electronics. Includes one three-hour laboratory per week. Prerequisite, Physics 323 or permission.

COURSES FOR GRADUATES ONLY

- 500 Nuclear Reactor Theory (5)** **Fechter**
The origin, measurement, and control of radiation; properties of gamma rays, neutrons, and charged particles; principles of dosimetry; radiation shielding problems; engineering techniques and instruments used in monitoring and controlling radiation; Atomic Energy Commission and federal policies. Prerequisites, Physics 323 or equivalent, Chemical Engineering 484 or taken concurrently.
- 501 Nuclear Reactor Theory (3)** **Fechter**
A continuation of 500, covering types and functions of nuclear reactors; time behavior of nuclear reactors; fundamentals of reactor control; nuclear reactor instrumentation and applications. Includes one three-hour laboratory per week. Prerequisite, 500.
- 510 Introductory Network Theory (5)** **Lewis**
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**
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**
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, 470.
- N520-N521-522 Seminar (0-0-2)** **Lewis**
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 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 1958-59.) Prerequisites, 333, and 510 which may be taken concurrently.
- 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, 460 and 470.
- 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 Radiation and Propagation (4)** **Staff**
Theory of radiation; impedance characteristics and radiation patterns of thin linear antenna elements; properties and synthesis of antenna arrays; field intensity calculations; theory of tropospheric and ionospheric propagation; propagation anomalies. Includes one four-hour laboratory on alternate weeks. Prerequisite, 331.
- 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, 470, 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.
- 576 Communication Theory (3)** **Staff**
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, permission.
- 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 alternate weeks. (Offered alternate years; offered 1957-58.) Prerequisite, 470.

- 582 Feedback Control Systems I (4)** **Bergseth**
Function of feedback control systems, physical characteristics and transfer functions of typical components, analysis of transient and frequency response of linear systems, methods of graphical analysis, system stability criteria. Prerequisite, 510.
- 583 Feedback Control Systems II (3)** **Bergseth**
Design and analysis of multiple loop linear systems, experimental design and analysis procedures, control system synthesis, nonlinear control systems, describing functions and phase plane analysis. Prerequisite, 582.
- 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.
- 600 Research (2-5)** **Staff**
- Thesis (*)** **Staff**

HUMANISTIC-SOCIAL STUDIES FOR ENGINEERS

Executive Officer: STUART W. CHAPMAN, 312 Engineering 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)** **Souther, 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 and of modern cultures and values. 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 as seen especially in the development of scientific, artistic, and religious thought; 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; recent trends as reflected in literature and the arts. Prerequisite, 332 or equivalent.
- 491 Humanities-Social Studies (2)** **Elliott, Skeels, White, Staff**
Reading and discussion of great works of literature; 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, Skeels, White, Staff**
Further analysis of particular forms of literature; analysis of other arts. 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. 310 Intermediate..	5	Acctg. 330 Cost Acctg....	5
Fin. 201 Banking & Bus..	5	Fin. 301 Financial		Mech. Engr. 417 Meth.	
Mech. Engr. 410 Engr.		Mgmt.	5	Anal.	3
Admin.	3	Mech. Engr. 411 Engr.		Tech. electives	6
Tech. electives	4	Econ.	3		
	15	Tech. electives	3		14
			16		

MECHANICAL ENGINEERING

Executive Officer: BRYAN T. McMINN, 316 Guggenheim 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 47), and Master of Science in Mechanical Engineering.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 47).

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mech. Engr. 201 Metal Castings	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	Civil Engr. 292 Mechanics of Matls.	3
Math. 252 Analytic Geom. & Calc.	5	Math. 253 Analytic Geom. & Calc.	3	H.-S.S. 270 Engr. Report Writing	2
Physics 217 Engr. Physics	4	Physics 218 Engr. Physics ..	4	Econ. 211 General	3
ROTC	2-3	ROTC	2-3	Physics 219 Engr. Physics	4
			14-17	ROTC	2-3
	16-19				16-19

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. 320		Mech. Engr. 324 Exper.	3	Mech. Engr. 362 Mach.	3
Thermodynamics	5	Thermo.	3	Design	3
Mech. Engr. 340		Mech. Engr. 361 Mach.	3	Elect. Engr. 301 Elect.	3
Materials	3	Design	3	Mach.	5
Civil Engr. 293 Dynamics	3	Mech. Engr. 367	3	H.-S.S. 331 Hum.-Soc. St.	3
H.-S.S. 491 Hum.-Soc. St.	2	Dynamics	3	Tech. Electives	3
Bus. Law 307 Business	3	Elect. Engr. 300 Elem.	5		15
Law	3	of Elect. Engr.	5		
	17	H.-S.S. 492 Hum.-Soc. St.	2		
			17		

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mech. Engr. 481 Internal		Mech. Engr. 468 Mach.		Tech. Electives	7
Combust. Engines	3	Design	3	Electives	8
Civil Engr. 342		Mech. Engr. 482 Internal			15
Fluid Mechanics	5	Combust. Engine Lab.	3		
H.-S.S. 332 Hum.-Soc. St.	3	H.-S.S. 333 Hum.-Soc. St.	3		
Tech. Electives	5	Hum. Rel. 365 Indust.	3		
	16	Rel.	3		
		Tech. Electives	3		
			15		

Although options are not designated, the 26 elective credits provided in the curriculum allow students to develop special aptitudes and interests and to achieve a moderate degree of specialization. At least 18 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), 463 (Mechanical Engineering Analysis I), 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), 430 (Introduction to Heat Transfer), 432 (Thermodynamics of Fluid Flow), 436 (Friction and Lubrication), and 443 (Instrumentation). See also 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), 415 (Quality Control), 417 (Methods Analysis), and 443 (Instrumentation).

ADVANCED DEGREE

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, air conditioning, refrigeration, nuclear power, 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 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.

COURSES FOR UNDERGRADUATES

- 201 Metal Casting (1)** **Snyder, Zylstra**
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. Laboratory.
- 202 Welding (1)** **Holt, Zylstra**
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. 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. 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.
- 221 Mechanical Engineering Laboratory (3)** **Crain, Firey, Meador, Shouman**
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)** **Balise, Day, Fritz**
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.
- 305 Production Tooling (1)** **Kenny, Zylstra**
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. Prerequisite, 203.
- 306 Production Techniques (1)** **Schaller, Snyder**
Application of techniques in founding, welding, forging, stamping, and heat treating of engineering metals to manufacturing and production methods. Lecture. 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)** **Kenny, Zylstra**
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, 221.
- 324 Experimental Thermodynamics (3)** **Crain, Firey, McIntyre, Shouman**
Experimental demonstration of the basic principles of thermodynamics, including study of measurements for heat and energy balances. Prerequisite, 320.
- 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.
- 328 Elementary Thermodynamics (3)** **Hendrickson**
For fisheries students and others concerned with foods-processing involving thermodynamics, heat-power equipment and processes. Class 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. Class and laboratory. Not open to engineering students. Prerequisite, 328.
- 340 Engineering Materials (3)** **Balise, Day, Mills, Meador**
The nature and behavior of the most important engineering materials, including metals, plastics, rubber, wood, and concrete. Study of creep and fatigue of materials. Laboratory investigations of the behavior of typical materials and methods of testing. 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)** **Mills**
Study of the problems and uses of wood materials, glass, and plastics in the manufacture of products of interest to industrial designers. Not open to engineering students. Classroom and field trips. Prerequisite, junior standing in industrial education or permission.

- 361, 362 Machine Design (3,3)** **Balise, Crain, Day, 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. Lectures 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, 260 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)** **Zylstra**
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. Lectures and laboratory. Prerequisites, 306 and 340.
- 410 Engineering Administration (3)** **Owens, 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, Zylstra**
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)** **Zylstra**
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 Quality Control (3)** **Owens, Zylstra**
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. Lectures 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; economics and human factors involved in methods-study applications. Lectures 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, 320.
- 426 Thermodynamics for Nonmajors (5)** **Childs, Crain, 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. Lectures 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. Lectures and laboratory. Prerequisite, 320.
- 430 Introduction to Heat Transfer (3)** **Childs, Firey, Waibler**
Study of steady-state heat transfer by conduction, radiation, and natural and forced convection; design of elementary heat-exchangers; transient heat flow. Prerequisites, 320 or equivalent, and senior standing in engineering.
- 432 Thermodynamics of Fluid Flow (3)** **Childs**
A study of the thermodynamic relationships for the flow of a gas within closed channels. Analysis of the basic flow equations; study of the effects of friction, normal and oblique shock; application to thermodynamic processes involving nozzles, diffusers, compressors, combustors, and turbines. Prerequisites, 320, and Civil Engineering 342.

- 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)** **Balise**
Study of the problems of measurement and control as related to industrial instrumentation. Analysis of industrial indicating, recording and telemetering instruments. Lectures and laboratory. Prerequisite, senior standing in engineering.
- 463 Mechanical Engineering Analysis I (3)** **Balise**
Study of the mathematically common ground in basic engineering principles; transient and steady-state solutions; validity, limits and approximations; vector representations. Prerequisite, junior standing in mechanical engineering or permission.
- 466 Machine Design (4)** **Balise, Day, 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.
- 468 Machine Design (3)** **Balise, Day, Morrison, Kielsing**
Advanced topics in machine design, including analysis of curved beams and thick cylinders, force fits, and design of major machine assemblies. Prerequisite, 362.
- 469 Dynamics of Machines (3)** **Balise, 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**
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, 320.
- 482 Internal Combustion Engine Laboratory (3)** **Firey, Guidon**
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. Lectures and laboratory. Prerequisite, 481.
- 487 Tracer Techniques in Mechanical Engineering Measurements (3)** **Firey**
Sources and properties of nuclear radiations; radiation measurements and equipment; tracer techniques; application to wear, thickness, flow, and distribution measurements. Prerequisite, Physics 323 or equivalent, and senior standing in mechanical engineering or permission.
- 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 Undergraduate Research (2-5)** **Staff**

COURSES FOR GRADUATES ONLY

- 521 Thermodynamics (3)** **McMinn, Nordquist, Waibler**
A critical study of the fundamental concepts of thermodynamics; nonflow and steady-flow processes; enthalpy; point properties; reversibility; vapors vs. perfect gases. Prerequisites, 320 and graduate standing or permission.
- 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.

- 535 Reactor Engineering (3)** **Mills**
Review of pile theory; analysis of thermodynamic and heat-transfer problems of reactors; shielding and thermal stress factors; problems of instrumentation and control. Not open to nuclear engineering majors. Prerequisite, graduate standing in mechanical engineering or permission.
- 538 Nuclear Power Plants (3)** **Waibler**
Study of the design, construction, operation and maintenance of nuclear power plants. Characteristics of various kinds of reactors as related to the heat-power cycle. Engineering management of nuclear power plants. Prerequisite, Chemical Engineering 580.
- 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. 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. Lectures and laboratory. Prerequisite, graduate standing in engineering or permission.
- 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.
- 564 Mechanical Engineering Analysis II (3)** **Balise**
Development of solutions to mathematically analogous problems from various fields of mechanical engineering, with emphasis on analytical thinking. Use of analogues 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.
- 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, 481 and graduate standing in engineering or permission.
- 600 Research (2-5)** **Staff**
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 47), 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 82).

Ceramic Engineering

BACHELOR OF SCIENCE IN CERAMIC ENGINEERING

The curriculum for the first year is administered by the Department of General Engineering (see page 47). General Engineering 121 (Plane Surveying) 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 vacations 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 Mats.	4	Cer. Engr. 204J Stoichiometry	3
H.-S.S. 265 Tech. of Commun.	3	Econ. 211 General	3	Cer. Engr. 208 Pyrometry	3
Math. 252 Analytic Geom. & Calc.	5	H.-S.S. 270 Engr. Report Writing	2	Civil Engr. 292 Mechanics of Mats.	3
Mech. Engr. 202 Welding	1	Math. 253 Analytic Geom. & Calc.	3	H.-S.S. 302 Tech. Writing	3
Physics 217 Engr. Phys.	4	Physics 218 Engr. Phys.	4	Mech. Engr. 203 Metal Mach.	1
ROTC	2-3	ROTC	2-3	Physics 219 Engr. Physics	4
	15-18		16-19	ROTC	2-3
					17-20

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Cer. Engr. 303 Coatings	3	Cer. Engr. 312 Structure & Reactions	-3	Cer. Engr. 304 Drying and Firing	4
Cer. Engr. N306 Excursion	0	Chem. 356 Physical	3	Cer. Engr. 313 Colloids & Rheology	3
Cer. Engr. 311-Structure & Reactions	3-	Elec. Engr. 300 Elements of Elect. Engr.	5	Chem. 357 Physical	3
Chem. 355 Physical	4	Physics 350 Heat, Thermodyn. & Kinetic Theory	3	H.-S.S. 331 Hum. Soc. St.	3
Min. Engr. 361 Mineral Dressing; Preparation	3			H.-S.S. 491 Hum. Soc. St.	2
Tech. Electives	3		14		15
	16				

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. 411 Equilibria	3	Cer. Engr. 421 Lab.	3	Cer. Design 441 Seminar	1
Cer. Engr. 412J X-ray Anal.	2	Cer. Engr. 441 Seminar	1	Cer. Engr. 498 Senior Investigations	2
Cer. Engr. 441 Seminar	1	Cer. Engr. 498 Senior Investigations	2	H.-S.S. 333 Hum. Soc. St.	3
Cer. Engr. 470 Refractories	3	H.-S.S. 332 Hum.-Soc. St.	3	H.-S.S. 493 Hum. Soc. St.	1
Cer. Engr. 498 Senior Investigations	1	Hum. Rel. 365 Indust. Rel.	3	Electives	6
H.-S.S. 492 Hum. Soc. St.	2	Tech. Electives	3		15
Tech. Electives	5		17		
	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 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)** **E. E. Mueller**
History and scope of the ceramic industries; industrial growth and scientific development; economic importance; place in modern civilization.
- 202 Ceramic Raw Materials (4)** **E. E. Mueller**
Rocks and minerals used in ceramic industries; their mineralogy, physical properties, compositions, sources, and origins.
- 204J Mineral Industries Stoichiometry (3)** **Lloyd**
Principles of material and heat balances in the metallurgical and ceramic process industries. Offered jointly with the Division of Metallurgical Engineering.
- 208 Pyrometry (3)** **Campbell**
Theory, methods, and equipment for high temperature measurement and instrumentation. Offered jointly with the Division of Metallurgical Engineering. Prerequisite, Physics 219 or concurrently.
- 303 Process Ceramics: Coatings (3)** **E. E. Mueller**
Preparation, composition, and application of glazes and colors: color theory; solution, colloidal, transition, and stain coloring. Prerequisite, 202.
- 304 Process Ceramics: Drying and Firing (4)** **E. E. Mueller**
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.
- N306 Ceramic Engineering Excursion (0)** **Staff**
Plant inspection trip; junior year.
- N307 Ceramic Engineering Excursion (0)** **Staff**
Plant inspection trip; senior year.
- 311-312 Physical Ceramics: Structure and Reactions (3-3)** **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, 311-.
- 402-403 Equipment and Plant Design (2-2)** **E. E. Mueller, 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, 304. 403.: equipment selection, layout plans, and economics applied to specific problems.
- 411 Physical Ceramics: Ceramic Equilibria (3)** **J. I. Mueller**
Equilibrium diagrams and their application to ceramic research and control problems. Prerequisite, -312 or permission.
- 412J X-ray Analytical Techniques (2)** **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 219 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, 304.
- 422 Ceramic Petrography (2)** **Kelly**
Polarizing microscope study of natural and artificial minerals peculiar to the ceramic industry. Prerequisite, Geology 323.
- 440 Glass Technology (3)** **E. E. Mueller**
Raw materials; chemistry and physics of glass; batches and calculations; melting and fabrication practices; physical properties; special glasses. Prerequisites, junior standing and permission.
- 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.
- 460 Ceramic Coatings for Metals (3)** **E. E. Mueller**
Production techniques for porcelain enamels and other ceramic coatings; enamels, insulation coatings, refractory coatings. Prerequisites, junior standing and permission.
- 470 Refractories (3)** **E. E. Mueller**
Physical and chemical composition; properties under service conditions; testing; utilization.
- 498 Senior Investigations (*, 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)** **E. E. Mueller**
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.
- 510 Advanced Ceramic Equilibria (3)** **E. E. Mueller**
Derivation of phase equilibrium relations in ceramics, studies of crystalline solutions, and analytical treatment of multicomponent phase equilibrium systems.
- 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.
- 521 Identification of Ceramic Materials (3)** **J. I. Mueller**
Theory and use of X-ray diffraction techniques for qualitative identification. Prerequisite, Physics 355 or equivalent.
- 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.
- Thesis (*)** **Staff**

Metallurgical Engineering**BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING**

The curriculum for the first year is administered by the Department of General Engineering (see page 47). General Engineering 121 (Plane Surveying) 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 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. 204J	
Mineral Industries	1	Metallurgy: Intro.	2	Stoichiometry	3
Mech. Engr. 201 Metal		Mech. Engr. 202 Welding	1	Geol. 221 Mineralogy	3
Castings	1	Civil Engr. 291 Dynamics	3	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. 421 Diff. Equations	3
& Calc.	5	Math. 253 Analytic Geom.		Physics 219 Engr. Physics	4
Physics 217 Engr. Physics	4	& Calc.	3	ROTC	2-3
ROTC	2-3	Physics 218 Engr. Physics	4		15-18
	16-19	ROTC	2-3		
			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	3	Thermodynamics	3
Chem. 355 Physical	4	Chem. 356 Physical	3	Met. Engr. 363 Physical	4
Civil Engr. 292 Mechanics		Min. Engr. 362 Mineral		Chem. 357 Physical	3
of Mats.	3	Dressing: Concentration	4	Elect. Engr. 300 Elements	
H.-S.S. 331 Hum.-Soc. St.	3	Physics 350 Heat, Thermo-		of Elect. Engr.	5
	17	dyn. & Kinetic Theory	3		16
			15		

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Met. Engr. 412J X-ray	2	Met. Engr. 481J Mineral		Met. Engr. 306 Excursion	1
Met. Engr. 421 Chem.		Indust. Econ.	3	Met. Engr. 498 Senior	
Metallurgy: Advanced	4	Met. Engr. 498 Senior		Investigations	1
Met. Engr. 498 Senior		Investigations	2	Elect. Engr. 400 Vac.	
Investigations	2	H.-S.S. 332 Hum.-Soc. St.	3	Tubes & Electronics	5
Physics 320 Modern	3	Tech. Electives	5	H.-S.S. 333 Hum.-Soc. St.	3
Tech. Electives	5	Electives	3	Tech. Electives	3
	16		16	Electives	3
					16

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
Mining Engr. 361 Mineral		Mining Engr. 465 Mineral		Mining Engr. 306	
Dressing: Preparation	3	Dressing: Microscopy	2	Excursion	1
Mining Engr. 463 Mineral		Elect. Engr. 301 Elect.		Mining Engr. 485 Indust.	
Dressing: Flotation	3	Mach.	5	Minerals	3
Mining Engr. 476 Coal		H.-S.S. 332 Hum.-Soc. St.	3	Civil Engr. 342 Fluid	
Preparation	2	Met. Engr. 498 Senior		Mechanics	5
Geol. 323 Optical		Investigations	3	H.-S.S. 333 Hum.-Soc. St.	3
Mineralogy	5	Tech. Electives	3	Met. Engr. 498 Senior	
Electives	3		16	Investigations	2
	16			Tech. 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 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, application metallurgy, chemical and extractive metallurgy, and plant operation and management. Graduates of accredited metallurgical engineering curricula and graduates of other accredited 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)** **Lloyd**
Principles and unit processes in extractive metallurgy. General and elementary physical chemistry of hydrometallurgy, pyrometallurgy, electrometallurgy; plant flowsheets, operations, and methods. Prerequisite, Chemistry 160.
- 204J Mineral Industries Stoichiometry (3)** **Lloyd**
Principles of material and heat balances in metallurgical and ceramic processes; fuels and combustion. Offered jointly with the Division of Ceramic Engineering. Prerequisite, Chemistry 160.
- 300 Assaying (3)** **Lloyd**
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)** **Lloyd**
Heat transfer; fluid flow; pyrometallurgical phase systems; refractories. Prerequisites, 204J, Physics 217 and 219.
- 322 Metallurgical Thermodynamics (3)** **Lloyd**
Basic thermodynamics in chemical and physical metallurgy. Prerequisites, 321, 361, Chemistry 356 and Physics 350.
- 324 Chemical Metallurgy Laboratory (1)** **Lloyd**
Experimental methods in chemical metallurgy. Prerequisite, 321.
- 325 Process Metallurgy: Plant Practices (2)** **Staff**
(Not offered 1957-58.)
- 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-Fe₃C 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 (2)** **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)** **Lloyd**
Application of thermodynamics and kinetics to specific metallurgical reactions and processes. Detailed consideration of unit processes. Prerequisite, 322.
- 441 Engineering Physical Metallurgy (3)** **Polonis**
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, Staff**
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; stress corrosion cracking investigations.
- 444 Nuclear Metallurgy (3)** **Polonis**
Engineering requirements and functions of reactor metals; metallurgical problems arising in reactor environments; corrosion, temperature and radiation damage; physical metallurgy of reactor materials, fuel elements and their alloys, moderators, reflectors, shields, liquid metal coolants, control materials, structural components; fabrication. Prerequisite, 441 or 361.
- 445 Nuclear Metallurgy Laboratory (2)** **Polonis**
Experiments illustrating principles discussed in 444. Controlled atmosphere melting and casting, phase transformations, metallography, dilatometry, heat treatment. Prerequisites, 442, 444 concurrently.
- 450 Modern 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)** **Staff**
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, 362 or 441 and 321.
- 461 Advanced Physical Metallurgy (3)** **Roberts**
Advanced ternary diagrams; corrosion and oxidation; deformation; 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.
- 498 Senior Investigations (*, 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 measurements; 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**
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 Theory of Metals and Alloys (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 Theory of Metals and Alloys (3)	Roberts
Kinetics of tempering carbon and low-alloy steels. Theories of nucleation and grain growth phenomena, tempering, recrystallization, precipitation hardening. Prerequisite, 561.	
563 Theory of Metals and Alloys (3)	Roberts
Diffusion theory, martensitic transformations and other solid state transformations. Prerequisite, 562.	
600 Research (*)	Staff
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 47).

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,		Geol. 221 Mineralogy	5
Mineral Indust.	1	Blasting, & Tunneling .	2	Civil Engr. 214 Surveying	3
Geology 205 Rocks and		Chem. 170 Qual. Anal....	3	Chem. 221 Quant. Anal. .	5
Minerals	5	H.-S.S. 265 Tech. of		Physics 219 Engr. Physics	4
Math. 252 Analytic Geom.		Commun.	3	ROTC	2-3
& Calc.	5	Math. 253 Analytic Geom.			
Physics 217 Engr. Physics	4	& Calc.	3		17-20
ROTC	2-3	Physics 218 Engr. Physics	4		
		ROTC	2-3		
	15-18		15-18		

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 322 Methods	4	Mining Engr. 325 Land		Mining Engr. 306	
Mining Engr. 361 Mineral		Valuation	2	Excursion	1
Dressing: Preparation .	3	Mining Engr. 362 Mineral		Mining Engr. 330	
Civil Engr. 291 Dynamics .	3	Dressing: Concentration	4	Surveying	2
Geol. 323 Optical		Elect. Engr. 300 Elements	5	Civil Engr. 292 Mechanics	3
Mineralogy	5	of Elect. Engr.	5	of Mats.	3
H.-S.S. 270 Engr. Report		Geol. 324 Petrography &		Elect. Engr. 301 Elect.	
Writing	2	Petrology	5	Mach.	5
	17		16	H.-S.S. 331 Hum.-Soc. St.	3
				Mech. Engr. 325	
				Thermodynamics	3
					17

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Mining Engr. 331 Mapping	1	Mining Engr. 481J		Mining Engr. 306	
Mining Engr. 425		Mineral Indus. Econ. .	3	Excursion	1
Barodynamics	2	Mining Engr. 498 Senior		Mining Engr. 426	
Mining Engr. 433		Investigations	2	Exploration	3
Ventilation	3	Geol. 427 Ore Deposits .	5	Mining Engr. 432 Mine	
Mining Engr. 498		H.-S.S. 333 Hum.-Soc. St.	3	Engr.	5
Senior Investigations .	2	Electives	3	Mining Engr. 498	
Civil Engr. 342 Fluid				Senior Investigations	1
Mechanics	5		16	Electives	6
H.-S.S. 332 Hum.-Soc. St.	3				16
	16				

GEOLOGICAL ENGINEERING OPTION

Third Year					
FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
	CREDITS		CREDITS		CREDITS
Mining Engr. 322 Methods	4	Mining Engr. 325 Land		Mining Engr. 306	
Mining Engr. 361 Mineral		Valuation	2	Excursion	1
Dressing: Preparation	3	Mining Engr. 362 Mineral		Mining Engr. 330	
Civil Engr. 292 Mechanics		Dressing: Concentration	4	Surveying	2
of Matls.	3	Geol. 206 Physiography	5	Geol. 207 Historical	5
Geol. 323 Optical		Geol. 324 Petrography		Geol. 425 Petrology	5
Mineralogy	5	& Petrology	5	Electives	3
H.-S.S. 270 Engr. Report			16		16
Writing	2				
	17				
Fourth Year					
FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
	CREDITS		CREDITS		CREDITS
Mining Engr. 331 Mapping	1	Mining Engr. 481J		Mining Engr. 306	
Mining Engr. 498		Mineral Indus. Econ.	3	Excursion	1
Senior Investigations	1	Mining Engr. 498		Mining Engr. 426	
H.-S.S. 331 Hum.-Soc. St.	3	Senior Investigations	2	Exploration	3
Geol. 308 Structural	5	H.-S.S. 332 Hum.-Soc. St.	3	Mining Engr. 498	
Geol. 361 Stratigraphy or		Geol. 427 Ore Deposits	5	Senior Investigations	2
Tech. Elective	5	Electives	3	Elect. Engr. 300 Elem. of	
	15		16	Elect. Engr.	5
				H.-S.S. 333 Hum.-Soc. St.	3
				Electives	3
					17

MINERAL PREPARATION ENGINEERING OPTION

Third Year					
FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
	CREDITS		CREDITS		CREDITS
Mining Engr. 322 Methods	4	Mining Engr. 362 Mineral		Mining Engr. 306	
Mining Engr. 361 Mineral		Dressing: Concentration	4	Excursion	1
Dressing: Preparation	3	Civil Engr. 342 Fluid		Mining Engr. 464 Mineral	
Civil Engr. 291 Dynamics	3	Mechanics	5	Dressing:	
Geol. 323 Optical		Elect. Engr. 300 Elem. of		Hydrometallurgy	4
Mineralogy	5	Elect. Engr.	5	Elect. Engr. 301	
H.-S.S. 270 Engr. Report		Met. Engr. 203 Chem.		Elect. Mach.	5
Writing	2	Metallurgy: Intro.	2	Civil Engr. 292 Mech. of	
	17		16	Matls.	3
				Chem. 231 Organic	3
					16
Fourth Year					
FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
	CREDITS		CREDITS		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		Mining Engr. 466 Mineral	
Preparation	2	Mineral Indus. Econ.	3	Dressing Practices or	
Mining Engr. 498		Mining Engr. 498		Elective	2
Senior Investigations	1	Senior Investigations	3	Mining Engr. 498	
Chem. 355 Physical	4	Chem. 356 Physical	3	Senior Investigations	1
H.-S.S. 331 Hum.-Soc. St.	3	H.-S.S. 332 Hum.-Soc. St.	3	H.-S.S. 333 Hum.-Soc. St.	3
Electives	3		14	Chem. 357 Physical	3
	16			Tech. Electives	6
					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*. 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 Tunnelling (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.
- 323 Methods of Mining (3)** **Anderson**
Prospecting, development, and operation of coal and stratified-deposit mines. Principles of mechanized breaking, loading, and transportation. Prerequisite, 322.
- 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 (2)** **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 Barodynamics (2)** **Pifer**
Barodynamic forces in mining. Pressure burst and its control; stress around workings; fragmentation by induced forces; subsidence; extracting pillars and romnants; support of workings. Prerequisites, 322 and Civil Engineering 292, or permission.
- 426 Exploration and Development of Mineral Deposits (3)** **Pifer**
Procurement of data by geologic mapping, drilling and geophysical methods; principles of geophysics; 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.
- 432 Mine Engineering (5)** **Anderson**
Principles and application; design and equipment of transport systems; air compression thermodynamics; 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. Two hours lecture, nine hours laboratory, weekly. Prerequisites, 222 and Electrical Engineering 301.
- 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; 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.
- 482 Mineral Industry Management (3)** **Pifer**
Administrative methods; personnel selection; methods of payment; labor relations; scientific management; social and economic aspects.
- 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.
- 498 Senior Investigations (*, 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, preparation, or coking with particular reference to the Pacific Northwest. Prerequisite, graduate standing.
- 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**
- 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, weekly.
- 20 Milling (0)** **Brien**
Use of standard ore dressing and concentration equipment; milling plant for prospects and small mines; typical flowsheets; mills sampling; illustrative operation of laboratory equipment. Two lectures and one laboratory period per week.

METALLURGICAL ENGINEERING

- 30 Metals (0)** **Staff**
Elementary properties of metals; smelting processes; selling ores and concentrates; metal prices and smelter schedules. One lecture per week.

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. (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 nonmetals, metallurgy, and nuclear reactions. Prerequisite, 150.
- 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.
- 221 Quantitative Analysis (5)** **Staff**
Volumetric and gravimetric. Prerequisite, 170 or permission.
- 231, 232 Organic Chemistry (3,3)** **Staff**
For students in premedicine and predentistry and others desiring two quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of the main types of organic compounds. Prerequisite, 150.
- 241, 242 Organic Chemistry Laboratory (2,2)** **Staff**
241: preparation of representative compounds. Prerequisite, 231, which may be taken concurrently. 242: preparations and qualitative organic analysis. Prerequisites, 241 and 232, which may be taken concurrently.
- 335, 336, 337 Organic Chemistry (3,3,3)** **Staff**
For chemistry and chemical engineering majors and other qualified students. Structure, nomenclature, reactions, and synthesis of organic compounds. Theory and mechanism of organic reactions. Prerequisite, 170, which may be taken concurrently.
- 345, 346 Organic Chemistry Laboratory (2,2)** **Staff**
Organic synthesis. Prerequisite, 335 for 345, which may be taken concurrently; 336 and 345 for 346, which may be taken concurrently.
- 355, 356, 357 Physical Chemistry (4,3,3)** **Staff**
Atomic and molecular structure. Thermodynamics and chemical equilibrium, solutions, thermo- and electro-chemistry, kinetics, colloid and surface chemistry. States of matter and phase equilibria. Prerequisites, 160, calculus, and college physics, or permission.
- 358 Physical Chemistry Laboratory (4)** **Staff**
Prerequisite, 356, which may be 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**
Elementary concepts of quantum chemistry, statistical mechanics, thermodynamics, kinetic theory, and chemical kinetics. Prerequisite, 357 or permission.

ECONOMICS

- 211 General Economics (3)** **Staff**
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)** **Staff**
Processes and agencies affecting the earth's surface; relationship of topography to structure, etc. Prerequisite, 101 or 205.
- 207 Historical Geology (5)** **Staff**
Origin and evolution of the earth, with emphasis on the general geological history of North America. Prerequisites, 205 and 206, or permission.
- 221 Mineralogy (3 or 5)** **Staff**
Determinative crystallography and blowpipe analysis. 3 credits can be obtained in extension, 3 or 5 credits in residence. Prerequisite, high school chemistry.
- 308 Structural Geology (5)** **Staff**
Interpretation of rock structures and their genesis. Prerequisites, 206, 207, and General Engineering 101, 102, 103.
- 310 Engineering Geology (5)** **Staff**
Elements of geology for civil engineers. Prerequisite, civil engineering major or permission.
- 323 Optical Mineralogy (5)** **Staff**
Petrographic microscope and recognition of common minerals in thin section. Prerequisites, 205 and 221.
- 361 Stratigraphy (5)** **Staff**
Sedimentation and facies; rock and time units; evaluation of boundaries; principles of correlation. Prerequisites, 205, 206, and 207; 330 and 432 recommended.
- 424 Petrography and Petrology (5)** **Staff**
Systematic study of rocks with the petrographic microscope. Prerequisite, 323.
- 425 Petrography and Petrology (5)** **Staff**
Metamorphic rocks, petrogenesis. Prerequisite, 424.
- 427 Ore Deposits (5)** **Staff**
Form, structure, mineralogy, petrology, and mode of origin. Prerequisites, 221 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. 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.
- 153 Analytic Geometry and Calculus (5)** **Staff**
Equations of straight lines and simple curves. Differentiation of algebraic functions, applications. Differentials, indefinite integrals. Prerequisites 103 or 104, and 105, or exemption by qualifying test.
- 251 Analytic Geometry and Calculus (5)** **Staff**
Definite integrals, integration of simple algebraic functions, applications. Conic sections, polar coordinates, and differentiation of transcendental functions. Prerequisite, 153.
- 252 Analytic Geometry and Calculus (5)** **Staff**
Parametric equations, curvature, integration of algebraic and transcendental functions, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251

- 253 Analytic Geometry and Calculus (3)** **Staff**
Solid analytic geometry, multiple integrals, partial derivatives. Prerequisite, 252.
- 351, 352 Analytic Geometry and Calculus (5,5)** **Staff**
Honors sections of 251, 252 covering material equivalent to that in 251, 252, and 253. Prerequisites, 153 and permission for 351; 351 and permission for 352.
- 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.
- 417 Advanced Calculus I (3)** **Staff**
Continuous functions, infinite series, series expansions, gamma function, transformations of coordinates and Jacobians. Prerequisite, 253.
- 418 Advanced Calculus II (3)** **Staff**
Implicit function theorems, integrals in several dimensions, vector analysis, theorems of Stokes, Gauss, and Green. Prerequisite, 253; 417 recommended.
- 421, 422 Differential Equations (3,3)** **Staff**
Elementary methods of solution, linear differential equations, systems of differential equations, series solutions. Prerequisites, 253 for 421; 421 for 422.
- 427, 428, 429 Topics in Applied Analysis (3,3,3)** **Staff**
Elementary complex variables; Laplace transforms, boundary value problems, Fourier series, Bessel functions; Legendre functions, curvilinear coordinates, calculus of variations. Prerequisites, 417 or 423 for 427; 417 or 423 and 421 for 428; 428 for 429.
- 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, 421.
- 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)** **Staff**
Health problems of freshman women. Required of all freshmen; exemption without credit by examination. See page 37.
- 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 37.

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

- 217, 218, 219 Physics for Engineers (4,4,4)** **Staff**
 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 applications in engineering, including the electrical nature of matter, elementary particles, interaction of radiation with matter, nuclear disintegration. Solid state, semiconductors, and nuclear reactors are especially treated. Prerequisite, 219 or permission.
- 323 Introductory 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. Laboratory. Prerequisite, 103, 106 with concurrent registration in 109, or 123.
- 473 Laboratory in Atomic and Nuclear Physics (3)** **Staff**
 The experiments are examples of the basic techniques and measurements discussed in the lectures, including measurement of beta and gamma ray energies, mean life of beta decay, and meson to proton mass ratio. Prerequisite, 320, 323, or permission.

SPEECH

- 327 Extempore Speaking (3)** **Staff**
 A course in public speaking primarily for engineering students. 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)** **Staff**
 Basic principles, financial statements, double-entry principles, capital and revenue expenditures, depreciation, etc.
- 151 Fundamentals of Accounting (3)** **Staff**
 Elements of manufacturing, partnership, and corporation accounting. Prerequisite, 150.
- 310 Intermediate Accounting (5)** **Staff**
 Advanced theory on inventory valuation, depreciation, etc.; analysis of profit variations. Prerequisite, 250 or 255.
- 330 Cost Accounting (5)** **Staff**
 Economics of cost accounting; industrial analysis; production control through costs; types of cost systems; burden application. Prerequisite, 250 or 255.

BUSINESS LAW

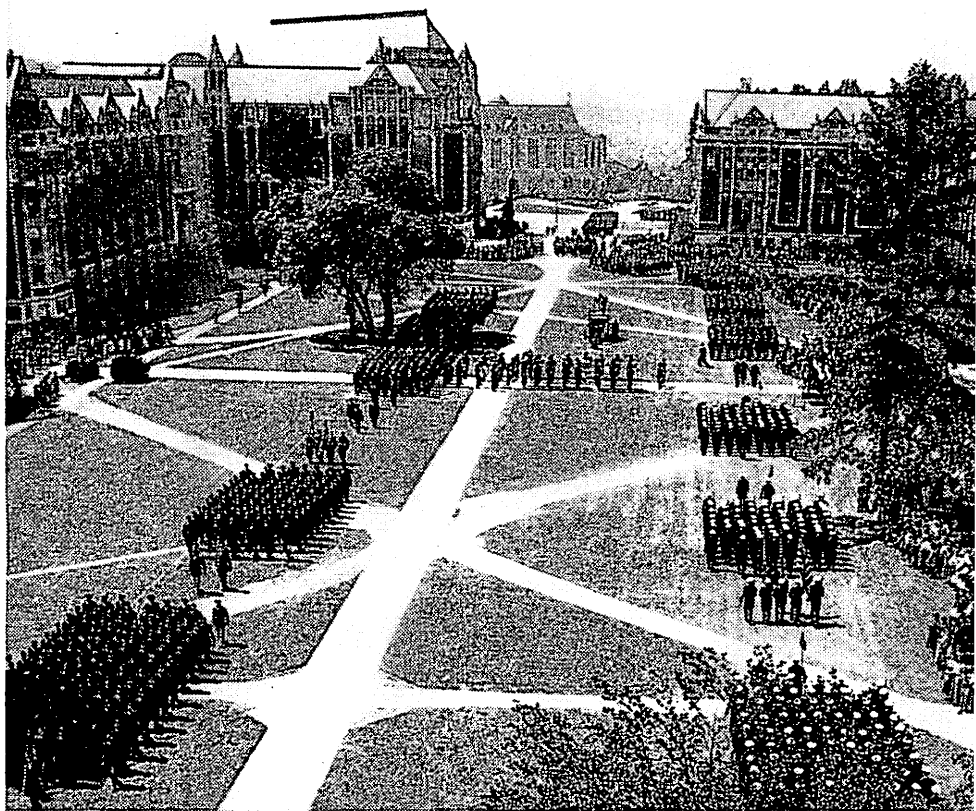
- 307 Business Law (3)** **Staff**
 For engineering students and others unable to take more than 3 credits in business law. Introduction to law, its origin and development; formation and performance of contracts; fraud, mistake, duress, and undue influence; rights of third parties and remedies available 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)** **Staff**
 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 211 or permission.
- 301 Financial Management (5)** **Staff**
 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.

HUMAN RELATIONS IN BUSINESS AND INDUSTRY

- 365 Industrial Relations for Engineers (3)** **Staff**
 Actual cases are used to develop useful ways of dealing with human situations, making administrative decisions, supervising people, and building effective industrial and personnel relations.



RESERVE OFFICERS TRAINING PROGRAMS

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 period of time as is required by regulations at the time of their commission, and to serve with the reserve forces for the period of time thereafter, which is required by law.

ROTC courses are included in the freshman and sophomore curricula of all male students (see page 35). 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: JACK R. BANKS, 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 within quota

limitations subject to the approval of the Professor of Air Science. One criterion for military deferment is good standing at the University, which means the student must: (1) maintain an acceptable grade-point average; (2) be registered for at least 15 academic credits per quarter, exclusive of required lower-division ROTC and physical education activity; and (3) earn at least 45 academic credits during each academic year.

Students who are given an ROTC deferment agree to complete four years of ROTC, accept a commission, if offered, then serve three years on active duty when called, unless sooner relieved, and three additional years in a reserve organization.

First-year Air Force ROTC students are given an introductory course in the theory of flight, followed by a study of fundamentals of global geography, international tensions and security organizations, and instruments of national military security. This sequence of courses requires classroom attendance two hours each week. First-year students 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, the emphasis is moved to a study of aerial warfare and the Air Force itself. 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 receive equivalent credit for active service in the military forces of the United States.
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.
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, unless excused or dismissed from this requirement by authority of the Secretary of the Air Force.

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 relations of the Air Force commander and his staff, problem-solving techniques, communication, military instructional methods, military justice, navigation, weather, and Air Force base organization. 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 seminar on leadership and management, then study military aviation and the evolution of warfare, military aspects of global geography, and are briefed for 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 programs 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 matters should be addressed to the Professor of Air Science.

COURSES FOR UNDERGRADUATES

- 131, 132, 133 Air Science I—Basic (2,2,2)** **Staff**
Details of the Air Force ROTC program; the significance of the individual's obligations for military service; introduction to aviation; fundamentals of global geography; factors of world power; the nation's defense organization; drill.
- 231, 232, 233 Air Science II—Basic (2,2,2)** **Staff**
The purpose, process, and primary elements of aerial warfare: targets, weapons, delivery aircraft, operations, and bases; purpose and provisions of the Air Force Officer Career Program; survey of occupational fields open to Air Force officers; opportunities for and obligations of a career in the Air Force as an officer or airman; cadet non-commissioned-officer training.
- 301, 302, 303 Air Science III—Advanced (3,3,3)** **Staff**
Command and staff concepts; leadership laboratory; problem-solving techniques, communications processes; principles and techniques of learning and teaching; Air Force correspondence and publications; military law—courts and boards; aerial navigation, and weather; functions of the Air Force base.
- 304 Air Science III—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 IV—Advanced (3,3,3)** **Staff**
Critique of summer camp; Air Force leadership and management; relationship of geographical factors to national strength and international power patterns; foundations of national power; military aviation and the art of war; career guidance, briefing for commissioned service.

MILITARY SCIENCE AND TACTICS

Professor of Military Science and Tactics: WALTER A. RUDE, Army ROTC Building

Qualifications for entrance to the Army Reserve Officers Training Corps are in accordance with University requirements and Department of the Army regulations. Participation in the Army ROTC program may permit deferment from the draft under the Universal Military Training and Service Act of 1951.

Courses in the first and second years of the basic program require classroom attendance two hours each week. First and second year students are introduced to American military history, organization of the Army, map reading, and individual and crew-served weapons. School of the soldier 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 are eligible for entrance to the advanced Army ROTC, which is designed to train professionally qualified officers. Students in the advanced course are chosen from the group of most highly qualified students who have completed the basic program of senior-division ROTC, or have had twelve months or more of honorable active service in the military forces of the United States. Each student accepted for the advanced program must:

1. Be able to complete before his 28th birthday all requirements for a commission, including the completion of the advanced program and the requirements for a degree.
2. Execute a written agreement with the government to complete the advanced course contingent upon remaining in the University.
3. Be selected by the Professor of Military Science and Tactics and the President of the University.
4. Successfully complete whatever general survey and screening tests are prescribed.
5. Complete the course as a prerequisite for graduation from the University, unless excused or dismissed from this requirement by authority of the Secretary of the Army.

Courses in the advanced program require classroom attendance four hours a week, plus one hour of practice in school of the soldier, and exercise of command. Advanced students are given courses in small unit tactics and communications, organization and functions of various arms and services, logistics, operations, and military administration. In addition, a summer camp is attended for six weeks between the first and second years of the advanced program. Students attending summer camp receive pay equivalent to that of a private in the army. Those who so desire and who meet the necessary criteria may take flight training during the senior year. This training is in addition to the normal ROTC course and entails an obligation for an additional year of active duty after graduation.

Advanced Army ROTC students are paid a monetary allowance at a daily rate not to exceed the value of the commuted ration. Currently the cadets receive 90 cents a day. The allowance is in addition to benefits received through the World War II G.I. Bill. However, payment at summer camp will fall under Public Law 512, 80th Congress, Veterans Regulation 1, which may require a refund to the Veterans Administration for subsistence allowance advanced by them.

Regulation ROTC uniforms are issued to students in the basic program, and uniforms similar to those of Army officers are issued to students in the advanced program. Students are required to wear the uniform on drill day. At the time of registration, each student must make a \$25.00 deposit. This deposit is refunded in full to those who have completed one year of either the basic or the advanced Army ROTC courses when the uniform is returned complete and undamaged. A student withdrawing from either the basic or the advanced Army ROTC courses, after completing less than one year, may retain the shoes which have been issued to him, provided he authorizes a deduction from his deposit equal to one-half the Army list price for such shoes. The Army furnishes all textbooks and equipment used in military science classes.

Inquiries about enrollment or other matters 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 (objective and scope); 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: T. D. F. LANGEN, 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 seventy 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 sixteen and twenty-one on July 1 of the year of entrance.
3. Meet physical requirements, which include vision of 20/40 correctable to 20/20, no cavities in teeth, and height between 65½ and 76 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 six 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.

Students with not more than one year of previous attendance in college are eligible if they meet the qualifications and agree to finish the four-year program.

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 Educational

Testing Service, Box 592, Princeton, New Jersey, 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.
- 212 Fire Control (3) Staff**
Surface fire control; battery alignment; antiaircraft fire control.
- 213 Applied Naval Electronics (3) Staff**
Advanced fire control; radar, sonar; C.I.C.; shore bombardment; guided missiles; nuclear explosives; underwater ordnance; rockets.

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 of 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. (Formerly 400.)
- 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.

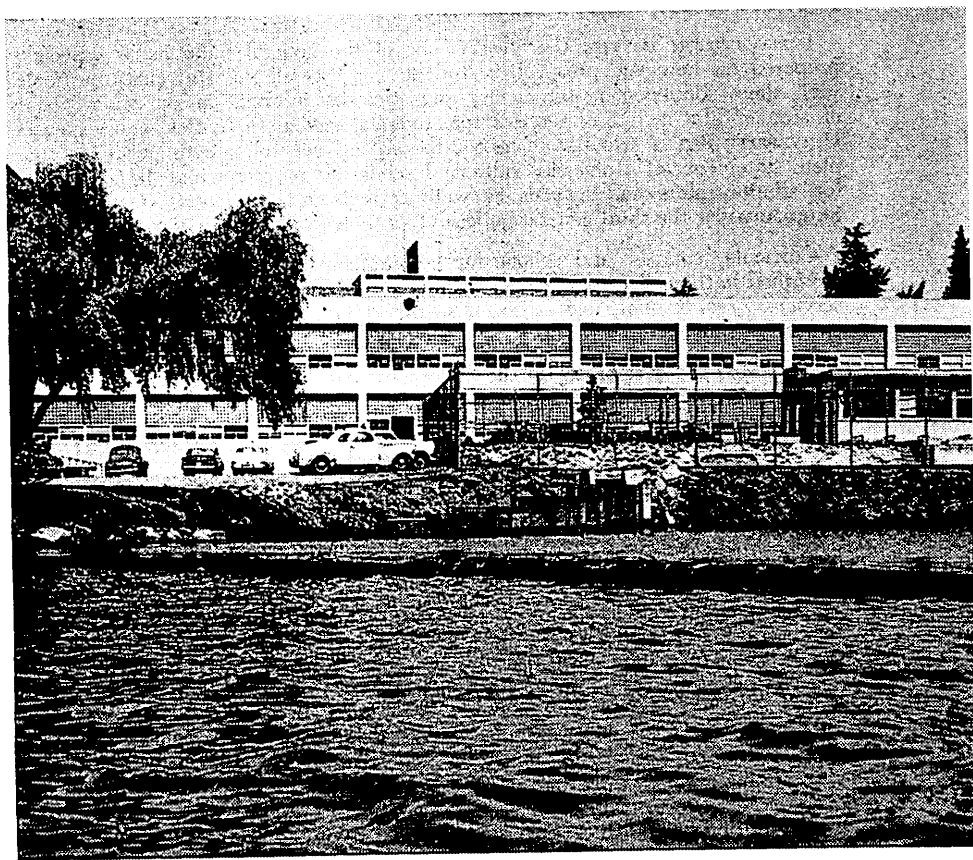
MARINE CORPS

- 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 Introduction to Supply, Naval Finance, and Basic Naval Accounting (4) Staff**
Introduction to Supply Corps and accounting principles; national security organization; naval finance; appropriations; cost and fidelity accounting.
- 312S Advanced Naval Accounting, Basic Supply Afloat (4) Staff**
Reports and returns; property and stores accounting; organization and administration of supply afloat; material identification, classification, and allowance.
- 313S Supply Afloat, Intermediate (4) Staff**
Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.
- 411S Advanced Supply Afloat and Basic Ships' Stores (4) Staff**
Records, reports, and returns for supply afloat, and ships' store operating procedure.
- 412S Advanced Ships' Stores, Commissary, Clothing, and Small Stores (4) Staff**
Records, reports, and returns for ships' stores, commissary, clothing, and small stores.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF FISHERIES

1958-1960

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

BULLETIN
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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.

CALENDAR

AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS (Autumn Quarter, 1958, through Autumn Quarter, 1960)

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

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

MAY 5-29	Advance Registration only for students in residence Spring 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.
SEPT. 11-30	In-Person Registration for former students not in residence Spring Quarter, 1958, and those attending Spring Quarter, 1958, 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 9. Deadline for applying for Registration Appointment or Permit is September 19.
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. 15-26	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 15-30	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 30	Last day to register for Autumn Quarter, 1958.
OCT. 2-7	Change of registration by appointment only.

ACADEMIC PERIOD

SEPT. 29—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
OCT. 1—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 7—TUESDAY	Last day to add a course
NOV. 3—MONDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1959, due at Registrar's Office
NOV. 11—TUESDAY	State Admission Day holiday
NOV. 26—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 26-DEC. 1	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 13—SATURDAY	Advanced credit examinations
DEC. 15-19	Final examinations
DEC. 19—FRIDAY	Quarter ends

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 or calling at the Registrar's Office *no later than December 12*. Those attending 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 or calling at the Registrar's Office *no later than March 13*. Those attending 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.

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, 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 <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
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 or calling at the Registrar's Office <i>no later than December 11</i> . Those attending 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.
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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 or calling at the Registrar's Office *no later than March 11*. Those attending 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 Permits 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 June 6. Deadline for applying for Registration Appointment or Permit is September 13.
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 new transfer students with at least full 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

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>	

OFFICERS OF ADMINISTRATION

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Assistant to the President</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>
RICHARD VAN CLEVE, Ph.D.	<i>Acting 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, Milo Carsner, 1953, *Research Associate Professor in Fisheries*

B.S., 1930, Washington

DeLacy, Allan Clark, 1946 (1958), *Professor of Fisheries*

B.S., 1932, M.S., 1933, Ph.D., 1941, Washington

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, *Assistant 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

Stern, Joseph Aaron, 1953 (1958), *Associate Professor of Fisheries*

S.B., 1949, S.M., 1950, Ph.D., 1953, Massachusetts Institute of Technology

Thompson, William Francis, 1930 (1958), *Professor Emeritus of Fisheries*

B.A., 1911, Ph.D., 1930, Stanford

Van Cleve, Richard, 1948 (1958), *Professor of Fisheries; Acting 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

Bevan, Donald Edward, *Senior Fisheries Biologist*

B.S., 1948, Washington

Burgner, Robert Louis, *Assistant Director*

B.S., 1942, Ph.D., 1958, Washington

Gilbert, John Risley, *Senior Fisheries Biologist*

B.S., 1951, Washington

Hartt, Allan Charles, *Senior Fisheries Biologist*

B.S., 1949, Washington

Koo, Swei-yen, *Senior Fisheries Biologist*

B.S., 1934, Amoy (China); M.S., 1937, Lingnan Univ. (China); Ph.D., 1955, Washington

Martin, John Wilson, *Senior Fisheries Biologist*

B.S., 1948, Washington

Mathisen, Ole Alfred, *Research Associate Professor*

Candidatum Realium, 1945, Oslo (Norway); Ph.D., 1955, Washington

Noerenberg, Wallace Huntington, *Senior Fisheries Biologist*

B.S., 1950, Washington

Royce, William Francis, *Director*

B.S., 1937, Ph.D., 1943, Cornell University

Sheridan, William Leonard, *Senior Fisheries Biologist*

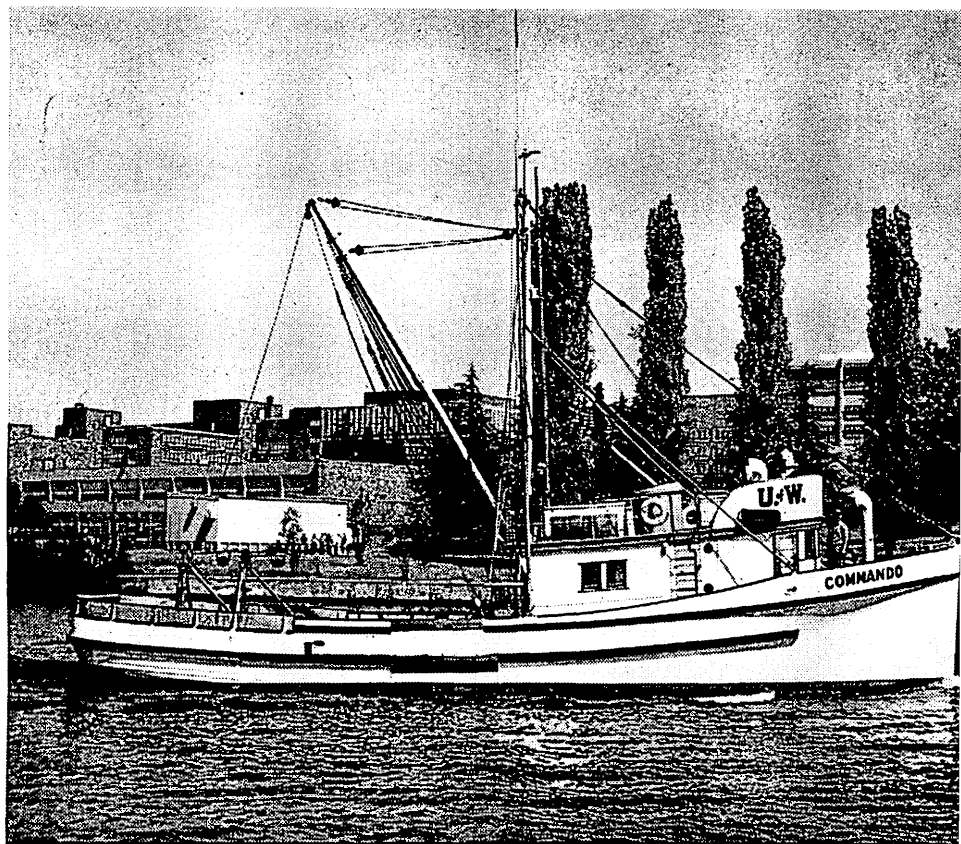
B.S., 1947, Washington

Smith, Howard Wilfrid D., *Senior Fisheries Biologist*

B.S., 1950, Washington

Walker, Charles Edward

B.A., 1949, British Columbia, (Canada)



GENERAL INFORMATION

GENERAL INFORMATION

IN 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 1957, the University of Washington had developed into one of the nation's largest educational institutions with an enrollment of 15,500 students and 1,042 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.

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 organiza-

tions. 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 1,500 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 fisheries technology in the Fisheries Center. These include biochemical, microbiological and analytical laboratories, and a processing laboratory equipped with canning, freezing, smoking, and other fish-processing equipment.

A 67-foot, diesel-powered boat, with cabin laboratory, is owned 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 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 and meteorology, are offered for advanced undergraduate and graduate students. A field training course in geography is also provided.

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.

Revised Admission Requirements for 1961

Effective in September, 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 elementary geometry) |
| C. Foreign language | 2 units in one language |
| D. Social Science | 1 unit |
| E. Science | 1 unit of one laboratory science |
| F. Additional required courses: | |
| 1. 1 unit of literature, composition, drama, journalism or speech, or a third unit of the foreign language; or 2 units of a second foreign language. | |
| 2. 1 unit of physics or mathematics (advanced algebra, solid geometry, trigonometry, mathematical analysis). | |
| 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 in all high school subjects presented for admission and 2.00 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) 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, 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 regular University program or in the Division of Adult Education and Extension Services. 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. Courses taken to remove deficiencies will not carry graduation credit. The Admissions Board may make exceptions in the pattern of required units for students from small high schools which cannot adjust immediately to the new requirements.

CURRENT ADMISSION REQUIREMENTS

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 Alaska and all sons and daughters of University of Washington alumni. The College of Fisheries, 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 21-23.

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 admissions 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 4-11.) 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 air-mailed 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.

All entering freshmen are 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.

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; 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 23 for applicants who have had college work.

Legal Residents of the State of Washington and the Territory of Alaska 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 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 and the Territory of Alaska

The University scholarship requirement for nonresidents* or students residing outside the state of Washington or the territory of Alaska 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 or the territory of Alaska 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 units¹ (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 Fisheries are as follows:

English	3 units	Social science	1 unit
One foreign language	2 units	One laboratory science	1 unit
Algebra	1 unit	(Physics is recommended)	
Plane geometry	1 unit	Electives (minimum)	7 units
Less than 1 unit in a foreign language will not be counted.			

¹ 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 deficient in first-year algebra or plane geometry and who have a grade-point average of below 2.30 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. *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 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.

GRADUATES FROM UNACCREDITED HIGH 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. 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 Fisheries 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 Fisheries by transfer from accredited colleges, universities, and junior colleges under these conditions:

1. The applicant must present an admission and scholastic record equivalent to that required of resident students of the University. In general, the University will not accept a student who is in scholastic difficulty at his former school.

2. *Applicants who are legal residents of the state of Washington or territory of Alaska 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 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.*

3. Complete transcripts and letters of honorable dismissal must be sent directly to the University Registrar by the registrar of the former school. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University.

4. *Applicants who are not legal residents* of the state of Washington or territory of Alaska, 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 or territory of Alaska 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 or the territory of Alaska may apply for consideration if they meet the scholarship standing required of resident students, outlined 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 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 of 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 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. A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit.

6. 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.

7. 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.

8. 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 Division of Adult Education and Extension Services. 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.

9. 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.

10. 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.

11. 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 21 and 23.

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 regulation 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 registration for the quarter the veteran wishes to enter the University. If a 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.

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).

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 50 (Basic Grammar) 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 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 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 4-11).

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 its equivalent) or more than 16 credits (or its 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 its 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 their college or 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 college or school concerned 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 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.

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, 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 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.

A student, other than a freshman or a transfer student in the first quarter, whose average falls below 2.00 during any quarter is placed on probation and is allowed one additional quarter to attain a cumulative 2.00. 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 Fisheries Admissions Committee. Grades earned at other institutions may not be used to raise the grade-point average at this College.

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 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.

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 requirements 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 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 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.

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

1. Students who are twenty-five.
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

A resident student is one who has been domiciled in Washington or Alaska 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

Prospective students are classified as nonresidents when their credentials come from schools outside Washington and Alaska. 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 non-resident tuition.

This exemption is not granted to Summer Quarter students.

<i>Incidental Fee, per quarter</i>	
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.	

<i>ASUW Fees</i>	
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, \$3.00.	

<i>Military Uniform Deposit</i>	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.	

<i>Breakage Ticket Deposit</i>	3.00
Required in some laboratory courses; ticket is returnable for full or partial refund.	

<i>Locker Fee, per quarter</i>	1.50
Required of men students taking physical education activities.	

<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>Graduation Fee</i>	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	600.00
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Room and meals in Women's Residence Halls	540.00-630.00
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Room and meals in fraternity or sorority house	660.00-700.00
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Initial cost of joining 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.

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 annual Open House of the College of Fisheries. In addition the Club has its annual salmon bake, dances, 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.

An emergency loan fund is administered by 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. 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 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 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 Foreign Student Adviser.

COUNSELING CENTER

The Counseling Center offers vocational and personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical 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 is given to younger girls in assignment to the Women's Residence Halls. Interested women should write to 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.

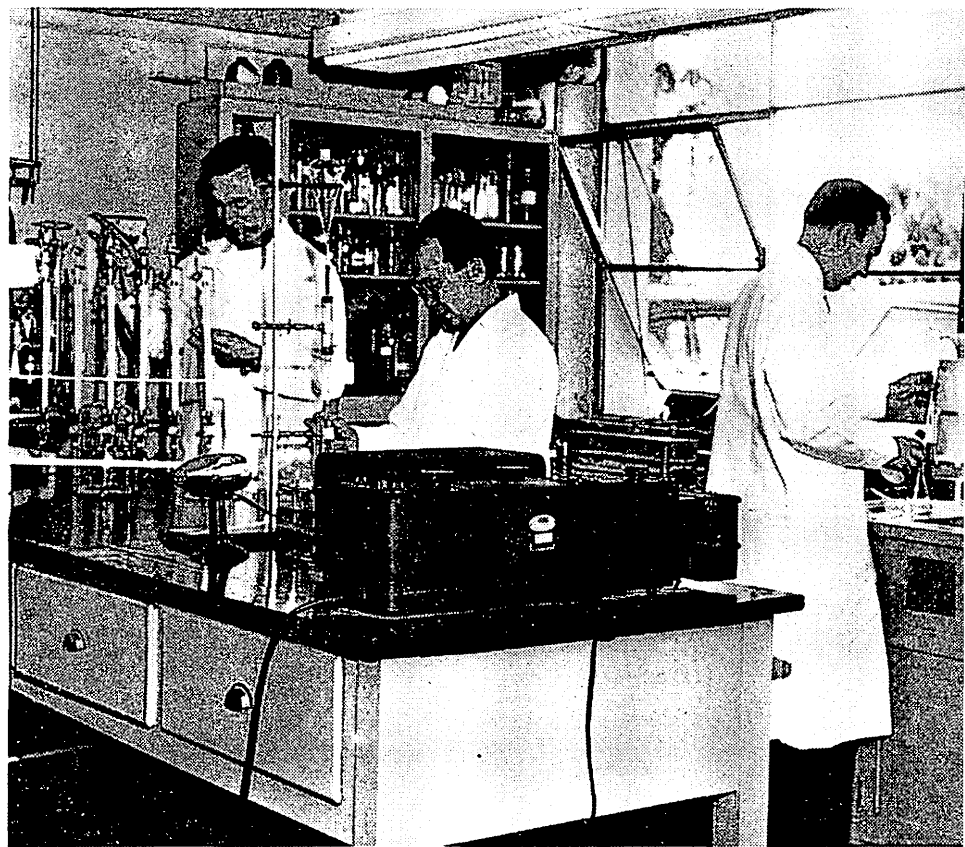
PLACEMENT

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. 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, 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 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 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 PROGRAMS IN FISHERIES

THE PROGRAMS IN FISHERIES

THE COLLEGE OF FISHERIES offers courses leading to the degrees of Bachelor of Science, Bachelor of Science in Fisheries, Master of Science, and Doctor of Philosophy.

The programs in fisheries are designed to provide both the scientific training and the professional skills necessary for graduates to satisfy the various needs of their chosen fields. Three areas of undergraduate study are offered by the College: marine fisheries biology, freshwater fisheries biology, and fisheries technology. 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 in fisheries must meet certain general requirements of the University and the College as well as the particular course requirements in their chosen option. The 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 senior year. A student may choose to graduate under the graduation requirements of the appropriate 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 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 training is provisional because he has not removed his entrance deficiencies can have an application for degree accepted until the deficiency is cleared.

For undergraduate students, the College offers options in (A) marine fisheries biology, (B) freshwater fisheries biology, and (C) fisheries technology.

A prescribed and an elective curriculum is offered in each option. For all 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; Zoology 111, 112 (General); Humanities or Social Sciences to equal 10 quarter credits.

BACHELOR OF SCIENCE IN FISHERIES

For the prescribed curriculum, in addition to the above courses required in all options, a student in marine fisheries biology or in freshwater fisheries biology 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.

A student in fisheries technology must take all the courses required by his option and 6 credits in undergraduate thesis (Fisheries 498).

BACHELOR OF SCIENCE

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 108, 109, 401, 402, 405, 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 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 403, 407, 454, 480, 481; Foreign Language—10 credits; Mathematics 251, 252, 253 (Analytic Geometry and Calculus), 382, 383 (Statistical Inference in Applied Research); Microbiology 301 (General Microbiology); 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), 358 (Vertebrate Physiology), 381 (Microtechnique), 400 (General Physiology), 433, 434 (Invertebrate Zoology).

OPTION B. FRESHWATER FISHERIES BIOLOGY.

Required Courses:

Biology 473 (Limnology); Fisheries 108, 109, 401, 402, 405 or 406, 451, 452, 453, 460 or 461, 495 (6 credits); Mathematics 281 (Elements of Statistical Method); Microbiology 301 (General Microbiology); Zoology 453-454 (Comparative Anatomy of Chordates) or Zoology 456 (Vertebrate Embryology).

Recommended Courses:

Biochemistry 361 (Biochemistry) and 363 (Biochemistry Laboratory), or 481 (Biochemistry) and 483 (Biochemistry Laboratory); Biology 451 (Genetics), 472 (Principles of Ecology); Botany 112 (Elementary Botany); Chemistry 231, 232 (Organic Chemistry), 241, 242 (Organic Chemistry Laboratory); Fisheries 403, 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 358 (Vertebrate Physiology), 381 (Microtechnique), 400 (General Physiology), 433, 434 (Invertebrate Zoology).

OPTION C. FISHERIES TECHNOLOGY.**Required Courses:**

Biochemistry 361 (Biochemistry) and 363 (Biochemistry Laboratory), or 481, 482 (Biochemistry) and 483 (Biochemistry Laboratory); Chemistry 231, 232 (Organic Chemistry), 241, 242 (Organic Chemistry Laboratory), or the following series, 335, 336, 337 (Organic Chemistry), 345, 346 (Organic Chemistry Laboratory), 355 (Physical Chemistry); Fisheries 108, 109, 401, 405 or 406, 480, 481, 482, 483, 484, 485, 486, 495 (6 credits); Home Economics 300 (Nutrition); Mathematics 153 (Analytic Geometry and Calculus), 281 (Elements of Statistical Method); Mechanical Engineering 220 (Heat Engines), 428 (Refrigeration); Microbiology 301 (General Microbiology); Physics 101, 102, 103 (General Physics), 107, 108, 109 (General Physics Laboratory).

Recommended Courses:

General Business 101 (Introduction to Business), Marketing 301 (Principles of Marketing), Production 301 (Principles of Production); Chemistry 356 (Physical Chemistry), 358 (Physical Chemistry Laboratory), 426 (Instrumental Analysis); Foreign Language to equal 10 credits; General Engineering 111 (Engineering Problems); Mathematics 382, 383 (Statistical Inference in Applied Research).

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 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*.

COURSES FOR UNDERGRADUATES

- 108 Fundamental Principles of Fisheries Science (1)** **Fields**
Lectures and exercises to assist students with orientation in fisheries biology and technology.
- 109 Fundamental Principles of Fisheries Science (2)** **M. C. Bell**
Basic techniques of field observation and methods of solution of typical problems in fisheries.
- 401 Comparative Anatomy and Physiology of Fishes (5)** **Welander**
Survey of morphology and bodily functions of fishes. Prerequisite, Zoology 112.
- 402 Phylogeny of Fishes (5)** **Welander**
Survey of the system of fish classification; distribution of fishes. Prerequisite, 401.
- 403 Identification of Fishes (5)** **Welander**
Introduction to research methods and techniques of ichthyological systematics. Prerequisite, 402.
- 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.
- 407 Aquatic Invertebrates of Minor Economic Importance (5)** **Sparks**
Classification, life histories, occurrence, and utilization of sponges, corals, annelid worms, echinoderms, and other aquatic invertebrates fished or cultivated on a commercial scale. 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)** **Ordal**
Organisms causing diseases in fishes; prevention and known treatments of fish diseases. Prerequisites, 402 and Microbiology 301.
- 460 Water Management and Fish Resources (5)** **M. C. Bell**
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

CORRECTION SHEET

for

College of Fisheries Bulletin

(pp. 73-74)

COURSES

301 Anatomy of Fishes (5)	Welander
302 Microbiology of Fisheries (5) Bacteria, yeasts, mold, and protozoans associated with fish; their characteristics and importance in the fisheries. Prerequisite, Zoology 111.	Liston
303 Introduction to Invertebrate Fisheries (5) Taxonomy, morphology, and phylogeny of the invertebrate groups of importance to fisheries. Prerequisite, permission.	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)	DeLacy
426 Early Life History of Marine Fishes (5)	DeLacy
427 Ecology of Marine Fishes (5)	DeLacy
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)	Dollar, Liston
484 Processing of Edible Fisheries Products (5)	Dollar, Liston
485 Fish By-Products and Spoilage (5)	Dollar, Liston
486 Research Problems in Fisheries Technology (5)	Dollar, 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
510 Fish Behavior (3) Behavior related to sensory-motor equipment. Design of experiments emphasized for studies ranging from naturalistic observation to controlled laboratory and field experiments. Prerequisite, permission.	Fields
520 Graduate Seminar (2, maximum 6) Training in methods of searching fisheries literature.	Staff
556 Age and Growth of Fishes (5) Principles of growth; methods of determining age and rates of growth in fresh-water and marine fishes. Prerequisites, 402, and Mathematics 383 or permission.	Van Cleave
557 Population Enumeration (5) Methods of enumerating animal populations; availability; dominant age groups; gear selectivity. Prerequisite, 556 or permission.	Van Cleave
558 Population Dynamics (5) Influence of natural and artificial factors on variation in abundance and yield from animal populations. Prerequisite, 557 or permission.	Van Cleave
604 Research (*, maximum 3 for M.S., 10 for Ph.D.)	Staff
700 Thesis (*)	Staff

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. Bell**
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, 481 Introduction to Commercial Fishing Industry (4,4)** **F. H. Bell**
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.
- 482, 483 Analysis of Fisheries Products (2,2)** **Liston, Stern**
Analysis of fishery products by chemical, colorimetric, spectrophotometric, and microbiological techniques. Prerequisites, Chemistry 232 and 242.
- 484 Processing of Edible Fisheries Products (5)** **Liston, Stern**
Principles, methods, and practices in canning, freezing, drying, and curing edible fisheries products. Prerequisite, 483.
- 485 Fish By-Products and Spoilage (5)** **Liston, Stern**
Utilization of fish waste in preparation of industrial oils, meals, pharmaceutical, and miscellaneous products; study of the microbiological, enzymatic, and chemical spoilage of fish and fishery products. Prerequisite, 484.
- 486 Research Problems in Fisheries Technology (5)** **Liston, Stern**
Group and individual problems in the development of new processes and products; plant design and layout; packaging; sanitation. Prerequisite, 485.
- 495 Introduction to Fisheries 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 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.
- 520 Graduate Seminar (2, maximum 6)** **Van Cleave**
Training in methods of searching fisheries literature.
- 556 Age and Growth of Fishes (5)** **Van Cleave**
Principles of growth; methods of determining age and rates of growth in freshwater and marine fishes. Prerequisites, 402, and Mathematics 383 or permission.
- 557 Population Enumeration (5)** **Van Cleave**
Methods of enumerating animal populations; availability; dominant age groups; gear selectivity. Prerequisite, 556 or permission.
- 558 Population Dynamics (5)** **Van Cleave**
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**
Thesis (*) **Staff**

OTHER COURSES FOR FISHERIES 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 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.

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

- 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.

BUSINESS ADMINISTRATION

General Business

- 101 Introduction to Business (5)**
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.

Marketing

- 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.

Production

- 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.

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.)
- 160 General Chemistry (3)** **Staff**
Periodic System, phase equilibria, metals and nonmetals, metallurgy, and nuclear reactions. Prerequisite, 150. (Formerly 113.)
- 170 Qualitative Analysis (3)** **Staff**
Semi-microqualitative analysis for common cations and anions; separation and identification procedures. Prerequisites, 160, which may be taken concurrently. (Formerly 113.)
- 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 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 (2)** **Staff**
Usually to accompany 335. Organic syntheses. Prerequisite, 335, which may be taken concurrently.
- 346 Organic Chemistry Laboratory (2)** **Staff**
Continuation of 345. Usually to accompany 336. Prerequisites, 335, 336, and 345 which may be taken concurrently.
- 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, 356 or taken concurrently.
- 426 Instrumental Analysis (3)** **Crittenden**
Introduction to electrical and optical methods of analysis. Prerequisites, 221 and 358.

ENGLISH

- 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.

FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE**Japanese**

- 151, 152, 153 First-Year Reading Japanese (5,5,5)** **McKinnon**
Reading and translation of modern Japanese. Prerequisites, 101-102 or permission for 151, or this series may be taken concurrently with 101-102, 103; 151 for 152; 152 for 153.
- 351, 352, 353 Reading in Japanese (5,5,5)** **McKinnon**
Reading and translation of primary and secondary source materials in Japanese. Not open to students who have taken 405, 406, and 407. Prerequisites, 153 or equivalent for 351; 351 for 352; 352 for 353.

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.
- 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.

FORESTRY

- 350 Wildlife Management (3)** **Brockman**
Interrelations between forests and wildlife; life histories and habits of animals involved. Prerequisites, junior standing and permission.

GENERAL ENGINEERING

- 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 or concurrent with trigonometry.

GEOLOGY

- 101 Survey of Geology (5)** **Barksdale, Coombs, Mallory**
205 Rocks and Minerals (5) **Staff**
 Prerequisite, high school chemistry.

GERMANIC LANGUAGES AND LITERATURE

- 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.
112 First-Year Reading (5) **Staff**
 Continuation of 110-111. Prerequisites, 110-111 or one year of high school German. Not open to those who have taken 103.

HOME ECONOMICS

- 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.

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.
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. Differentials, indefinite integrals. Prerequisites, 103 or 104, and 105, or exemption by qualifying test.
251 Analytic Geometry and Calculus (5) **Staff**
 Definite integrals, integration of simple algebraic functions, applications. Conic sections, polar coordinates, and differentiation of transcendental functions. Prerequisite, 153.
252 Analytic Geometry and Calculus (5) **Staff**
 Parametric equations, curvature, integration of algebraic and transcendental functions, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251.
253 Analytic Geometry and Calculus (3) **Staff**
 Solid analytic geometry, multiple integrals, partial derivatives. Prerequisite, 252.
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.
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, 281, or permission for 382; 382 for 383.

MECHANICAL ENGINEERING

- 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.
428 Refrigeration (3) **Hendrickson, McMin**
 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. Lectures and laboratory. Prerequisite, 320.

MICROBIOLOGY

- 301 General Microbiology (5)** **Rickenburg**
 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.

OCEANOGRAPHY

- 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.

- 390 General Oceanography (5)** **Fleming**
Comprehensive treatment of physical, chemical, biological, and geological aspects of the oceans. Introductory to all courses in 400 series.
- 431 Biological Oceanography of the Plankton (4)** **Frolander**
Floating plant and animal life of the sea; factors controlling population and production; regional distribution; methods of sampling, identification, and analysis; nuisance forms. Prerequisite, 403 and Zoology 112.
- 433 Plankton Ecology (6)** **Frolander**
Problems and methods of marine plankton investigations. Practical experience at sea and in the laboratory. (Offered Summer Quarter only; offered alternate years starting 1955.) Prerequisite, 431 or Zoology 330.

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 30.
- 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 30.

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 a grade of C or D; for 103, -102 or second high school semester with A or B, or third high school semester.

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.
- 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

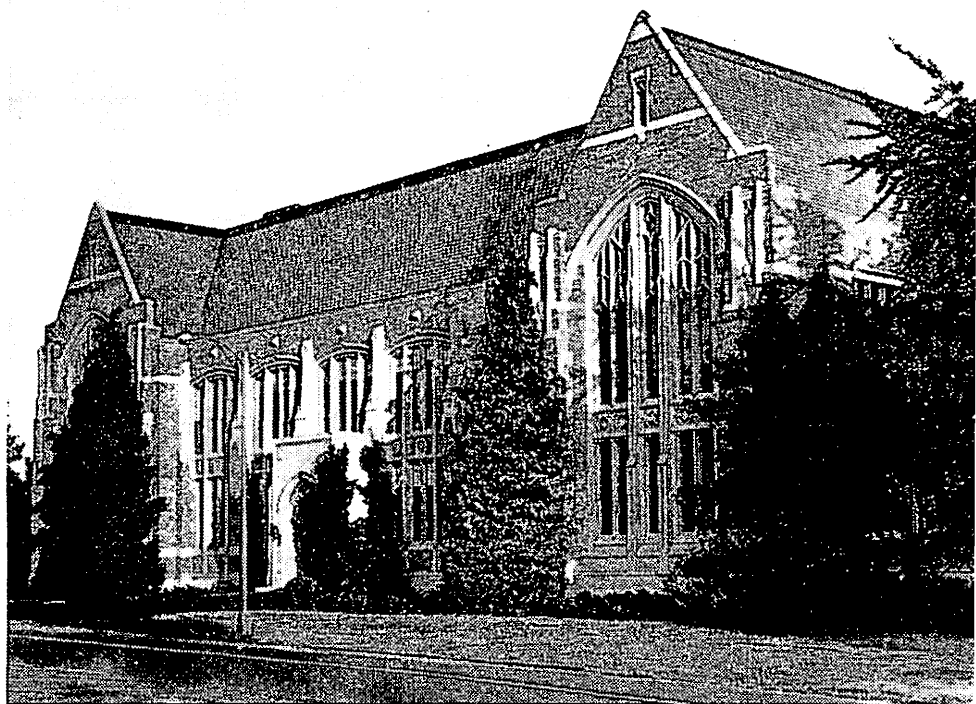
- 101-102, 103 Elementary Norwegian (3-3,3)** **Arestad**
Fundamentals of oral and written Norwegian.
- 104-105, 106 Norwegian Reading (2-2,2)** **Staff**
Should accompany 101-102, 103.

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)** **Ilig, 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.

- 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.
- 381 Microtechnique (4)** **Hsu**
Critical evaluation of each step in microslide preparation. Prerequisites, 112 and permission.
- 400 General Physiology (5)** **Floreay**
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)** **Illig, 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)** **Fernald**
A descriptive and comparative study of development of chordates. Prerequisite, 112.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF FORESTRY

1957-1959

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; and publications of the Division of Adult Education and Extension Services, the correspondence study and extension 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 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 ARTS AND SCIENCES
COLLEGE OF BUSINESS ADMINISTRATION
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EXTENSION CLASSES

BULLETIN
UNIVERSITY OF WASHINGTON
General Series No. 905
November, 1956

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ADMINISTRATION

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Registrar
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Dean of Students
Dean of the College of Forestry

COLLEGE OF FORESTRY FACULTY

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 (1949), *Associate 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
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
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 (1951), *Assistant 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

HUPMAN, CARL BRIANTNER, 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

CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

WINTER QUARTER, 1957

REGISTRATION PERIOD

- NOV. 26-DEC. 14 Registration for students in residence Autumn Quarter, 1956. (*Registration appointments will be issued on presentation of ASUW cards beginning October 26.*)
- JAN. 2-JAN. 4 Registration for former students not in residence Autumn Quarter, 1956. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 26.*)
- JAN. 2-JAN. 4 Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- JAN. 7-MONDAY Instruction begins
- JAN. 11-FRIDAY Last day to add a course
- FEB. 22-FRIDAY Washington's Birthday and Founder's Day holiday
- MAR. 22-FRIDAY Instruction ends

SPRING QUARTER, 1957

REGISTRATION PERIOD

- FEB. 27-MAR. 15 Registration for students in residence Winter Quarter, 1957. (*Registration appointments will be issued on presentation of ASUW cards beginning January 25.*)
- MAR. 27-MAR. 29 Registration for former students not in residence Winter Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 25.*)
- MAR. 27-MAR. 29 Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- APR. 1-MONDAY Instruction begins
- APR. 5-FRIDAY Last day to add a course
- MAY 24-FRIDAY Governor's Day
- MAY 30-THURSDAY Memorial Day holiday
- JUNE 9-SUNDAY Baccalaureate Sunday
- JUNE 14-FRIDAY Instruction ends
- JUNE 15-SATURDAY Commencement

SUMMER QUARTER, 1957

REGISTRATION PERIOD

JUNE 5-JUNE 7

JUNE 17-JUNE 21

Registration for all students. (*Registration appointments for students in residence Spring Quarter, 1957, and for former students not in residence Spring Quarter, 1957, may be obtained from the Registrar's Office beginning April 22. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.*)

ACADEMIC PERIOD

JUNE 24-MONDAY

JUNE 25-TUESDAY

JUNE 28-FRIDAY

JULY 4-THURSDAY

JULY 24-WEDNESDAY

JULY 25-THURSDAY

JULY 26-FRIDAY

AUG. 23-FRIDAY

Instruction begins

Last day to add a course for the first term

Last day to add a course for the full quarter

Independence Day holiday

First term ends

Second term begins

Last day to add a course for the second term

Instruction ends

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

SEPT. 9-OCT. 1

SEPT. 13-OCT. 1

SEPT. 16-SEPT. 27

SEPT. 16-OCT. 1

Registration for students in residence Spring Quarter, 1957. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.*)

Registration for former students not in residence Spring Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.*)

Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification of admission.*)

Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

SEPT. 30-MONDAY

OCT. 2-WEDNESDAY

OCT. 8-TUESDAY

NOV. 11-MONDAY

NOV. 27-DEC. 2

DEC. 20-FRIDAY

Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

Instruction begins (8 a.m.) for all other students

Last day to add a course

State Admission Day holiday

Thanksgiving recess (6 p.m. to 8 a.m.)

Instruction ends (6 p.m.)

WINTER QUARTER, 1958

REGISTRATION PERIOD

NOV. 25-DEC. 13	Registration for students in residence Autumn Quarter, 1957. (<i>Registration appointments will be issued on presentation of ASUW cards beginning October 25.</i>)
JAN. 2-JAN. 3	Registration for former students not in residence Autumn Quarter, 1957. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.</i>)
JAN. 2-JAN. 3	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

JAN. 6-MONDAY	Instruction begins
JAN. 10-FRIDAY	Last day to add a course
FEB. 22-SATURDAY	Washington's Birthday and Founder's Day holiday
MAR. 21-FRIDAY	Instruction ends

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26-MAR. 14	Registration for students in residence Winter Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 24.</i>)
MAR. 26-MAR. 28	Registration for former students not in residence Winter Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.</i>)
MAR. 26-MAR. 28	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

MAR. 31-MONDAY	Instruction begins
APR. 4-FRIDAY	Last day to add a course
MAY 23-FRIDAY	Governor's Day
MAY 30-FRIDAY	Memorial Day holiday
JUNE 8-SUNDAY	Baccalaureate Sunday
JUNE 13-FRIDAY	Instruction ends
JUNE 14-SATURDAY	Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4-JUNE 6

Registration for all students. (*Registration appointments for students in residence Spring Quarter, 1958, and for former students not in residence Spring Quarter, 1958, may be obtained from the Registrar's Office beginning April 21. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.*)

JUNE 16-JUNE 20

ACADEMIC PERIOD

JUNE 23-MONDAY

Instruction begins

JUNE 24-TUESDAY

Last day to add a course for the first term

JUNE 27-FRIDAY

Last day to add a course for the full quarter

JULY 4-FRIDAY

Independence Day holiday

JULY 23-WEDNESDAY

First term ends

JULY 24-THURSDAY

Second term begins

JULY 25-FRIDAY

Last day to add a course for the second term

AUG. 22-FRIDAY

Instruction ends

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 8-SEPT. 30

Registration for students in residence Spring Quarter, 1958. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.*)

SEPT. 12-SEPT. 30

Registration for former students not in residence Spring Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.*)

SEPT. 15-SEPT. 26

Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification of admission.*)

SEPT. 15-SEPT. 30

Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 16, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

SEPT. 29-MONDAY

Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

OCT. 1-WEDNESDAY

Instruction begins (8 a.m.) for all other students

OCT. 7-TUESDAY

Last day to add a course

NOV. 11-TUESDAY

State Admission Day holiday

NOV. 26-DEC. 1

Thanksgiving recess (6 p.m. to 8 a.m.)

DEC. 19-FRIDAY

Instruction ends (6 p.m.)

WINTER QUARTER, 1959

REGISTRATION PERIOD

Nov. 20-DEC. 12	Registration for students in residence Autumn Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning October 23.</i>)
DEC. 29-DEC. 31	Registration for former students not in residence Autumn Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 23.</i>)
DEC. 29-DEC. 31	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.</i>)

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
MAR. 20—FRIDAY	Instruction ends

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24-MAR. 13	Registration for students in residence Winter Quarter, 1959. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 23.</i>)
MAR. 25-MAR. 27	Registration for former students not in residence Winter Quarter, 1959. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.</i>)
MAR. 25-MAR. 27	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

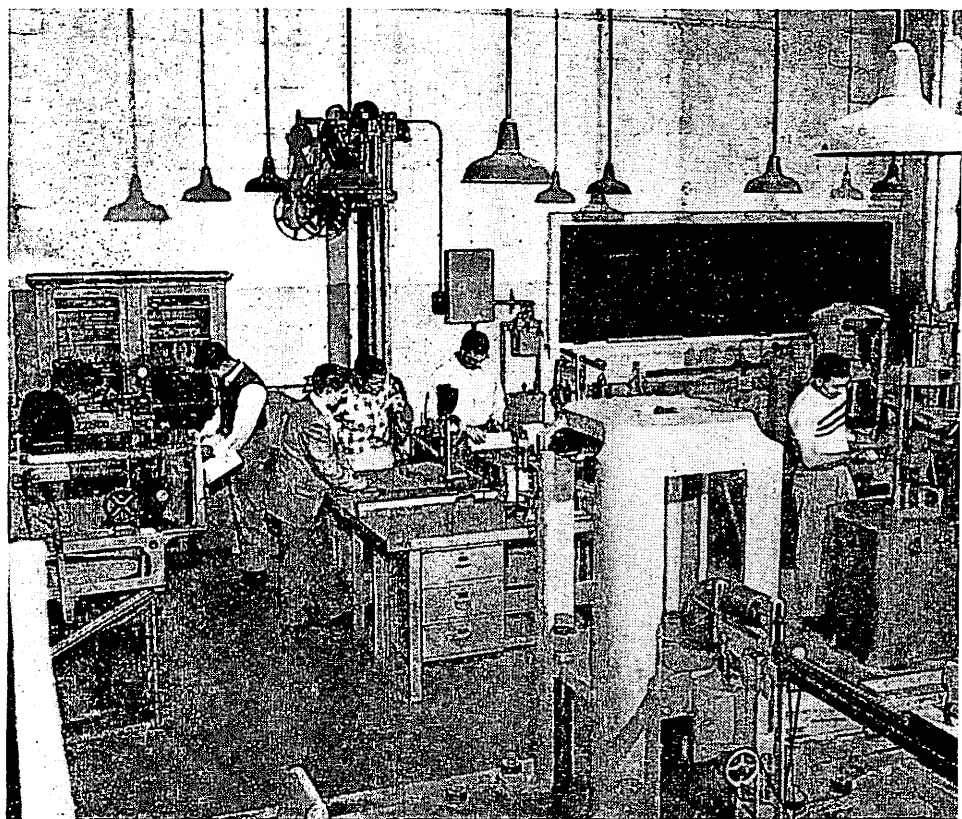
ACADEMIC PERIOD

MAR. 30—MONDAY	Instruction begins
APR. 3—FRIDAY	Last day to add a course
MAY 22—FRIDAY	Governor's Day
MAY 30—SATURDAY	Memorial Day holiday
JUNE 7—SUNDAY	Baccalaureate Sunday
JUNE 12—FRIDAY	Instruction ends
JUNE 13—SATURDAY	Commencement

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



GENERAL INFORMATION

THE 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 11,000 members, the College today numbers 12 faculty, 275 students, and 1,700 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 8,000 bound volumes and 15,000 pamphlets, resorts, 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 which maintains a branch forest-insect laboratory in the forest.

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 Autumn or 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 Alaska 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. See Scholarship Requirements, pages 18-21.

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 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 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 17).

All entering freshmen are 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 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 19 for applicants who have had college work.

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

The University scholarship requirement is a high school grade point 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 University Athletic 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, 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 and the Territory of Alaska

The University scholarship requirement for nonresidents* or students residing outside the state of Washington or the territory of Alaska 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.

*Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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 units¹ (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 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 \$18.00 per course) and do not carry University credit.

¹ 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.

ADMISSION BY EXAMINATION

A graduate of a *nonaccredited* 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 9896, 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 or territory of Alaska 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 or territory of Alaska 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 or territory of Alaska 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 or the territory of Alaska 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 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.

6. 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. No credit will be allowed in the senior year.

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

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.

A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit, and, in addition, shall be allowed up to a maximum of 90 quarter credits from the junior college exclusive of physical education activity credits.

7. 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.

8. 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 members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination.

9. 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 Division of Adult Education and Extension Services. 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.

10. 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.

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 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 17 and 19.

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 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 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.

WORLD WAR I OR II VETERANS

Under certain conditions a veteran of World Wars I or II who is not eligible for Veterans Administration benefits is fully or partly exempt from tuition charges (see page 24).

REQUIRED TESTS AND EXAMINATIONS

APTITUDE TESTS

New students of freshman standing (including transfer students with less than 45 quarter hours of college credit 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 50 (Elementary Composition) 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 PLACEMENT AND EXEMPTION TESTS

Students who have taken third-semester algebra in high school and who plan to take Mathematics 104 (Plane Trigonometry) and/or Mathematics 105 (College Algebra) are required to take a placement test before they are permitted to register for these University courses. 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. 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 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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

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, filing his class cards, and depositing his registration book at Sections, 101 Administration Building.

APPOINTMENTS

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 5). Students in residence may obtain appointments at the time announced in the Calendar.

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 its equivalent) or more than 16 credits (or its 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 its 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 or Alaska 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 and Alaska. If they believe they are residents, they may petition the Nonresident Tuition Office, 205A Administration Building, for a change of classification.

Auditors, per quarter	12.00
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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 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

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), per year 3.00-5.00

Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00;
Spring Quarter, \$3.00

Military Uniform Deposit, per year 25.00

Paid by students in Army and Air Force ROTC; refundable when uniform is
returned in good condition. Limitation on refund to Army ROTC students 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 is charged for each
additional copy.

Transcript Fee .50

One transcript is furnished without charge; the fee is charged for each additional
copy. Supplementary transcripts are 25 cents each.

Graduation Fee 10.00

SPECIAL FEES

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of
registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The
fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00
per credit; and for removal of an Incomplete, \$2.00.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter are: Bowling, \$3.00. Canoe-
ing, \$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. Riding Fee is payable to riding academy and
varies in amount.

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	\$183.00
Full-time nonresident student	408.00
Athletic Admission Ticket (optional)	3.00-5.00
Accident Insurance (optional)	4.35
Special Fees and Deposits	38.50
Military uniform deposit, breakage ticket, and locker fees.	
Books and Supplies	75.00
Board and Room	
Room and meals in Men's Residence Halls	600.00
Room and meals in Women's Residence Halls	540.00-630.00
Room and meals in student cooperative house	445.00-510.00
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 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.

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. The Edward K. Bishop Scholarship, \$500.
2. The Paul H. Johns, Jr., Memorial Award to the outstanding junior and senior student, \$200 each.
3. The Biles-Coleman Lumber Company Scholarship to a graduate of Omak High School ranking in the upper half of his class and with an interest in forestry, \$500 a year for a four-year period.
4. The U. M. Dickey Award established by the Scott Paper Company, \$1,000 annually for a two-year period to the outstanding student completing the sophomore year.
5. The Agnes Healy Anderson Research Fellowship to a graduate student. Amount variable, depending on availability of funds and need (usually \$1,000 annually).
6. The Weyerhaeuser Fellowship in Forest Management to a graduate student, two at \$1,500 each.
7. The Northern Commercial Company Scholarship to a junior, senior, or graduate student, \$500.
8. The University of Washington Foresters' Alumni Association Scholarship to 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 at \$250 each.
9. The Customers of 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.
10. The St. Regis Paper Company Scholarship, \$800 annually for a two-year period to an outstanding forestry student completing the sophomore year either at the University of Washington or Oregon State College.
11. The Hugo Winkenwerder Memorial Scholarship to outstanding high school seniors dedicated to the pursuit of forestry at the University of Washington, seven at \$200 each.
12. The Hugo Winkenwerder Graduate Fellowship, \$1,000 annually to a graduate student in forestry.
13. The Seattle Hoo-Hoo Club Scholarship, based on scholarship and need, is awarded to a resident of King County in the state of Washington.
14. The 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.
15. The 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.
16. The Homelite Corporation Scholarship to a junior or senior in the College of Forestry, \$500.
17. The Lawrence Ottinger Forest Products Fellowship, \$1,000 annually to a graduate student in forest products with interests in plywood, wood particle board, adhesives, or allied fields.
18. The Crown Zellerbach Foundation Scholarship to a junior or senior in the

College of Forestry, \$500.

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 fall 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 Alfred 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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical psychologists, works closely with other student services and supplements the academic advisory program.

HOUSING

A limited number of accommodations are available to men in the Men's Residence Hall, 1101 Campus Parkway, Seattle 5, Washington. Interested students should write to the Manager, the Men's Residence Hall. Housing is available to women in the Women's Residence Halls. For further information write to Manager, Women's Residence Halls, University of Washington, Seattle 5, Washington. The Students' Cooperative Association, 1114 East Forty-fifth Street, operated independently from the University, has low-cost accommodations for both men and women. 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, students' cooperatives, and church-sponsored living groups. Other types of living arrangements must be approved by the Office of the Dean of Students.

Married students 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 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.

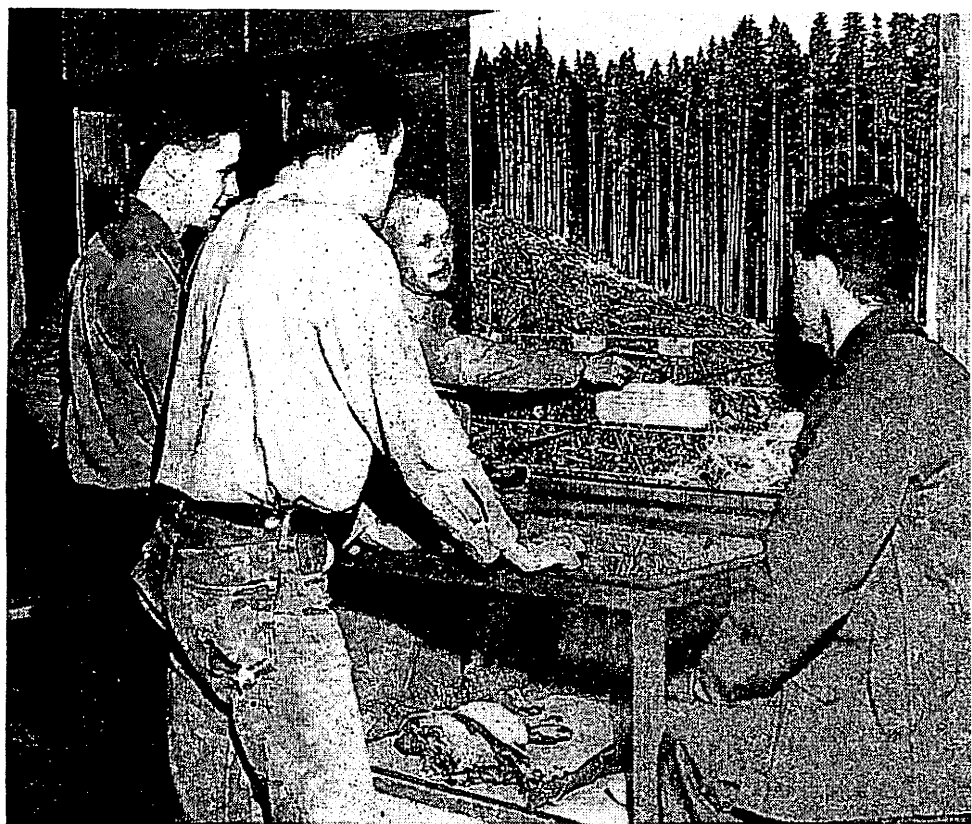
PLACEMENT

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 Division of Forestry, 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

THE PROGRAMS IN FORESTRY

THE 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 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.

Men 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. Credits earned in freshman or varsity sports may be used to satisfy the activity course requirement.

Women students must pass a swimming test or satisfactorily complete one quarter of swimming. In fulfilling the three-quarter requirement, a maximum of two credits may be taken in any of the following: (1) swim area; (2) dance area; (3) tennis and badminton; (4) any other specific individual, dual, or team activity.

Exemptions from the activity requirement are granted to:

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 Department of Physical Education for Men or Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfitted to join regular classes will be assigned by the Executive Officer of the Department of Physical 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 undergraduates are required to take Physical 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 Physical Education 175. Veterans with six months 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 Physical Education 110, a course in health education, within the first three quarters of residence. This requirement may be satisfied by passing a health-knowledge examination given during the Autumn Quarter registration period for women entering the University for the first time. Successfully passing this test exempts the student from the requirement but does not grant credit for Physical 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. A cumulative average of 2.00 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 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 201 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. In 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 may 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 require-*

ments 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 quarterly *Time Schedule and Room Assignments*.

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 112 or 116	
English 101 Composition . . .	3	Chemistry 111 or 115		General	5
Gen. Engr. 107 Engr.		General	5	Math. 156 Algebra &	
Drawing	3	Gen. Engr. 121 Plane		Calculus	3
Math. 104 Plane		Surveying	3	Phys. 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		20-21		18-19

Summer Quarter

(Pack Forest)

	CREDITS
For. 140 Forest	
Surveying	5
For. 161 Mensuration	
Field Problems	5
For. 220 Intro. to	
Forest Ecology	5
	15

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 107 Dendrology	3	For. 206 Wood Technology . . .	4	For. 106 Dendrology	3
For. 260 Mensuration	5	Botany 116 Forestry		For. 210 Elem. Forest Soils . .	3
English 102 Composition . . .	3	Botany	4	For. 240 General Logging . . .	2
Physics 101 and 107		Economics 211 General . . .	3	For. 273 Major Forest Industries	4
General	5	Physics 102 and 108		Physics 103 and 109	
ROTC	2-3	General	5	General	5
		ROTC	2-3	ROTC	2-3
	<hr/> 18-19		<hr/> 18-19		<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 . . .	3	For. 321 Silvics	3	For. 322 Silvicultural Methods	3
For. 403 Timber Physics . . .	3	For. 372 Seasoning & Preservation	2	For. 430 Adv. Fire Control . .	3
Botany 361 Forest Pathology	5	For. 465 Forest Photo Interpretation	3	English 253 Factual Writing	3
Approved electives	4	Zoology 204 Forestry Zoology	5	Approved electives	6
	<hr/> 15	Approved electives	2		<hr/> 15

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 408 Economics & Finance	5	For. 335 Insect Control . . .	3	For. 466 Field Studies	5
For. 423 Application of Silvicultural Methods . . .	3	For. 409 Forest Policy & Administration	3	For. 467 Field Studies	5
Approved electives	6	For. 460 Forest Management	5	For. 468 Field Studies	4
	<hr/> 14	Approved electives	4	For. 469 Field Studies	2
			<hr/> 15		<hr/> 16

CURRICULUM IN LOGGING ENGINEERING**Third Year**

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 404 Timber Physics . . .	5	For. 321 Silvics	3	For. 322 Silvicultural Methods	3
Botany 361 Forest Pathology	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
Approved electives	2	Civil Engr. 213 Location & Earthwork	3	Civil Engr. 315 Photogrammetry	3
	<hr/> 15	Approved electives	3	Approved electives	3
			<hr/> 15		<hr/> 15

Fourth Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
For. 401 Safety Practices . . .	2	For. 442 Logging Engr. . . .	5	For. 446 Field Studies	3
For. 408 Economics & Finance	5	For. 460 Forest Management	5	For. 447 Field Studies	5
For. 441 Forest Engr.	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
	15		15	Approved electives	2
					15

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
	15		15	For. 485 Seminar	2
					15

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.
- 106, 107 Dendrology (3,3)** **Brockman**
Identification, classification, and distribution of the trees of North America. Prerequisite, Botany 114.
- 130 Elementary Forest Fire Control (3)** **Schaeffer**
Factors influencing spread of forest fires. Methods of forest fire prevention, presuppression, 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. Formerly Civil Engineering 256. Prerequisite, General Engineering 121. (Given only at Pack Forest.)
- 160 Elementary Forest Mensuration (5)** **Stenzel**
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)** **Schaeffer**
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 107, 121, and Mathematics 156. (Given only at Pack Forest.)
- 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, 107, Botany 115, 10 credits in chemistry, and Physics 101 and 107.
- 210 Elementary Forest Soils (3)** **Gessel**
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.
- 220 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.)
- 240 General Logging (2)** **Stenzel**
Regional logging methods in the United States with emphasis on those used in the Pacific Northwest. Prerequisite, sophomore standing.
- 260 Forest Mensuration (5)** **Stenzel**
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.
- 310 General Forest Soils (3)** **Gossel**
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, 220, and Botany 116.
- 320 Elements of Silviculture (3)** **Scott**
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, 106, 107, 210, 220, 260, and Botany 116.
- 321 Silvics (3)** **Scott**
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, 106, 107, 210, 220, 260, and Botany 116.
- 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. Prerequisite, 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)** **Gossel**
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. Prerequisite, Botany 116.
- 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, and permission.
- 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, 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, 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)** **Robertson**
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. Prerequisite, 260.
- 408 Forest Economics and Finance (5)** **Robertson**
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. Prerequisite, 310 or 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. Prerequisite, 322.
- 424 Advanced Silviculture (3)** **Scott**
A detailed discussion of special problems or subjects in silviculture of interest to advanced students. Prerequisites, 423 and permission of instructor.
- 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)** **Stenzel**
Design and construction of forest roads; earth-moving methods and costs, explosives, surfacing, drainage. Laboratory: design of timber bridges. Prerequisites, 403 or 404 and General Engineering 107.
- 441 Forest Engineering (5)** **Pearce**
Logging planning: road projection, selection of landings and settings, logging cost control. Land surveying, subdivision, platting, and boundaries. Prerequisites, 140 and 240.
- 442 Logging Engineering (5)** **Pearce**
Logging machinery and equipment; application problems, with emphasis on motor truck performance. Field trips to logging equipment factories. Prerequisite, 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 and Civil Engineering 213 and 315.
- 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. Prerequisites, 260, 408, and 423.
- 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. Prerequisites, 260 and 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. Prerequisites, 460 and 465.
- 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, 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 273.
- 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, and permission.
- 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 (3)** **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, 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, permission.

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 (5)** **Scott**
A consideration of current literature and topics in forest tree ecology and physiology. Prerequisite, permission of instructor.
- 522 Advanced Silviculture (5)** **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**
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**
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 or equivalent, and permission.
- 540 Advanced Forest Engineering (5)** **Pearce**
Logging organization and management; logging cost analysis and budgeting. Prerequisite, permission of instructor.
- 555 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.
- 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, 408, 409, and 460 or equivalent.
- 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 or equivalent.
- 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, 116 Forestry Botany (3,3,4)** **Staff**
 114: structure of seed plants. 115: morphology of fungi and reproduction of seed plants.
 116: physiology of seed plants. Prerequisites, 114 and Chemistry 112.
- 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

- 111 General Chemistry (5)** **Staff**
 Open only to students without high school chemistry. Primarily for those who expect to continue through 113 or beyond. Periodic system; some families of elements; laws of chemical combination; gases; atomic, kinetic, and ionic theories; electrolysis.
- 112 General Chemistry (5)** **Staff**
 Atomic and molecular structure, chemical bonding, oxidation-reduction, electrochemistry, nonmetals, solutions, equilibria. Prerequisite, Chemistry 111 or 115.
- 115 General Chemistry (5)** **Staff**
 For students who have had high school chemistry. Primarily for those who expect to continue through 113 or 116. Chemistry advisers should be consulted as to whether this course should be followed by Chemistry 112 or 116. Content similar to that of 111. No credit if 111 has been taken.
- 116 General Chemistry and Qualitative Analysis (5)** **Staff**
 Required for forest products majors. Content similar to Chemistry 113. No credit if 113 has been taken. Prerequisites, 115 and permission.

CIVIL ENGINEERING

- 212 Route Surveying (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 Location and Earthwork (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.

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

- 107 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, 104 for 155; 155 for 156.

PHYSICAL EDUCATION**101, 102, 103 Adapted Activities (Men) (1,1,1)****Staff**

Gymnastics, games, and sports to meet the needs of the individual. For physically handicapped students.

106 through 255 Physical Education Activities (Men) (1 each)**Staff**

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; 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 (fee); 150, freshman, 250, varsity volleyball; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.

110 Health Education (Women) (2)**Staff**

Health problems of freshman women. Required of all freshmen; exemption without credit by examination. See page 35.

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.

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 35.

PHYSICS**50 General Physics (0)****Staff**

Mechanics and sound; methods for handling problems in physics. For students concurrently registered in 101 with deficiencies. Prerequisite, concurrent registration in 101.

101, 102, 103 General Physics (4,4,4)**Staff**

101: mechanics and sound. Concurrent registration in 107 required. Prerequisites, plane geometry, trigonometry, and one year of high school physics. A deficiency in any one or all of these prerequisites must be satisfied by concurrent registration in 50. 102: electricity and magnetism. Prerequisites, 101 and concurrent registration in 108. 103: heat, light, and modern physics. Prerequisites, 101 and concurrent registration in 109. No credit for 101, 102, 103 without credit in 107, 108, 109, respectively.

107, 108, 109 General Physics Laboratory (1,1,1)**Staff**

107: mechanics and sound laboratory to be taken concurrently with 101. 108: electricity and magnetism laboratory to be taken concurrently with 102. 109: heat and light laboratory to be taken concurrently with 103.

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 116.

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
 250 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

- 113 Elementary Qualitative Analysis (5) 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 Water Resources in the Pacific Northwest (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 Castings (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 |
|------------|---|--------------|

PSYCHOLOGY

- | | | |
|------------|--|--------------|
| 336 | Industrial Psychology for Engineers (3) | Staff |
|------------|--|--------------|

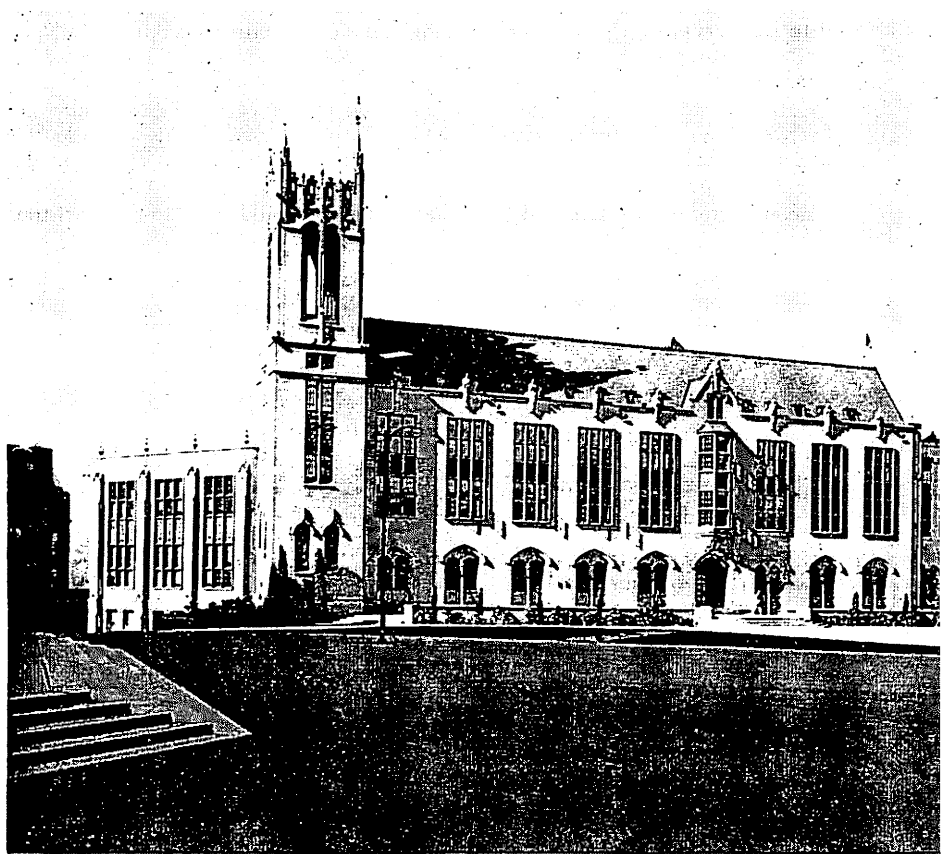
SPEECH

- | | | |
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| 120 | Introduction to Public Speaking (5) | Staff |
| 327 | Extempore Speaking (3) | Staff |

ZOOLOGY

- | | | |
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| 383 | Museum Technique (3) | Staff |
| 444 | Entomology (5) | Staff |
| 463 | Natural History of Amphibia and Reptiles (5) | Staff |
| 464 | Natural History of Birds (Ornithology) (5) | Staff |
| 465 | Natural History of Mammals (5) | Staff |

BULLETIN • UNIVERSITY OF WASHINGTON



GRADUATE SCHOOL

1957-1959

BULLETIN, UNIVERSITY OF WASHINGTON is the title of the series of official announcements describing the University's programs. The series includes two general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; and publications of the Division of Adult Education and Extension Services, 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 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 ARTS AND SCIENCES

COLLEGE OF BUSINESS ADMINISTRATION

COLLEGE OF EDUCATION

COLLEGE OF ENGINEERING

COLLEGE OF FORESTRY

GRADUATE SCHOOL

SCHOOL OF LAW

SCHOOLS OF MEDICINE AND DENTISTRY

SCHOOL OF NURSING

COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT

SUMMER QUARTER ANNOUNCEMENT

CORRESPONDENCE STUDY

EVENING CLASSES

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.

BULLETIN
UNIVERSITY OF WASHINGTON
General Series No. 912
June, 1957

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CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

- SEPT. 9-OCT. 1 Registration for students in residence Spring Quarter, 1957. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.*)
- SEPT. 13-OCT. 1 Registration for former students not in residence Spring Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.*)
- SEPT. 16-SEPT. 27 Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 36, for application deadlines. Registration appointments will be mailed with notification of admission.*)
- SEPT. 16-OCT. 1 Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 36, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- SEPT. 30—MONDAY Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
- OCT. 2—WEDNESDAY Instructions begins (8 a.m.) for all other students
- OCT. 8—TUESDAY Last day to add a course
- OCT. 15—TUESDAY Last day for filing applications for master's degree for Autumn Quarter
- NOV. 11—MONDAY State Admission Day holiday
- NOV. 27-DEC. 2 Thanksgiving recess (6 p.m. to 8 a.m.)
- DEC. 20—FRIDAY Instruction ends (6 p.m.)

WINTER QUARTER, 1958

REGISTRATION PERIOD

- Nov. 25-DEC. 13 Registration for students in residence Autumn Quarter, 1957. (*Registration appointments will be issued on presentation of ASUW cards beginning October 25.*)
- JAN. 2-JAN. 3 Registration for former students not in residence Autumn Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.*)
- JAN. 2-JAN. 3 Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

JAN. 6—MONDAY

JAN 10—FRIDAY

JAN. 17—FRIDAY

FEB. 22—SATURDAY

MAR. 21—FRIDAY

Instruction begins

Last day to add a course

Last day for filing applications for master's degree for Winter Quarter

Washington's Birthday and Founder's Day holiday

Instruction ends

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26-MAR. 14

Registration for students in residence Winter Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning January 24.*)

MAR. 26-MAR. 28

Registration for former students not in residence Winter Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.*)

MAR. 26-MAR. 28

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

MAR. 31—MONDAY

APR. 4—FRIDAY

APR. 11—FRIDAY

MAY 23—FRIDAY

MAY 30—FRIDAY

JUNE 8—SUNDAY

JUNE 13—FRIDAY

JUNE 14—SATURDAY

Instruction begins

Last day to add a course

Last day for filing applications for master's degree for Spring Quarter

Governor's Day

Memorial Day holiday

Baccalaureate Sunday

Instruction ends

Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4—JUNE 6

Registration for all students. (*Registration appointments for students in residence Spring Quarter, 1958, and for former students not in residence Spring Quarter, 1958, may be obtained from the Registrar's Office beginning April 21. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.*)

JUNE 16—JUNE 20

ACADEMIC PERIOD

JUNE 23—MONDAY

JUNE 24—TUESDAY

JUNE 27—FRIDAY

JULY 3—THURSDAY

JULY 4—FRIDAY

JULY 23—WEDNESDAY

JULY 24—THURSDAY

JULY 25—FRIDAY

AUG. 22—FRIDAY

Instruction begins

Last day to add a course for the first term

Last day to add a course for the full quarter

Last day for filing applications for master's degree for Summer Quarter

Independence Day holiday

First term ends

Second term begins

Last day to add a course for the second term

Instruction ends

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

- SEPT. 8-SEPT. 30 Registration for students in residence Spring Quarter, 1958. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.*)
- SEPT. 12-SEPT. 30 Registration for former students not in residence Spring Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.*)
- SEPT. 15-SEPT. 26 Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 36, for application deadlines. Registration appointments will be mailed with notification of admission.*)
- SEPT. 15-SEPT. 30 Registration for new transfer students with at least full sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 36, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- SEPT. 29-MONDAY Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
- OCT. 1-WEDNESDAY Instruction begins (8 a.m.) for all other students
- OCT. 7-TUESDAY Last day to add a course
- OCT. 14-TUESDAY Last day for filing applications for master's degree for Autumn Quarter
- NOV. 11-TUESDAY State Admission Day holiday
- NOV. 26-DEC. 1 Thanksgiving recess (6 p.m. to 8 a.m.)
- DEC. 19-FRIDAY Instruction ends (6 p.m.)

WINTER QUARTER, 1959

REGISTRATION PERIOD

- NOV. 20-DEC. 12 Registration for students in residence Autumn Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning October 23.*)
- DEC. 29-DEC. 31 Registration for former students not in residence Autumn Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 23.*)
- DEC. 29-DEC. 31 Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

- JAN. 5-MONDAY Instruction begins
- JAN. 9-FRIDAY Last day to add a course

JAN. 16—FRIDAY	Last day for filing applications for master's degree for Winter Quarter
FEB. 23—MONDAY	Washington's Birthday and Founder's Day holiday
MAR. 20—FRIDAY	Instruction ends

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24—MAR. 13	Registration for students in residence Winter Quarter, 1959. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 23.</i>)
MAR. 25—MAR. 27	Registration for former students not in residence Winter Quarter, 1959. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.</i>)
MAR. 25—MAR. 27	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

MAR. 30—MONDAY	Instruction begins
APR. 3—FRIDAY	Last day to add a course
APR. 10—FRIDAY	Last day for filing applications for master's degree for Spring Quarter
MAY 22—FRIDAY	Governor's Day
MAY 30—SATURDAY	Memorial Day holiday
JUNE 7—SUNDAY	Baccalaureate Sunday
JUNE 12—FRIDAY	Instruction ends
JUNE 13—SATURDAY	Commencement

SUMMER QUARTER, 1959

REGISTRATION PERIOD

JUNE 3—JUNE 5	Registration for all students. (<i>Registration appointments for students in residence Spring Quarter, 1959, and for former students not in residence Spring Quarter, 1959, may be obtained from the Registrar's Office beginning April 20. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 15—JUNE 19	

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 for filing applications for the master's degree for Summer Quarter
JULY 4—SATURDAY	Independence Day holiday
JULY 22—WEDNESDAY	First term ends
JULY 23—THURSDAY	Second term begins
JULY 24—FRIDAY	Last day to add a course for the second term
AUG. 21—FRIDAY	Instruction ends

ADMINISTRATION

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HAROLD S. SHEFELMAN, <i>Vice-President</i>	Seattle
MRS. J. HERBERT GARDNER	La Conner
CHARLES M. HARRIS	Entiat
JOHN L. KING	Seattle
WINLOCK W. MILLER	Seattle
LLOYD L. WIEHL	Yakima
HELEN HOAGLAND, <i>Secretary</i>	

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HAROLD P. EVEREST, M. A.	<i>Vice-President of the University</i>
ETHELYN TONER, B.A.	<i>Registrar</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and Business Manager</i>
DONALD K. ANDERSON, B.A.	<i>Dean of Students</i>
HENRY A. BURD, Ph.D., L.L.D., (Hon.)	<i>Acting Dean of the Graduate School</i>
HENRIETTA WILSON, M.A.	<i>Assistant to the Dean</i>

RESEARCH COMMITTEE OF THE GRADUATE SCHOOL

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HENRY A. BURD, <i>Chairman</i>	EDWIN G. KREBS, <i>Biochemistry</i>
RICHARD J. BLANDAU, <i>Anatomy</i>	DONALD F. McDONALD, <i>Surgery</i>
HOWARD C. DOUGLAS, <i>Microbiology</i>	BASTIAN J. D. MEEUSE, <i>Botany</i>
W. THOMAS EDMONDSON, <i>Zoology</i>	FREDERIC C. MOLL, <i>Pediatrics</i>
WADE VOLWILER, <i>Medicine</i>	T. C. RUCH, <i>Physiology and Biophysics</i>
WILLIAM T. SIMPSON, <i>Chemistry</i>	

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HENRY A. BURD, <i>Chairman</i>	GEORGE A. LUNDBERG, <i>Sociology</i>
SYDNEY S. CULBERT, <i>Psychology</i>	ARNOLD STEIN, <i>English</i>
BOYER GONZALES, <i>Art</i>	BAYARD O. WHEELER, <i>General Business</i>

EXECUTIVE COMMITTEE OF THE GRADUATE SCHOOL

HENRY A. BURD, <i>Chairman</i>	KERMIT O. HANSON, <i>Accounting, Finance, and Statistics</i>
CARROLL E. REED, <i>Germanics</i>	JOSEPH L. MCCARTHY, <i>Chemical Engineering</i>
KATHLEEN MUNRO, <i>Music</i>	HANS NEURATH, <i>Biochemistry</i>
JOHN H. MANLEY, <i>Physics</i>	ELMER M. PLEIN, <i>Pharmacy</i>
VERNON A. MUND, <i>Economics</i>	

GRADUATE FACULTY COUNCIL AND GROUP OPERATING COMMITTEES

(The combined membership of the eight Group Operating Committees comprises the Graduate Faculty Council—Henry A. Burd, *Chairman*.)

GROUP 1.

Robert B. Heilman, John B. McDiarmid, Carroll E. Reed (*Chairman*), Brents Stirling, and Curtis C. D. Vail.

GROUP 2.

James Carrell, Stanley Chapple, John A. Conway, Boyer Gonzales, and Kathleen Munro (*Chairman*).

GROUP 3.

Ronald Geballe, Edwin Hewitt, E. C. Lingafelter, John H. Manley (Chairman), and Herschel L. Roman.

GROUP 4.

J. Richard Huber, Vernon A. Mund (Chairman), Melvin Rader, Edward L. Ullman, and James B. Watson.

GROUP 5.

Theodore J. Barnowe, Newel W. Comish, Kermit O. Hanson (Chairman), Alice H. Hayden, and Dwight E. Robinson.

GROUP 6.

W. Ryland Hill, Harvey D. Erickson, Joseph L. McCarthy (Chairman), Robert E. Street, and Robert O. Sylvester.

GROUP 7.

H. Stanley Bennett, Howard C. Douglas, Charles A. Evans, Hans Neurath (Chairman), and Richard P. Schmidt.

GROUP 8.

Marion R. Broer, Katherine Hoffman, Norman F. Kunde, Alton W. Moore, and Elmer M. Plein (Chairman).

GRADUATE FACULTY

(As of May 25, 1957)

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, *Assistant 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

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), *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, Donald Lorraine, 1947 (1957), *Associate Professor of Mining Engineering*

B.S. in Min.E., 1938, St. Francis Xavier (Nova Scotia); M.S. in Min.E., 1941, Illinois

Anderson, Frederick Neil, 1945 (1955), *Assistant Professor of Art*

B.A., 1943, Washington; M.F.A., 1954, Minnesota

Anderson, Julia M., 1950, *Assistant Professor of Nursing*

B.S., 1931, Minnesota; R.N., 1936, Huntington Memorial School of Nursing, California; C.P.H.N., 1938, M.N., 1942, Washington

Arestad, Sverre, 1937 (1948), *Associate 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, *Instructor 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
- Badgley, Franklin Ilsley, 1950 (1951), *Assistant Professor of Meteorology and Climatology*
B.S., 1935, Chicago; M.S., 1948, Ph.D., 1951, New York
- 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
- Bary, David, 1955, *Instructor in Spanish*
B.A., 1948, M.A., 1950, Ph.D., 1956, California
- 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, *Assistant Professor of Music*
B.A., 1945, Harvard; B.Mus., 1946, M.Mus., 1947, Yale
- Beaumont, Ross Allen, 1940 (1954), *Professor of Mathematics*
A.B., 1936, M.S., 1937, Michigan; Ph.D., 1940, Illinois
- Belcher, Helen Camp, 1952, *Assistant Professor of Nursing; Assistant Director of the Basic Nursing Research Program*
A.B., 1942, Mount Holyoke College; R.N., 1944, Massachusetts General Hospital School of Nursing; M.N., 1952, Washington
- Bell, Frederick Heward, 1931, *Lecturer in Fisheries*
B.A., 1924, British Columbia
- Bennett, H. Stanley, 1948, *Professor of Anatomy; Executive Officer of the Department of Anatomy*
A.B., 1932, Oberlin; M.D., 1936, Harvard
- 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
- Blumenthal, Robert McCallum, 1956 (1957), *Assistant Professor of Mathematics*
B.A., 1952, Oberlin; Ph.D., 1956, Cornell
- Bodansky, David, 1954, *Assistant Professor of Physics*
B.S., 1943, M.A., 1948, Ph.D., 1950, Harvard
- 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*
B.A., 1931, North Central College; M.A., 1935, Wisconsin; Ph.D., 1937, Northwestern
- Bonifas, Paul Ami, 1946 (1947), *Associate Professor of Art*
- Boroughs, 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 (1947), *Associate Professor of English*
B.A., 1935, Franklin and Marshall; M.A., 1937, Ph.D., 1938, Princeton
- Bowerman, Charles Emert, 1946 (1956), *Associate Professor of Sociology*
A.B., 1935, Denison; M.A., 1941, Ph.D., 1948, Chicago
- 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; Executive Officer of the Department of Policy, Personnel Relations, and Production*
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 (1952), *Assistant Professor of Forestry*
B.S.F., 1947, M.S.F., 1948, Washington; D.F., 1951, Yale
- Buck, George Crawford, 1950 (1954), *Lecturer in German*
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
- 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
- Butler, John Ben, Jr., 1956, *Assistant Professor of Mathematics*
B.A., 1945, Swarthmore College; M.S., 1947, New York; Ph.D., 1954, California
- Butterbaugh, Grant Illion, 1939 (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;*
Assistant Director of the Institute of Labor Economics
A.B., 1940, M.A., 1942, Ph.D., 1950, Stanford
- Casey, Michael B., 1956, *Acting Assistant Professor of Social Work*
B.A., 1948, Minnesota; M.A., 1951, Chicago
- Chang, Chung-Li, 1954 (1956), *Assistant Professor of Economics*
B.A., 1941, St. John's University (Shanghai); M.A., 1948, Ph.D., 1953, 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 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
- Clark, Kenneth Courtright, 1948 (1955), *Associate Professor of Physics*
B.A., 1940, Texas; A.M., 1941, Ph.D., 1947, 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, Executive*
Officer of the Department 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
- 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
- Creore, Alvin Emerson, 1940 (1953), *Associate Professor of Romance Languages and Literature*
A.B., 1934, M.A., 1936, Rochester; Ph.D., 1939, Johns Hopkins
- Crider, 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
- Dandliker, Walter Beach, 1951 (1955), *Associate Professor of Biochemistry*
B.S., 1940, Rollins College; Ph.D., 1945, California Institute of Technology
- 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 (1951), *Assistant 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 (1951), *Associate Professor of Fisheries*
B.S., 1932, M.S., 1933, Ph.D., 1941, Washington
- Del Giudice, Frank, 1948, *Lecturer in Art*
Pratt Institute
- Demmery, Joseph, 1928 (1934), *Professor of General Business; Executive Officer of the Department 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, *Assistant Professor of Aeronautical Engineering*
A.A., 1951, Grant Technical Junior College; B.S. in C.E., 1954, M.S. in C.E., 1955, Ph.D., 1956, California
- 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 Applied Fisheries Laboratory*
A.B., 1926, Intermountain Union College (Montana); M.S., 1931, Ph.D., 1939, Washington
- Dorfman, Eugene, 1955, *Assistant Professor of Romance Linguistics*
A.B., 1928, New Jersey State Teachers College; A.M., 1947, Ph.D., 1950, Columbia
- Douglas, Howard Clark, 1941 (1950), *Associate 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, *Assistant Professor of Communications*
A.B., 1946, San Francisco State College; M.A., 1948, Stanford
- 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

- Ely, Betty Jane, 1952 (1954), *Assistant Professor of Nursing*
R.N., 1945, Presbyterian Hospital School of Nursing (Pennsylvania); B.S., 1951, Virginia;
M.N., 1953, 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., 1928, A.M., 1929, Iowa
- Engle, Nathanael Howard, 1941, *Professor of Marketing; Director of the Bureau of Business Research*
A.B., 1925, A.M., 1926, Washington; Ph.D., 1929, Michigan
- Erickson, Harvey D., 1947, *Associate 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 (1955), *Associate 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*
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*
B.S., 1937, M.S., 1938, North Texas State; Ph.D., 1942, Michigan
- Fairhall, Arthur William, 1954, *Assistant 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 (1955), *Associate Professor of Physics*
S.B., 1941, Harvard; Ph.D., 1948, Chicago
- Fea, Henry Robert, 1954 (1955), *Assistant Professor of Education*
B.A., 1942, B.Ed., 1947, M.Ed., 1948, Saskatchewan; Ph.D., 1950, California
- Ferguson, Grace Beals, 1941 (1945), *Professor of Social Work*
B.A., 1917, Minnesota; M.A., 1930, Indiana
- Fernald, Robert Leslie, 1946 (1947), *Assistant Professor of Zoology*
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., 1950, University of Graz (Austria)
- Foltz, Eldon Leroy, 1950 (1953), *Assistant 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 (1953), *Assistant 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
- Frantzke, Albert Leonard, 1936 (1939), *Associate Professor of Speech*
B.A., 1916, M.A., 1923, Lawrence College (Wisconsin)
- Frederickson, Evan L., 1956, *Assistant Professor of Surgery; Assistant Professor of Pharmacology*
B.S., 1947, M.D., 1950, Wisconsin
- Frolander, Herbert Farley, 1952 (1957), *Assistant Professor of Oceanography*
Ed.B., 1946, Rhode Island College of Education; Sc.M., 1950, Ph.D., 1955, Brown
- Fuller, Steven D., 1946 (1955), *Assistant Professor of Art*
B.A., 1939, M.F.A., 1948, Washington
- Gallagher, Marian Gould, 1944 (1953), *Professor of Law; Law Librarian*
B.A., 1935, LL.B., 1937, B.A. in L.S., 1939, 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, LL.B., 1931, Washington; Ph.D., 1939, Columbia
- Garrison, William Louis, 1950 (1957), *Associate 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., 1926, Yale; M.A., 1928, Harvard; Ph.D., 1934, Minnesota
- Geballe, Ronald, 1943 (1954), *Associate Professor of Physics; Acting Executive Officer of the Department of Physics*
B.S., 1938, M.A., 1940, Ph.D., 1943, California
- Gessel, Stanley Paul, 1948 (1951), *Assistant 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.F.A. in Architecture, 1931, Virginia; Art Students League, 1935 (New York)
- Goodrich, Forest Jackson, 1914 (1934), *Professor of Pharmacognosy; Acting Chairman of the Department 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
- 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 (1951), *Assistant Professor of English*
A.B., 1928, M.A., 1931, Oregon
- Gray, Florence Irene, 1945 (1952), *Assistant Professor of Nursing*
R.N., B.S., 1945, M.S., 1950, Washington

- Gray, Robert Simpson, 1939 (1951), *Assistant 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
- 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 (1953), *Assistant Professor of Microbiology*
S.B., 1947, Ph.D., 1950, Chicago
- 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
- 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
- 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
- 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 (1954), *Associate 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, *Assistant Professor of English*
B.A., 1945, Manitoba; M.A., 1948, Ph.D., 1952, Toronto
- Hanahan, Donald James, 1948 (1953), *Associate 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*
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
- 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 State; 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
- Hayne, Donald Francis, 1950 (1955), *Associate Professor of Insurance*
B.B.A., 1949, M.B.A., 1950, Wisconsin
- Hayner, Norman Sylvester, 1925 (1937), *Professor of Sociology*
A.B., 1920, Washington; M.A., 1921, Ph.D., 1923, Chicago
- Heathers, Louise Bussard, 1945, *Assistant Professor of Psychology; Senior Clinical Psychologist in the Counseling Center*
B.A., 1933, Washington; Ph.D., 1940, Yale
- Heilman, Robert Bechtold, 1948, *Professor of English; Executive Officer of the Department of English*
A.B., 1927, Lafayette; M.A., 1930, Ohio; M.A., 1931, P.D., 1935, Harvard
- Heinitz, 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., 1952, 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
- Hennessey, John W., Jr., 1950 (1956), *Associate Professor of Human Relations and Policy and Administration*
A.B., 1948, Princeton; M.B.A., 1950, Harvard; D.B.A., 1956, Washington
- 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 (1939), *Assistant Professor of Physics*
B.S., 1919, Washington
- Hilen, Andrew Reuben, Jr., 1945 (1954), *Associate 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*
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 (1955), *Assistant 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 (1954), *Associate 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
- 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; Executive Officer of the Department of Correspondence Study*
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
- Hosmer, Margaret George, 1948 (1954), *Lecturer in Home Economics*
B.S., 1918, North Carolina
- Howery, Victor I., 1952 (1953), *Professor of Social Work; Director of the Graduate School of Social Work*
B.S., 1936, Wisconsin State; Ph.M., 1946, M.S.W., 1948, Ph.D., 1949, Wisconsin
- Hsiao, Kung-chuan, 1951, *Visiting Professor of Far Eastern and Slavic Languages and Literature*
B.A., 1922, M.A., 1923, Missouri; Ph.D., 1926, Cornell
- 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
- Hughes, Glenn Arthur, 1919 (1942), *Professor of Drama; Director of the School of Drama*
B.A., 1916, Stanford; M.A., 1920, Washington
- Hulse, Frederick Seymour, 1948 (1949), *Associate Professor of Anthropology*
A.B., 1927, M.A., 1928, Ph.D., 1934, Harvard
- Hunt, Marguerite, 1949 (1950), *Associate Professor of Social Work*
A.B., 1929, Brown; M.S., 1936, Western Reserve
- Illg, Paul Louis, 1952 (1954), *Associate Professor of Zoology*
A.B., 1936, M.A., 1941, California; Ph.D., 1952, George Washington

- Ingle, John Ide, 1948 (1951), *Associate Professor of Periodontology and Endodontia; Acting Executive Officer of the Department of Periodontology*
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
- 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., 1922, City College of New York; A.M., 1923, Ph.D., 1931, Columbia
- Jacobsohn, Boris Abbott, 1948 (1955), *Associate 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, Daleroze School (Geneva)
- Jansen, Marius Berthus, 1950 (1955), *Associate Professor of Japanese History*
A.B., 1943, Princeton; M.A., 1948, Ph.D., 1950, Harvard
- Jensen, Lyle Howard, 1949 (1957), *Associate Professor of Anatomy*
B.A., 1939, Walla Walla College; Ph.D., 1944, 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 (1945), *Associate 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 (1955), *Associate Professor of Home Economics; Acting 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, Robert Joseph, 1946 (1957), *Professor of Anatomy; Professor of Surgery (Surgical Anatomy)*
B.S., 1937, Iowa State Teachers College; M.D., 1943, Iowa
- Johnson, Walter G., 1948 (1956), *Professor of Scandinavian Languages*
B.A., 1927, Augsburg College; M.A., 1929, Minnesota; Ph.D., 1935, Illinois
- 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
- Kast, Fremont E., 1951 (1956), *Associate Professor of Production; Assistant Director of the Bureau of Business Research*
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
- Kaufman, Helen Andrews, 1930 (1954), *Associate Professor of English*
A.B., 1909, Wilson College; M.A., 1911, Indiana; Ph.D., 1934, Washington
- Keller, Abraham Charles, 1948 (1952), *Associate Professor of Romance Languages and Literature*
B.S., B.A., 1936, M.A., 1937, Ohio State; Ph.D., 1946, California

- Kenworthy, Ray W., 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
- Kingston, John Maurice, 1940 (1946), *Assistant Professor of Mathematics*
B.A., 1935, Western Ontario; M.A., 1936, Ph.D., 1939, Toronto
- Kinney, Carolyn Elizabeth, 1950, *Assistant Professor of Nursing*
R.N., 1935, University of Colorado School of Nursing; B.S., 1939, C.P.H.N., 1939, California; M.A., 1949, Columbia
- Kinsella, Hazel Gertrude, 1942 (1947), *Professor of Music*
B.Mus., 1916, B.F.A., 1928, A.B., 1931, Nebraska; M.A., 1934, Columbia;
Ph.D., 1941, Washington; D.Mus. (Hon.), 1953, Nebraska
- Klee, Victor L., Jr., 1953 (1957), *Professor of Mathematics*
B.A., 1945, Pomona College; Ph.D., 1949, Virginia
- Kolde, Endel Jakob, 1951 (1956), *Associate Professor of Marketing and Foreign Trade*
B.S., 1949, Estonia State 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
- 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
- Lampman, Robert James, 1948 (1953), *Associate Professor of Economics*
B.A., 1942, Ph.D., 1950, Wisconsin
- Larsen, Otto Nyholm, 1949 (1956), *Assistant 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*
B.A., 1940, Middlebury College; B.A., 1941, Ph.D., 1949, Ohio State
- Leipnik, Roy Bergh, 1950, *Assistant Professor of Mathematics*
S.B., 1945, S.M., 1948, Chicago; Ph.D., 1950, California
- 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 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
- 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; Executive Officer of the Department 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
- Lucas, Henry Stephen, 1921 (1934), *Professor of History*
A.B., 1913, Olivet College; A.M., 1915, Indiana; Ph.D., 1921, Michigan
- Lucas, Pauline, 1953 (1954), *Assistant Professor of Nursing*
R.N., 1937, Newark Beth Israel Hospital School of Nursing; B.S., 1952, M.N., 1954, Washington
- Lundberg, George Andrew, 1945, *Professor of Sociology*
B.A., 1920, North Dakota; M.A., 1923, Wisconsin; Ph.D., 1925, Minnesota
- Lynch, James Eric, 1931 (1943), *Professor of Fisheries*
B.A., 1917, M.A., 1921, Nebraska; Ph.D., 1929, California
- Lytle, Scott Harrison, 1949 (1957), *Associate Professor of History*
A.B., 1940, Princeton; Ph.D., 1948, Cornell
- 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, Donald 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, *Assistant Professor of Geology*
A.B., 1946, 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)
- Manley, John Henry, 1951, *Professor of Physics*
B.S., 1929, Illinois; Ph.D., 1934, Michigan
- 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
- 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. (Hon.), 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*
B.A., 1937, M.A., 1944, Washington; Ph.D., 1950, Northwestern

- Mason, Alden C., 1946 (1957), *Associate Professor of Art*
B.A., 1942, M.F.A., 1947, Washington
- Matchett, William, 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*
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
- McDonald, Donald Fiedler, 1949 (1954), *Associate Professor of Surgery; Head of the Division of Urology*
M.D., 1942, Chicago
- 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
- McKenzie, Vernon, 1928, *Professor of Communications*
B.A., 1909, Toronto; M.A., 1914, Harvard
- McKinnon, Richard Nichols, 1951 (1957), *Associate Professor of Far Eastern and Slavic Languages 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*
B.A., 1936, Ohio; M.D., 1940, Yale; Ph.D., 1946, Minnesota
- 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 (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 Far Eastern and Slavic Languages and Literature*
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, Delbert Charles, 1947, *Associate Professor of Sociology*
B.S., 1934, M.A., 1937, Miami (Ohio); Ph.D., 1940, Minnesota
- 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, 1941 (1956), *Associate Professor of Sociology*
B.A., 1936, M.A., 1938, Washington; Ph.D., 1950, Chicago
- Moore, Alton Wallace, 1948 (1951), *Professor of Orthodontics; Director of Graduate Dental Education; 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 (1950), *Assistant 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
- Moseley, Spencer Altemont, 1948 (1954), *Assistant Professor of Art*
B.A., 1948, M.F.A., 1951, Washington
- Moulton, Ralph Wells, 1941 (1953), *Professor of Chemical Engineering; Executive Officer of the Department of Chemical Engineering*
B.S. in Ch.E., 1932, M.S., 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. in Ceramics, 1952; Ph.D., 1953, Rutgers
- 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
- Murphy, Arthur Edward, 1953, *Professor of Philosophy; Executive Officer of the Department of Philosophy*
A.B., 1923, Ph.D., 1925, California
- Neddermeyer, Seth Henry, 1946 (1952), *Professor of Physics*
A.B., 1929, Stanford; Ph.D., 1935, California Institute of Technology
- Nelson, Lois Elaine, 1956, *Assistant Professor of Home Economics*
B.S., 1948, North Dakota Agricultural College; M.S., 1950, Cornell
- 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

- Nijenhuis, Albert, 1956, *Assistant 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
- 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, *Associate 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)
- Nyhus, Lloyd M., 1952 (1956), *Assistant Professor of Surgery*
B.A., 1945, Pacific Lutheran; M.D., 1947, Alabama
- Ogilvie, Alfred Livingston, 1951 (1957), *Associate Professor of Periodontology*
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
- Osborne, H. Douglas, 1950 (1952), *Assistant Professor of Anthropology; Curator of the Washington State Museum*
B.A., 1938, M.A., 1941, New Mexico; Ph.D., 1951, California
- 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
- Parks, Doris Hazel, 1947, *Instructor in Home Economics*
B.S., 1940, Illinois; M.B.A., 1948, Northwestern; C.P.A., 1947, State of Illinois
- Parsons, Jack R., 1955 (1957), *Associate Professor of Social Work*
B.A., 1935, M.A., 1940, College of the Pacific; M.S., 1943, Columbia
- Pascal, Paul, 1953 (1956), *Assistant Professor of Classics*
B.A., 1948, Vermont; Ph.D., 1953, North Carolina
- Patterson, Viola Hansen, 1947 (1955), *Assistant 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
- Peek, 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, Marion Elizabeth, 1951 (1953), *Assistant Professor of Librarianship*
B.A., 1930, B.A. in Librarianship, 1941, Washington
- Phillips, William Louis, 1949 (1952), *Assistant Professor of English*
B.A., 1942, Iowa State Teachers College; M.A., 1947, Ph.D., 1949, Chicago
- Pierce, Richard Scott, 1955, *Assistant 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
- Plein, Elmer Michael, 1938 (1951), *Professor of Pharmacy*
PhC., B.S., 1929; M.S., 1931, Ph.D., 1936, Colorado
- Polonis, Douglas Hugh, 1955, *Assistant Professor of Metallurgical Engineering*
B.S., 1951, British Columbia; M.S., 1953, Toronto; Ph.D., 1955, British Columbia
- Poppe, Nicholas Nikolaevich, 1949, *Professor of Far Eastern and Slavic Languages and Literature*
Master, 1923, Petrograd (Russia); Ph.D., 1934, Petersburg (Russia)
- Posch, Udo, 1955, *Visiting Assistant Professor of Far Eastern and Slavic Languages and Literature*
Ph.D., 1949, Vienna (Austria)
- 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
- Rand, Theodore L., 1954, *Lecturer in Art*
- 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, *Visiting Associate Professor of Anthropology*
M.A., 1946, Sydney (Australia); Ph.D., 1948, London (England)
- Read, William Merritt, 1927 (1945), *Professor of Classics; Director of University Press*
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 Agricultural College; M.A., 1940, Iowa
- Reed, Carroll Edward, 1946 (1952), *Associate Professor of Germanic Languages*
B.A., 1936, M.A., 1937, Washington; Ph.D. 1941, Brown
- Reed, Richard John, 1954, *Assistant Professor of Meteorology*
B.S., 1945, California Institute of Technology; Sc.D., 1949, Massachusetts Institute of Technology

- Reed, Truman Gervais, 1951 (1955), *Lecturer in Art; Assistant Director, Henry Art Gallery*
B.A., 1949, Yale
- Reeves, George Spencer, 1935 (1948), *Associate Professor of Physical Education*
B.S., 1933, Oregon State; M.S., 1937, Oregon; M.P.H., 1952, California
- Reifler, Erwin, 1947 (1955), *Professor of Far Eastern and Slavic Languages and Literature*
Dr.Rer.Pol., 1931, Vienna (Austria)
- Reiss, Grace Dewey, 1947 (1954), *Assistant Professor of Social Work*
B.A., 1932, Iowa; M.A., 1940, Minnesota
- Rey, William Henry, 1950 (1955), *Associate Professor of Germanic Literature*
Ph.D., 1937, Frankfurt (Germany)
- Richards, Gale Lee, 1952, *Assistant Professor of Speech*
B.A., 1940, Akron; M.A., 1942, Ph.D., 1950, Iowa
- Richardson, Frank, 1956, *Assistant Professor of Zoology*
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, *Instructor 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
- 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 (1956), *Associate Professor of Chemistry*
S.B., 1933, Ph.D., 1937, Chicago
- Roberts, Earl Champion, 1954, *Associate Professor of Metallurgical Engineering*
B.S. in Met.E., 1943, Montana School of Mines; M.S., 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
- Roethke, Theodore Huebener, 1947 (1948), *Professor of English*
A.B., 1929, A.M., 1936, Michigan
- Rogers, Millard Buxton, 1952, *Lecturer in Art*
B.F.A., 1937, M.F.A., 1940, Art Institute of Chicago; M.A., 1940, Chicago
- 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 (1955), *Associate 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
- Rosinbum, Ralph Rambo, 1948 (1953), *Assistant Professor of Music*
B.A., 1947, M.A., 1948, Washington
- 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

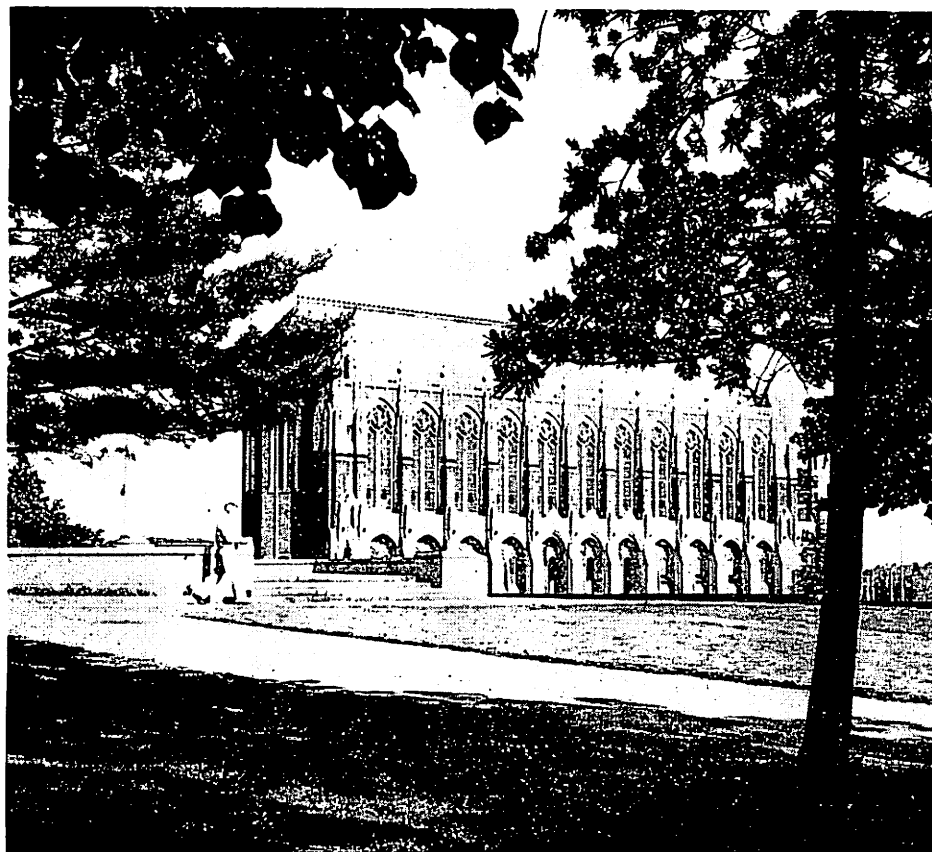
- Sanderman, Llewellyn Arthur, 1928 (1952), *Associate Professor of Physics*
B.S., 1923, Linfield College; M.S., 1931, Ph.D., 1943, Washington
- Sarason, Irwin Gerald, 1956, *Assistant Professor of Psychology*
B.A., 1951, Rutgers; M.A., 1953, Iowa; Ph.D., 1955, Indiana
- Sauerlander, Annemarie, 1947 (1949), *Associate Professor of Germanic Literature*
B.A., 1928, M.A., 1930, Buffalo; Ph.D., 1936, Cornell
- Savelle, Max, 1947, *Professor of History*
A.B., 1924, M.A., 1926, Ph.D., 1932, Columbia
- 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
- 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
- Schmidt, Richard P., 1953 (1956), *Assistant Professor of Surgery and Medicine*
B.S., 1943, Kent State; M.D., 1945, Louisville
- Schrag, Clarence Clyde, 1944 (1949), *Assistant 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 (1954), *Associate 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
- 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 Far Eastern and Slavic Languages and Literature*
B.A., 1925, Fukien Christian (China); M.A., 1930, Yenching (China); Ph.D., 1939, Southern California
- 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
- 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*
B.S., 1922, Washington; M.S., 1924, West Virginia; Ph.D., 1926, McGill
- Skahen, Julia Goodsell, 1946, *Assistant Professor of Anatomy and Physiology*
B.S., 1926, M.S., 1928, Washington; Ph.D., 1940, Chicago
- Smith, Charles Wallace, 1948 (1956), *Assistant 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 Communications; Director of the School of Communications*
B.A., 1929, Yale; M.A., 1936, Ph.D., 1946, Wisconsin
- Smith, Moncrieff Hynson, Jr., 1949 (1953), *Associate Professor of Psychology*
A.B., 1940, M.A., 1941, Missouri; Ph.D., 1947, Stanford
- Smullyan, Arthur Francis, 1946 (1956), *Professor 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
- Sommerfeld, Franz René, 1947 (1952), *Acting Assistant Professor of Germanic Literature*
A.B., 1944, California; M.A., 1946, Columbia
- Spector, Ivar, 1931 (1943), *Associate Professor of Far Eastern and Slavic Languages and Literature*
M.A., 1926, Northwestern; Ph.D., 1928, Chicago
- Stadler, David R., 1956 (1957), *Assistant Professor of Botany*
A.B., 1948, Missouri; M.A., 1950, Ph.D., 1952, Princeton
- 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
- Stern, Joseph A., 1953, *Assistant Professor of Fisheries*
S.B., 1949, S.M., 1950, Ph.D., 1953, Massachusetts Institute of Technology
- Stevens, Leonard Woodbury, 1937 (1948), *Assistant Professor of Physical Education*
B.S., 1933, M.S., 1941, Washington
- 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
- 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., 1941, 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
- Stuntz, Daniel Elliot, 1940 (1950), *Associate Professor of Botany*
B.S., 1935, Washington; Ph.D., 1940, Yale
- Sutermeister, Robert A., 1949 (1952), *Professor of Personnel and Human Relations*
A.B., 1934, Harvard; M.A., 1942, Washington
- Svihla, Arthur, 1938 (1943), *Professor of Zoology*
A.B., 1925, Illinois; M.S., 1928, Ph.D., 1931, Michigan
- Sylvester, Robert Ohrum, 1947 (1957), *Professor of Sanitary Engineering*
B.S. in C.E., 1936, Washington; S.M., 1941, Harvard
- Takano, William Shigeru, 1950, *Instructor in Orthodontics*
D.D.S., 1949, Marquette; M.S., 1950, Washington
- Tate, Robert F., 1953 (1955), *Assistant Professor of Mathematics*
A.B., 1944, California; M.A., 1949, North Carolina; Ph.D., 1952, California
- Tatsumi, Henry Saburo, 1935 (1946), *Associate Professor of Japanese Language*
B.A., 1932, M.A., 1935, Washington
- 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; Director of the University Food Service*
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, *Assistant Professor of Forest Products*
B.S.F., 1941, M.F., 1948, Washington
- Thompson, Thomas Gordon, 1919 (1929), *Professor of Oceanography*
A.B., 1914, Clark; M.S., 1915, Ph.D., 1918, Washington
- Thompson, William Francis, 1930, *Professor of Fisheries; Director of the Fisheries Research Institute*
B.A., 1911, Ph.D., 1930, Stanford
- Thornburg, Wayne, 1951 (1957), *Assistant Professor of Anatomy*
A.B., 1940, Yankton College; M.S., 1948, Ph.D., 1952, Illinois
- 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 Anatomy and Physiology*
B.A., 1948, Pacific Lutheran; Ph.D., 1953, Washington
- Treadgold, Donald Warren, 1949 (1955), *Associate Professor of Russian History; Associate 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, 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 (1946), *Assistant Professor of Librarianship*
A.B., 1926, Oregon; B.S. in L.S., 1931, Columbia
- 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
- Vail, Curtis C. D., 1939, *Professor of Germanic Languages and Literature; Executive Officer of the Department of Germanic Languages and Literature*
A.B., 1924, Hamilton College; M.A., 1929, Ph.D., 1936, Columbia
- Van Cleve, Richard, 1948, *Professor of Fisheries; Director of the School 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)
- Vaught, Robert L., 1954 (1956), *Assistant Professor of Mathematics*
A.B., 1945, Ph.D., 1954, California
- Verrall, John Weedon, 1948 (1950), *Associate Professor of Music*
B.Mus., 1929, Minneapolis College of Music; Certificate of Music, 1932, Litz 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

- 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
- 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
- Waters, Ellen Harriet, 1946, *Assistant Professor of Physical Education*
B.S., 1927, Washington; M.A., 1940, Columbia
- Watson, James Bennett, 1955, *Professor of Anthropology; Executive Officer of the Department of Anthropology*
A.B., 1941, A.M., 1945, Ph.D., 1948, Chicago
- 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
- Weikel, Raymond Chester, 1948 (1954), *Associate Professor of Aeronautical Engineering*
A.B., 1932, Wabash College; A.M., 1939, Illinois
- Weiner, Seymour S., 1953 (1954), *Assistant 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
- Welander, Arthur Donovan, 1937 (1954), *Associate Professor of Fisheries*
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 (1955), *Assistant Professor of Pharmacology*
B.S., 1948, M.S., 1949, Ph.D., 1952, Washington
- Wheeler, Bayard O., 1948 (1953), *Professor of Real Estate*
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 (1952), *Associate Professor of Zoology*
B.A., 1938, Kalamazoo College; M.A., 1939, Wisconsin; Ph.D., 1945, Princeton
- Wiberg, Kenneth Berle, 1950 (1956), *Associate 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
- Wilhelm, Hellmut, 1948 (1953), *Professor of Far Eastern and Slavic Languages 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 and Slavic Languages and Literature*
A.B., 1922, Ohio Wesleyan; M.A., 1926, Ph.D., 1935, Chicago

- 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, 1927 (1947), *Professor of Romance Languages*
B.A., 1922, Montana; M.A., 1925, Ph.D., 1928, Washington
- Wilson, William Ronald, 1920 (1929), *Professor of Psychology*
B.A., 1917, M.S., 1920, Ph.D., 1925, Washington
- Winther, Sophus Keith, 1925 (1940), *Professor of English*
B.A., 1918, M.A., 1919, Oregon; Ph.D., 1926, Washington
- Wolf, William B., 1954 (1956), *Associate Professor of Production and Personnel*
A.B., 1942, California; M.B.A., 1945, Northwestern; Ph.D., 1954, Chicago
- Wolfe, Myer Richard, 1949 (1954), *Associate 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
- Woof, Harry, 1955, *Assistant 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
- Wybourn, Marjorie Ada, 1948 (1952), *Assistant Professor of Home Economics*
B.S., 1944, Washington; M.A., 1948, Columbia
- 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
- Zahler, Stanley A., 1954 (1957), *Assistant Professor of Microbiology*
A.B., 1948, New York; S.M., 1949, Ph.D., 1952, Chicago
- Zellner, Arnold, 1955, *Assistant 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, 1930 (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



GENERAL INFORMATION

GENERAL INFORMATION

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 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.

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.

SPECIAL FEATURES

WALKER-AMES VISITING PROFESSORSHIPS

A bequest from the estates of Maud Walker Ames and her husband, Edwin Gardner Ames, established in 1936 the Walker-Ames Fund of the University. The income from this fund enables the University to invite a number of distinguished scholars to the faculty each year. Such appointments may be made in any department of the University. Up to the present time, there have been well over one hundred of these visiting scholars.

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.

UNIVERSITY PRESS

The University of Washington Press, the division of scholarly publication, is interested in all contributions to knowledge and in manuscripts of scholarly specialization, criticism, 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.

ADMISSION

Properly 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 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 but above 2.50 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 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 were 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 can accept 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. 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. A student should obtain an additional copy of his official credentials to keep in his possession for advisory purposes.

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.

For admission in Autumn Quarter, complete credentials should be on file by July 15. *The last day for new students to submit applications with complete credentials for admission in Autumn Quarter is August 31.* 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.*

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 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 for as much as 6 credits in graduate courses, in addition to the undergraduate work, but remain in the undergraduate classification until the bachelor's degree is granted. *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.

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.

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 41).

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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

REGISTRATION**APPOINTMENTS**

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 4). Students in residence may obtain appointments at the time announced in the Calendar.

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

Fifteen credits per quarter are 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 of the Graduate School when they register. Students who are employed full time cannot register for more than 5 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.

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 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 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 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.

ASSISTANTSHIPS, FELLOWSHIPS, AND SCHOLARSHIPS

The Graduate School provides for the employment of many graduate students as research and teaching assistants. 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 objectives are clearly defined. An appointment is made only when it is reasonably certain to help the student toward the attainment of his goal. Appointments are ordinarily for one academic year. Succeeding appointments may be made if the student's progress toward the degree is satisfactory and if he is maintaining high scholarship.

Students holding appointments shall be registered during the period of their appointments and are expected to make normal progress toward an advanced degree. Registration shall ordinarily be for 9 credits of research, course, or thesis work.

Students who accept appointments as predoctoral associates, teaching, and research assistants must confine their employment to such appointments. These appointments do not provide for paid vacations or sick leave.

Requests for application forms for teaching and research assistantships should be sent to the Registrar's Office and the completed applications should be returned, on or before March 15, direct to the executive officer of the department to which the student is applying.

PREDOCTORAL ASSOCIATES. Persons appointed as predoctoral associates must hold a master's degree and give evidence of teaching ability. They must be actively studying toward a doctor's degree. Such appointments are on a nine-month basis and may be renewed for not more than three years. Predoctoral associates do not have faculty status.

Compensation is \$1,827 for a nine-month period. Predoctoral associates are exempt from tuition and incidental fees during each full quarter they hold an appointment. The ASUW fee is optional.

TEACHING ASSISTANTS. The services of teaching assistants are limited to the supervision of laboratory sections, supervision and leadership of quiz or discussion sections, work as class assistants, and other comparable services. Teaching assistants are not permitted to do independent teaching but are given some responsibility in the supervision of laboratory or classroom work so that they may be introduced to teaching activities gradually and effectively.

It is expected that teaching assistants will give not less, and departments will require not more, than twenty hours a week for their work. Compensation is \$175 a month. Exemption from tuition and incidental fees is provided during each full quarter of these appointments. The ASUW fee is optional.

RESEARCH ASSISTANTS. Recipients of research appointments engage in systematic research on research projects for which department or faculty members are responsible. Research assistants may not at the same time serve as teaching assistants.

Research assistants are expected to give service to the department not to exceed twenty hours a week. Compensation is \$175 a month. Exemption from tuition and incidental fees is provided during each full quarter of these appointments. The ASUW fee is optional.

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.

Such students may not be employed more than twenty hours a week. Hourly employment does not provide exemption from tuition, incidental fees, or the ASUW fee.

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	\$25.00
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A resident student is one who has been domiciled in Washington or Alaska 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 and Alaska. If they believe they are residents, they may petition the Nonresident Tuition 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.

Advanced Degree Fees, dentistry and surgery

Resident students, per quarter	100.00
Nonresident students, per quarter	165.00
Students working toward advanced degrees in dentistry and surgery (but not in other medical 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)	3.00-5.00
Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00; Spring Quarter, \$3.00.	

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.

Language Examination Fee 1.00

This fee is charged for a foreign language reading examination.

Breakage Ticket Deposit 3.00

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

Grade Sheet Fee .25

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

Transcript Fee .50

One transcript is furnished without charge; the fee is charged for each additional copy. Supplementary transcripts are 25 cents each.

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**

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 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.

Tuition, Incidental, and ASUW Membership Fees

Full-time resident student	\$183.00
Full-time nonresident student	408.00

Athletic Admission Ticket (optional) 3.00-5.00

Accident Insurance (optional) 3.75

Books and Supplies 75.00

Board and Room

Room and meals in Men's Residence Halls 600.00

Room and meals in Women's Residence Halls 540.00-630.00

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.

GRADUATE STUDENT ASSOCIATION

The Graduate Student Association provides an opportunity for graduate students to participate in social and service activities on the campus. Composed of all graduate students, the Association is concerned with their particular interests and problems. Individual and group ideas and suggestions should be referred for action to the Association's Executive Committee.

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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical 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. Housing is available to women in the Women's Residence Halls. For further information write to Manager, Women's Residence Halls, University of Washington, Seattle 5, Washington.

The Office of Student Residences, 23 Administration Building, keeps listings of off-campus rooms, rooms with board, housekeeping rooms, apartments, and houses. These listings must be consulted in person. Married students who have children are eligible to apply to this office for accommodations in Union Bay Village, and Sand Point Homes, the University's family housing projects. Since there is a long waiting list, new students should not rely on the possibility of immediate housing.

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 two dollars 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 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 and Women'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 39).



THE GRADUATE PROGRAMS

THE GRADUATE PROGRAMS

THE GRADUATE SCHOOL offers programs leading to the master's degree through the following schools and colleges: *Arts and Sciences*: anthropology, art, botany, chemistry, classics, communications, drama, economics, English (including general and comparative literature), Far Eastern and Slavic languages and literature, fisheries, 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; *Forestry*; *Librarianship*; *Medicine*: anatomy, biochemistry, microbiology, pharmacology, physiology and biophysics, and surgery; *Nursing*; *Pharmacy*; and *Social Work*. Interdepartmental programs in *Linguistics* and *Urban Planning* are administered by special committees.

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, fisheries, 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*: chemical, civil, and electrical engineering; *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 graduate course credit.

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 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 for 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 department itself determines whether minors or supporting courses are required.

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

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 background of study and preparation is sufficient to justify his undertaking the examina-

tions. 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 ARTS AND SCIENCES

Dean: LLOYD S. WOODBURN, 122 Thomson Hall

ANTHROPOLOGY

Executive Officer: JAMES B. WATSON, 436 Thomson

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.

For minor, see Anthropology, College of Arts and Sciences Bulletin.

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)	Groengro

- 350 Basis of Civilization (3) Staff
- 370 Methods and Problems of Archaeology (5) Greengo
- 371 Analysis of Archaeological Data (5)
(Not offered 1957-58.) Greengo
- 380 Primate and Human Evolution (3) Hulso
- 390 Introduction to Anthropology (5) Staff
- 417 Middle American Civilization (2) Staff
- 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)
(436 not offered 1957-58.) Nash
- 437 Primitive Social and Political Institutions (3) Gearing, Ray, Read
- 441 Culture and Personality (5) Jacobs, Spiro
- 442 Socialization of the Child in Primitive Cultures (3)
(Not offered 1957-58.) Hulso
- 450J Introduction to General Linguistics (5) Jacobs, Reed
Offered jointly with the Department of Germanic Languages and Literature.
- 451 American Indian Languages (3) Jacobs
- 460 History of Anthropological Theory (3) Staff
- 480 Physical Anthropology: Anatomy (3) Hulso
- 481 Physical Anthropology: Anthropometry (3) Hulso
- 482 Physical Anthropology: Genetics (3) Hulso
- 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
(Not offered 1957-58.)
- 510 Seminar in Areal Ethnology (3, maximum 9) Staff
- 511 Cultural Problems of the Northwest Coast (3, maximum 6)
(Not offered 1957-58.) Garfield
- 519J Seminar on Asia (3) Posch, Wilhelm, Staff
The large cultural regions of the continent are studied in succession with special reference to anthropological problems. Offered jointly with the Far Eastern and Russian Institute.
- 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. (Not offered 1957-58.)
- 522 Cultural Problems of Western America (3) Ray
- 523 Colloquium on Arid America (5) Ray
- 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
- 527 Acculturation (3) Watson
Systematic analysis of psychological, social, and cultural implications of the contact of erstwhile alien peoples.
- 531 Analysis of Oral Literature (3, maximum 6) Garfield
- 541 Seminar in Psychological Aspects of Culture (3)
(Not offered 1957-58.) Jacobs, Spiro
- 542 Personality Patterns in Japanese Culture (3) Hulso
- 551 Field Techniques in Linguistics (3) Jacobs
(Not offered 1957-58.)
- 553J Analysis of Linguistic Structures (3) Jacobs, Li
Offered jointly with the Far Eastern and Russian Institute.
- 560 Seminar in the History of Anthropology (3) Staff

561 Seminar in Methods and Theories (3)	Ray
570 Seminar in Archaeology (3) (Not offered 1957-58.)	Greengo
580 Anthropology in Contemporary Problems (3)	Gunther
581 Anthropological Migration and Population Study (3) (Not offered 1957-58.)	Hulse
582 Seminar in Race and Genetics (3)	Hulse
600 Research (*)	Staff
Thesis (*)	Staff

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 36), 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)	Brazeau
310, 311, 312 Interior Design (5,5,5)	Footo
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
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 1958-59.)	Rogers
383	Art of China (3) (Offered alternate years; offered 1958-59.)	Rogers
384	Art of Japan and Korea (3) (Offered alternate years; offered 1958-59.)	Rogers
386	The Art of the Ancient Near East (3) (Offered alternate years; offered 1957-58.)	Rogers
387	Islamic Art (3) (Offered alternate years; offered 1957-58.)	Rogers
388	Medieval Art (3) (Offered alternate years; offered 1957-58.)	Rogers
390	Oriental Ceramic Art (2)	Rogers
391	Origins of Modern Art (2)	Rogers
392	Art Since Cozanne (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)	Foote
479, 480, 481	Fashion Illustration (2,2,2)	Rand
485, 486, 487	Advanced Ceramic Art (5,5,5)	Bonifas
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, 503, 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)	Bonifas
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
	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

401	Cytology (3)	Hsu
401L	Cytology Laboratory (2) Must be accompanied by 401.	Hsu
451	Genetics (3 or 5)	Roman

- 452 Cytogenetics (3 or 5)** Roman
- 453 Topics in Genetics (2, maximum 6)** Roman, Stadler
- 454 Evolutionary Mechanisms (3)** Kruckeberg
(Offered alternate years; offered 1957-58.)
- 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
(Offered alternate years; offered 1957-58.)
- 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)** 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

- 331 Ornamental Plants (3)** Kruckeberg
- 332 Taxonomy Field Trip (*, maximum 12)** Staff
(Offered alternate Summer Quarters; offered 1959.)
- 361 Forest Pathology (5)** Stuntz, Walker
- 371 Elementary Plant Physiology (5)** Meeuse
- 431, 432 Taxonomy (5,5)** Hitchcock
(Offered alternate years; offered 1957-58.)
- 441, 442, 443 Morphology (5,5,5)** Blaser
(Offered alternate years; offered 1958-59.)
- 444 Plant Anatomy (5)** Blaser
(Offered alternate years; offered 1957-58.)
- 445 Algology (6)** Staff
(Offered at Friday Harbor Summer Quarter only.) Prerequisites, 112 and permission.
- 461 Yeasts and Molds (5)** Stuntz
- 462, 463 Mycology (5,5)** Stuntz
- 471 Mineral Nutrition (5)** Walker
(Offered alternate years; offered 1958-59.)
- 472 Plant Physiology (5)** Meeuse, Walker
- 473 Plant Physiology (5)** Meeuse
(Offered alternate years; offered 1958-59.)
- 474 Plant Physiology (5)** Walker
(Offered alternate years; offered 1957-58.)
- 475 Problems in Algal Physiology (6)** Meeuse
(Offered at Friday Harbor Summer Quarter only.)
- 498 Special Problems in Botany (1-15)** Staff
Prerequisite, permission.
- 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.
- Thesis (*)** Staff

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

333 Intermediate Organic Chemistry (3)	Staff
335, 336, 337 Organic Chemistry (3,3,3)	Staff
345, 346 Organic Chemistry Laboratory (2,2)	Staff
355, 356, 357 Physical Chemistry (4,3,3)	Staff
358 Physical Chemistry Laboratory (4)	Staff
415 The Chemical Bond (3)	Staff
416 Inorganic Chemistry (3)	Staff
418 Radiochemistry (3)	Fairhall
419 Radiochemistry Laboratory (2)	Fairhall
425 Quantitative Analysis (3)	Robinson
426 Instrumental Analysis (3)	Crittenden
427 Advanced Quantitative Theory (3)	Crittenden
428 Chemical Microscopy (3)	Robinson
429 Microquantitative Analysis (3)	Robinson
445 Qualitative Organic Analysis (3)	Staff
446 Advanced Organic Analysis (3)	Staff
447 Organic Synthesis (3) Advanced methods of preparation, separation, and purification of organic compounds. Prerequisite, 445 or permission.	Staff
511 Advanced Inorganic Chemistry (2) Acid-base theory; mechanism of certain reactions; compounds of nonmetals of groups 3, 4, and 5. Prerequisite, 416 or permission.	Ritter
512 Advanced Inorganic Chemistry (2) Halogens; less familiar metals; chelate, clathrate, interstitial and non-stoichiometric compounds; other selected topics. Prerequisite, 416 or permission.	Cady
513 Advanced Nuclear Chemistry (2) 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.	Fairhall
526 Advanced Instrumental Analysis (3) Absorption and emission spectroscopy, polarography, potentiometry, and dielectric properties as applied to problems in analytical chemistry. Prerequisite, 426 or permission.	Crittenden

- 530, 531 532, 533, 534 Advanced Organic Chemistry (3,3,3,3,3)** **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.
- 537 Physical Organic Chemistry (3)** **Staff**
Interpretation and application of data obtained by combined methods of organic and physical chemistry to the problems of structure of organic compounds and mechanisms of organic reactions. Prerequisites, 532 and 552, 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. Prerequisites, 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**
- Thesis (*)** **Staff**

Chemistry courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

- R411 Inorganic Chemistry (4)**
- R412 Chemistry of the Less Familiar Elements (4)**
- R413 Elements of Radiochemistry (4)**
- R423 Indicators and Potentiometric Titrations (4)**
- R424 Advanced Quantitative Analysis (5)**
- R426 Instrumental Analysis (4)**
- R447 Organic Reactions**
- R452 Theoretical Chemistry (4)**
- R453 Electrochemistry (4)**
- R454 Physical Chemistry II (4)**
- R455 Colloid Chemistry (4)**

CLASSICS

Executive Officer: JOHN B. McDIARMID, 206 Lewis Hall

The Department of Classics offers courses leading to the degree of Master of Arts. Applicants for candidacy must have a reading knowledge of French or German. Latin and Greek courses to be applied toward this degree must be numbered 400 and above.

Departmental requirements for a graduate minor in Latin or Greek are the same as those for an undergraduate major.

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 1958-59.)	McDiarmid
414 Plato (3) (Offered alternate years; offered 1958-59.)	Rosenmeyer
415 Aristotle (3) (Offered alternate years; offered 1958-59.)	McDiarmid
420 Greek Epic (3) (Offered alternate years; offered 1957-58.)	Rosenmeyer
422 Herodotus and the Persian Wars (3) (Offered alternate years; offered 1957-58.)	Rosenmeyer
424 Thucydides and the Peloponnesian War (3) (Offered alternate years; offered 1957-58.)	Rosenmeyer
442, 443, 444 Greek Drama (3,3,3) (Offered alternate years; offered 1957-58.)	McDiarmid
451 Lyric Poetry (3) (Offered alternate years; offered 1958-59.)	Rosenmeyer
453 Pindar: The Epinician Odes (3) (Offered alternate years; offered 1958-59.)	McDiarmid
455 Hellenistic Poetry (3) (Offered alternate years; offered 1958-59.)	Rosenmeyer
490 Supervised Study (3-5, maximum 15)	Staff
520 Seminar (3-5, maximum 15)	Staff
600 Research (3-5, maximum 15)	Staff
Thesis (*)	Staff

LATIN

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 Lucrotius (3) (Offered alternate years; offered 1958-59.)	Grummel
413 Cicero's Philosophical Works (3) (Offered alternate years; offered 1958-59.)	Grummel
414 Seneca (3) (Offered alternate years; offered 1958-59.)	Grummel
422 Livy (3) (Offered alternate years; offered 1958-59.)	Pascal
424 Tacitus (3) (Offered alternate years; offered 1958-59.)	Pascal
426 Roman Biography (3) (Offered alternate years; offered 1958-59.)	Pascal
430 Latin Novel (3) (Offered alternate years; offered 1957-58.)	Grummel
442 Roman Drama (3) (Offered alternate years; offered 1957-58.)	Pascal

451 Roman Satire (3) (Offered alternate years; offered 1957-58.)	Pascal
455 Catullus (3) (Offered alternate years; offered 1957-58.)	Grummel
456 Horace (3) (Offered alternate years; offered 1957-58.)	Pascal
458 Roman Epic (3) (Offered alternate years; offered 1957-58.)	Grummel
475LJ Improvement of Teaching: Latin (5) Offered jointly with the College of Education. (Offered Summer Quarter only.)	Grummel, Pascal
490 Supervised Study (3-5, maximum 15)	Staff
520 Seminar (3-5, maximum 15)	Staff
600 Research (3-5, maximum 15)	Staff
Thesis (*)	Staff

CLASSICS COURSES IN ENGLISH

422 Greek Historians and Philosophers in English (3)	Rosenmeyer
426 Greek and Roman Epic in English (3)	Rosenmeyer
427 Greek and Roman Drama in English (3)	McDiarmid
430 Greek and Roman Mythology (3)	Grummel
440 Greek and Roman Critics in English (3)	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. Fields of study and research now offered include 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, 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)	McKenzie
402 Freedom of the Press and Communications Law (3)	Benson
403 Problems in Public Relations (3)	Christian
406 Press and Society (3)	Smith
411 Introduction to Mass Communications Research (3)	Edolstein
414 History of Journalism (3)	Smith
415 Comparative Communications (3)	Staff

416 Press and World Affairs (3)	McKenzie
480 Propaganda (5)	McKenzie
498 Problems of Communications (1-5, maximum 10)	Staff
502 Government and Mass Communications Seminar (3)	Benson
506 Press and Society Seminar (3)	Smith
511 Mass Communications Research Seminar (3)	Edelstein
514 Journalism and History Seminar (3)	Smith
580 Seminar in Propaganda (5)	McKenzie
598 Selected Readings (1-3, maximum 3)	Staff
600 Research (*)	Staff
Thesis (*)	Staff

JOURNALISM

320 Legal Aspects of Journalism (3)	Benson
347 Newspaper Operation (3)	Irwin
381 Graphic Arts and Typography Laboratory (3)	Murton
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 Radio Acting and Production (2)	Cranston
372 Radio Dramatic Writing (3)	Adams
373 Television Writing (3)	Cranston
376 Radio 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 (3)	Staff
460 Radio in the School (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 a major in drama is supported by a minor in English.

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)	Hedges
410 History of Wigs and Wig Making (2)	Crider
411, 412, 413 Playwriting (3,3,3)	Hughes
414 Stage Lighting (3)	Conway, Lounsbury

415	Advanced Stage Lighting (3)	Staff
417, 418, 419	Advanced Theatre Workshop (2,2,2)	Staff
420	History of Masks and Mask Making (2)	Davis
421, 422, 423	Advanced Acting (3,3,3)	Harrington
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
451, 452, 453	Representative Plays (3,3,3)	Hughes
481, 482, 483	Directing (3,3,3)	Harrington
497	Theatre Organization and Management (2)	Hughes
509	Advanced Stage Costume Construction and Design (3) Prerequisites, 405 and 408, or permission of instructor.	Crider
515	Scenic Projection (3) Theories and experiments with various methods of scenic projection. Prerequisites, 414, 415, or permission.	Conway
517	Advanced Stage Design (3) Prerequisites, 404 and either 417, or 418, or 419, or permission.	Conway
518	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, 414 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
	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, public utilities, and transportation (students may be permitted to concentrate their work in two of these three sub-fields); labor economics; public finance and taxation; 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 courses for graduate students only (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 courses for graduate students only (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.

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 courses approved for graduate credit will be required, candidates with an adequate background may offer less. In any case, a minimum of 12 credits in graduate courses must be offered. Normally 9 of these credits must be in economic theory; in special cases a minimum of 6 credits in theory may be offered.

COURSES

ECONOMIC THEORY

- | | |
|--|---------------------------------|
| 301 National Income Analysis (5) | Cartwright, Crutchfield, Gordon |
| 302 Intermediate Economics (5) | Mund, Worcester |
| 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, North |
| 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, PUBLIC UTILITIES, AND TRANSPORTATION

- | | |
|--|-------|
| 330 Government and Business (5) | Mund |
| 336 Economics of Transportation I (5) | Staff |
| 432, 433 Economics of Public Utilities (5,5) | Hall |
| 437 Economics of Transportation II (5) | Staff |
| 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.

- 536 Transportation (3)** **Staff**
Economic aspects of current transportation problems. Prerequisite, permission.

LABOR ECONOMICS

- 340 Labor in the Economy (5)** **Buechel, Gillingham, Lampman, McCaffree**
- 345 Social Security (5)** **Lampman**
- 441 Union-Management Relations (5)** **Gillingham, Hopkins**
- 442 American Labor History (5)** **Gillingham**
- 443 Advanced Labor Economics (5)** **McCaffree**
- 541 Theory of Trade-Unionism (3)** **Gillingham**
Prerequisite, permission.
- 542 Labor Economics (3)** **Hopkins**
Prerequisite, permission.
- 543 Labor Law (3)** **Lampman**
Selected problems of governmental regulations of the labor-management relationship. Prerequisite, permission.

PUBLIC FINANCE AND TAXATION

- 350 Public Finance and Taxation I (5)** **Hall, Lampman**
- 451 Public Finance and Taxation II (5)** **Hall, Lampman**
- 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

- 461 Economic History of Europe (5)** **Morris**
- 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)** **Sheldon**
- 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 (*)**

Prerequisite, permission.

Staff**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, 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 English literature 400 courses. Those who wish to take a minor may include in the total credit requirements a maximum of 10 credits in a related field, which, with the permission of the Department, may be in 300 courses. 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 majoring in advanced writing may present an original work in imaginative or factual writing in lieu of a thesis.

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 English literature 400 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. Advanced writing may not be used as a major subject, but candidates are allowed 10 credits in advanced writing and with permission 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.

The oral examination consists of questions based on (1) the written examination and related topics, and (2) 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 excused from so doing 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 74).

COURSES

301	The Bible as Literature (5)	Fowler
320	Modern Poetry (5)	Zillman
328, 329	Dramatic Composition (3,3)	Redford
344, 345	Eighteenth-Century Literature (5,5)	Cornu, Hoover
350	Old English Literature in Translation (5)	Staff
351	Chaucer and His Contemporaries (5)	Ethel, Kaufman, Person
352	Romances and Folk Literature (5)	Fowler
353, 354	English Literature: 1476-1642 (5,5) (Offered alternate years; offered 1958-59.)	Adams
361, 362, 363	American Literature (5,5,5)	Blankenship, H. Burns, Davis, Hilen, Phillips
367, 368, 369	Seventeenth-Century Literature (5,5,5)	Ethel, Leggett, Stein
370, 371, 372	Shakespeare (5,5,5)	Adams, Hamilton, Kaufman, Pellegrini, Stirling
374, 375, 376	Late Nineteenth-Century Literature (5,5,5)	Brown, W. Burns, Winther
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
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 1958-59.)	Heilman
431, 432	Advanced Factual Writing (5,5)	Harris
437, 438	Advanced Short Story Writing (5,5)	Harris, Redford
440, 441	Social Ideals in Literature (5,5) (Offered alternate years; offered 1957-58.)	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)	Harris, Redford
489 English Prose Style (5)	Perrin
505 Graduate English Studies (5)	Davis, Stirling
507, 508 Literary Criticism (5,5)	Brown, H. Burns, Winther
509 Methods of Contemporary Criticism (5)	Bostetter, 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: <i>Canterbury Tales</i> .	
517, 518, 519 Shakespeare (5,5,5)	Hamilton, Stirling
517: comedies; 518: tragedies; 519: histories.	
521, 522, 523 Seventeenth-Century Literature (5,5,5)	Stein
524, 525, 526 American Literature (5, maximum 10, 5, maximum 10, 5, maximum 10)	Blankenship, Davis, Eby, Hilen
527, 528 Studies in Medieval Literature (5,5)	Fowler
527: poetry; 528: Arthurian romance.	
530 The English Language (5)	Reed
An 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, Winther
544, 545 Eighteenth-Century Literature (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)	Staff
600 Research (*)	Staff
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 70). 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. These joint programs are described in the curricular announcements of the respective departments.

The Far Eastern and Russian Institute has 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.

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

303J Asia (5)	Earle, Eyre, Murphey
Offered jointly with the Department of Geography	
310 The Far East in the Modern World (5)	Maki, Michael, Taylor, Williston
314J Peoples of Central and Northern Asia (3)	Posch
Offered jointly with the Department of Anthropology.	
316 Civilization of Southeastern Asia (3)	Williston
323 Survey of the Soviet Union (5)	Treadgold
329 Russia and the Moslem World (5)	Spector
335J Japanese Foreign Policy in Asia (3)	Maki
Offered jointly with the Department of Political Science.	
345J Japanese Government (3)	Maki
Offered jointly with the Department of Political Science.	
378 Russia in Asia (3)	Staff
(Offered alternate years; offered 1958-59.)	
422J Early Russian History (5)	Treadgold
Offered jointly with the Department of History.	
423J Recent Russian History (5)	Treadgold
Offered jointly with the Department of History.	
424J Russian Revolutionary Movement (5)	Treadgold
(Offered jointly, in alternate years, with the Department of History; offered 1958-59.)	
429 The Soviet Union and the Moslem World (5)	Spector
430 Survey of Mongol Culture (3)	Poppe
(Offered alternate years; offered 1957-58.)	
432J Islands of the Pacific (3)	Earle
Offered jointly with the Department of Geography.	
433J The Soviet Union (5)	Jackson
Offered jointly with the Department of Geography.	
434J Southeast Asia (5)	Earle
Offered jointly with the Department of Geography.	
435J China: Topical Analysis (3)	Murphey
Offered jointly with the Department of Geography.	
436J China: Regional Analysis (3)	Murphey
Offered jointly with the Department of Geography.	
437J Japan (5)	Eyre
Offered jointly with the Department of Geography.	
443 Chinese Social Institutions (5)	Hsiao

- 444 Chinese History: Earliest Times to 221 B.C. (5)** Wilhelm
(Offered alternate years; offered 1958-59.)
- 445 Chinese History: 221 B.C. to 906 A.D. (5)** Wilhelm
(Offered alternate years; offered 1958-59.)
- 446 Chinese History: 906 A.D. to 1840 A.D. (5)** Wilhelm
(Offered alternate years; offered 1958-59.)
- 447 Modern Chinese History (5)** Michael
- 450 Survey of Turkic Culture of Central Asia (3)** Posch
- 451J History of Chinese-Japanese Relations (3)** Jansen
Offered jointly with the Department of History.
- 452J Early Japanese History (5)** Jansen
Offered jointly with the Department of History.
- 453J Tokugawa Period (5)** Jansen
Offered jointly with the Department of History.
- 454J Modern Japanese History (5)** Jansen
Offered jointly with the Department of History.
- 503J Seminar: Southeast Asia (3, maximum 6)** Earle
Offered jointly with the Department of Geography.
- 504J Seminar: Japan and Northeast Asia (3, maximum 6)** Eyre
Offered jointly with the Department of Geography.
- 505J Seminar: China and Northeast Asia (3, maximum 6)** Murphy
Offered jointly with the Department of Geography.
- 507J Seminar: Soviet Union (3, maximum 6)** Jackson
Offered jointly with the Department of Geography.
- 510 Methodology in Far Eastern Studies (3)** Maki
Required of all graduate students taking degrees or writing theses in Far Eastern subjects other than languages.
- 519J Seminar on Asia (3)** Wilhelm
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 1958-59.)
- 521, 522, 523 Seminar on Eastern Asia (4,4,4)** Maki, Taylor
- 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 1958-59.) 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.
- 540J Seminar on the Soviet Union: Government and Diplomacy (4, maximum 8)** Staff
Offered jointly with the Department of Political Science. Prerequisite, permission.
- 543 Seminar on Russia in Asia (3)** Staff
Selected topics on relations of Russia and the Soviet Union with Asia. Prerequisite, permission. (Offered alternate years; offered 1957-58.)
- 545J Seminar on Japanese Government and Diplomacy (3, maximum 6)** Maki
Offered jointly with the Department of Political Science.
- 549J Japanese History (3-6)** Jansen
Field course in Japanese history. Offered jointly with the Department of History.
- 550J-551J-552J Seminar in Japanese History (3-6)-(3-6)-(3-6)** Jansen
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. Chang, Li, Poppe, Staff
- 599 Colloquium on Chinese History Research (5, maximum 15)**

C. L. Chang, Hsiao, Michael, Shih, 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.

Thesis (*)**Staff***The following courses may be used for credit toward a Far Eastern major:*

- Anthropology 317** Ethnology of Southeast Asia (3)
Anthropology 542 Personality Patterns in Japanese Culture (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 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 offers a Master of Arts degree in two fields: language and literature, and in Far Eastern and Russian regional studies. For both majors, 45 credits plus thesis are required. For the language and literature degree, 20 credits must be in advanced language and literature courses. For regional studies, a candidate is expected to take course work in five disciplines, with a minimum of 12 credits in seminars.

For the 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. For Far Eastern regional studies, knowledge of a Far Eastern language is desirable but not required if the candidate presents strong specialization in a discipline.

DOCTOR OF PHILOSOPHY. The Department offers courses leading to a Doctor of Philosophy degree in the following fields:

CHINESE LANGUAGE AND LITERATURE. Candidates for this degree must be able to read and translate literary Chinese and must know the history, phonology, and structural features of the written and spoken language. Familiarity with the history and types of Chinese literature is required; candidates must specialize in two of the following: a period of Chinese literature; a school; an author; the phonology of any period or text; the grammatical features of any period or text; historical or comparative studies; and epigraphy. All candidates must acquire a knowledge of general Chinese history and philosophy. Adequate knowledge of another Far Eastern language and at least one European language is required.

SLAVIC LANGUAGES AND LITERATURE. Candidates for this degree must be familiar with Russian literature, history, and political and social institutions, in addition to having a thorough knowledge of the Russian language. The candidate may emphasize linguistics or literature. In either case, he will be requested to do advanced work in the following: Russian literature; Russian linguistics, descriptive and historical; and comparative Slavic philology (phonetic and morphological structure of Slavic languages). All candidates must acquire a basic knowledge of a Slavic language and literature other than Russian, preferably Polish. Adequate knowledge of at least one other European language is required.

A candidate for the Ph.D. degree in the field of Slavic studies also will be expected to satisfy certain minimum requirements in one of the following cognate areas: comparative literature, general linguistics, or Russian area studies.

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) (Offered alternate years; offered 1958-59.)	Wilhelm
430 Readings in Chinese Philosophical Texts (5) Prerequisite, permission.	Shih
455, 456, 457 Chinese Literature (5,5,5) (Offered alternate years; offered 1957-58.)	Wilhelm
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) 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 1957-58.)	Shih
529 Chinese Phonology (3)	Li
530 Studies in Chinese Prose (5) (Offered alternate years; offered 1957-58.)	Wilhelm
531 Studies in Chinese Poetry (5) (Offered alternate years; offered 1958-59.)	Shih
532 Studies in Chinese Drama and Novel (5) (Offered alternate years; offered 1958-59.)	Shih
535 Chinese Epigraphy (3, maximum 6) Introduction to texts in ancient character forms; selected readings of inscriptions on bronzes and oracle bones.	Reifler
536, 537, 538 Readings in Chinese Political Thought and Institutions (5,5,5) (Offered alternate years; offered 1958-59.)	Hsiao
550 Seminar on Chinese Literature (4, maximum 8) (Offered alternate years; offered 1958-59.)	Shih, Wilhelm
555 Seminar on Chinese Linguistics (3, maximum 9) Advanced phonology, problems of archaic Chinese, dialectology; descriptive and historical treatment of Sinitic languages. For advanced students of Chinese or of linguistics. Prerequisite, permission.	Li

Thesis (*) **Staff**

JAPANESE

351, 352, 353 Reading in Japanese (5,5,5)	McKinnon
510 Morphology and Syntax of the Japanese Language (5)	Tatsumi
521 Japanese Reference Works and Bibliography (3) (Offered alternate years; offered 1958-59.)	Staff
522, 523, 524 Readings in Documentary Japanese (5,5,5) (Offered when demand is sufficient.) Prerequisite, permission.	McKinnon
525, 526 Advanced Composition in Documentary Japanese (5,5)	Tatsumi
Thesis (*)	Staff

KOREAN

302-303 Elementary Spoken Korean Language (5-5)	Suh
304 Intermediate Korean (5)	Suh
405 Korean Grammar (5)	Suh
406, 407 Advanced Korean Reading (5,5)	Suh

MONGOLIAN

302 Introduction to Mongolian (5)	Poppe
303 Modern Mongolian Literary Language (5)	Poppe
304 Colloquial Mongolian (5)	Poppe
305 Classical Mongolian (5)	Poppe
521 Ancient Mongol: hPhagspa Script (3) Script and grammar of hPhagspa texts; reading and translation. Prerequisite, 304.	Poppe
522 Mongol: Ancient Texts (3) Grammar and reading of Mongol texts of the fourteenth to seventeenth centuries. Historical texts are emphasized	Poppe
580 Comparative Grammar of the Altaic Languages (3) Comparative phonology and morphology of Mongol and Turkic and other related languages. (Offered alternate years; offered 1958-59.)	Poppe

POLISH

401, 402 Phonetics, Grammar, and Vocabulary (5,5)	Micklesen
411 Readings in Polish (5)	Micklesen

RUSSIAN

301 Russian Language, Intensive C (10)	Pahn
302 Russian Grammar and Composition (5)	Micklesen
303 Advanced Conversation and Composition (5)	Gershevsky
304 Advanced Russian Language (5, maximum 10)	Gershevsky
407, 408, 409 Advanced Russian Reading (5,5,5)	Shaw
410, 411 Advanced Russian Grammar and Composition (5,5)	Erlich, Micklesen
455 Modern Russian Poetry (3) (Offered alternate years; offered 1957-58.)	Erlich
458 Contemporary Russian Literary Criticism (3) (Offered alternate years; offered 1958-59.)	Erlich
475 Soviet Press Translations (5)	Staff
485 History of Russian Standard Language (5)	Micklesen
521 Advanced Russian Syntax (3) 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 1957-58.)	Poppe
525 Russian Eighteenth-Century Literature (5) 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 1957-58.) Prerequisites, 320 and 409 or permission.	Erlich
526 Pushkin (4) Analysis of the works of Alexander Pushkin. (Offered alternate years; offered 1958-59.)	Erlich
527 Studies in Russian Prose (4) Close analysis of representative works of the nineteenth-century Russian prose fiction in original texts. (Offered alternate years; offered 1957-58.)	Erlich
557 Seminar in Russian Language (3) Examination and discussion of Russian masterpieces.	Staff
559 Russian Oral Epic Tradition (3) Introduction to Russian folklore. (Offered every three years; offered 1959-60.)	Erlich
560 Studies in Early Russian Literature (3) (Offered alternate years; offered 1958-59.)	Staff
590 Seminar in Russian Literary History (4) Close examination of selected periods or figures in Russian literature. (Offered alternate years; offered 1957-58.) Prerequisite, 10 graduate credits in Russian literature.	Erlich
Thesis (*)	Staff

SERBO-CROATIAN**401-402 Phonetics, Grammar, Vocabulary (5-5)****Micklesen****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 1957-58.)

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 1957-58.)

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 1958-59.)

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 1958-59.)

TIBETAN**402 Introduction to Literary Tibetan (5)****K. Chang****403 Reading in Tibetan Literature (5)****K. Chang****404 Tibetan Historical Works (5)****K. Chang, Li****502, 503, 504 Comparative Study of Chinese, Mongolian, Tibetan, and Sanskrit Texts (5,5,5)****K. Chang, Li, Poppe****TURKISH****301, 302, 303 Introduction to Central Asian Turkish (3,3,3)****Posch****401, 402, 403 Comparative Grammar of Central Asian Turkic (3,3,3)****Posch****LITERATURE COURSES IN ENGLISH****Chinese 320 Chinese Literature in English (5)****Shih****Japanese 320 Japanese Literature in English (5)****McKinnon****Korean 320 Korean Literature in English (5)****Suh****Mongolian 320 Mongolian Literature in English (5)****Poppe**

(Offered alternate years; offered 1958-59.)

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 1958-59.)

Russian 425 Dostoevski in English (4)**Spector**

Open only to majors in a language or literature.

Slavic 320 Polish Literature in English (5)**Erlich**

(Offered alternate years; offered 1958-59.)

FISHERIES**Director: RICHARD VAN CLEVE, Fisheries Center**

The School of Fisheries offers courses leading to the degrees of Master of Science and Doctor of Philosophy. All candidates for advanced degrees in fisheries must have completed essentially the same academic work as outlined in one of the undergraduate options. Candidates must complete 6 credits (three quarters) in Fisheries 520.

COURSES**401 Comparative Anatomy and Physiology of Fishes (5)****Welander****402 Phylogeny of Fishes (5)****Welander****403 Identification of Fishes (5)****Welander**

405 Economically Important Mollusca (5)	Lynch
406 Economically Important Crustacea (5)	Lynch
407 Aquatic Invertebrates of Minor Economic Importance (5)	Lynch
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)	Lynch
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)	Stern
484 Processing of Edible Fisheries Products (5)	Stern
485 Fish By-Products and Spoilage (5)	Stern
486 Research Problems in Fisheries Technology (5)	Stern
495 Introduction to Fisheries Literature (2, maximum 6)	Staff
501 On-the-Job Training (1-3, maximum 9) Guided on-the-job training in governmental or industrial fisheries organizations. Prerequisite, permission.	Staff
520 Graduate Seminar (2, maximum 6) Training in methods of searching fisheries literature.	Van Cleave
556 Age and Growth of Fishes (5) Principles of growth; methods of determining age and rates of growth in fresh-water and marine fishes. Prerequisites, 402, and Mathematics 383 or permission.	Van Cleave
557 Population Enumeration (5) Methods of enumerating animal populations; availability; dominant age groups; gear selectivity. Prerequisite, 556 or permission.	Van Cleave
558 Population Dynamics (5) Influence of natural and artificial factors on variation in abundance and yield from animal populations. Prerequisite, 557 or permission.	Van Cleave
604 Research (*, maximum 3 for M.S., 10 for Ph.D.)	Staff
Thesis (*)	Staff

GENERAL AND COMPARATIVE LITERATURE

Chairman: FRANK W. JONES, 119A Parrington Hall

This program is administered by 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 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; and 20 credits in a coherent program of courses in English and other literatures; and a thesis (10 credits) or 10 additional credits in literature.

DOCTOR OF PHILOSOPHY. This degree is offered with a major in comparative literature. Candidates are usually concerned with problems common to English or American literature and one or more foreign 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: 510, 511; 40 credits in English, including 505, 507, and 509; and 40 credits in other fields. No more than 10 credits are allowed in English courses numbered below 500.

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 two of three major English writers, Chaucer, Shakespeare, and Milton, and one major figure of foreign literature; (2) on a comparative problem in the field of the candidate's concentration; (3) examination by the department of the candidate's major foreign language.

The oral examination is the same as for the doctorate in English (see page 65).

COURSES

300 Masterpieces of European Literature: Epic (5)	Staff
301 Masterpieces of European Literature: Drama (5)	Staff
302 Masterpieces of European Literature: Lyric (5)	Staff
450, 451 Romanticism and the Nineteenth Century (5,5)	Staff
480 The Symbolist Movement (5)	Staff
510, 511 Studies in General and Comparative Literature (5, maximum 10, 5, maximum 10)	Staff
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

- Chinese 320 Chinese Literature in English (5)
- Japanese 320 Japanese 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 423 The Russian Novel in English (5)
- Russian 424 The Russian Symbolists in English (3)
- Russian 425 Dostoevski in English (4)
- 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 Prose in English (3)
- French 320 Contemporary Novel in English (3)
- French 418 Literature of the Enlightenment in English (3)
- Italian 384 Renaissance Literature of Italy in English (2)
- Italian 481, 482 Dante in English (2,2)
- Romance 460 The Literature of the Renaissance in English (5)
- Spanish 315 Latin-American Authors in English (5)

SCANDINAVIAN LANGUAGES AND LITERATURE

- 309, 310, 311 The Scandinavian Novel in English (2,2,2)
 380 Ibsen and His Major Plays in English (2)
 381 Strindberg and His Major Plays in English (2)
 382 Twentieth-Century Scandinavian Drama 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. The Department requires all candidates for advanced degrees to enroll in 490, unless essentially similar training has been previously acquired, and in N500.

The Department cooperates with other colleges, departments, and schools in a program leading to the degree of Master of Arts in Urban Planning (see page 162).

COURSES**SYSTEMATIC GEOGRAPHY**

- | | |
|--|----------|
| 325 Historical Geography of America (3) | Martin |
| 370 Conservation of Natural Resources (5) | Sherman |
| 374 The Extractive Industries (5) | Marts |
| 441 Industrial Geography (3 or 5) | Garrison |
| 442 Commercial Geography (3 or 5) | Garrison |
| 444 Geography of Water Resources (3 or 5) | Marts |
| 448 Geography of Transportation (5) | Ullman |
| 475 Political Geography (5) | Jackson |
| 477 Urban Geography (3 or 5) | Ullman |
| 510 Seminar: Settlement and Urban Geography (3, maximum 9) | Ullman |
| 537 Seminar: Quantitative Methods in Economic Geography (3, maximum 6) | Garrison |
| 538 Seminar: Geography of Transportation (3, maximum 6) | Ullman |
| 539 Seminar: Utilization of Water Resources (3, maximum 6) | Marts |

REGIONAL GEOGRAPHY

- | | |
|--|-----------------|
| 300 Advanced Regional Geography (3) | Hudson |
| 303J Asia (5)
Offered jointly with the Far Eastern and Russian Institute. | Earle, Kakiuchi |
| 304 Europe (5) | Martin |
| 305 Latin America (5) | Staff |
| 306 Africa (5) | Sherman |
| 402 United States (5) | Martin |
| 404 Problems in the Geography of Europe (3 or 5) | Staff |
| 407 Australia and New Zealand (5) | Earle |
| 408 Canada and Alaska (3) | Marts |
| 432J Islands of the Pacific (3)
Offered jointly with the Far Eastern and Russian Institute. | Earle |
| 433J The Soviet Union (5)
Offered jointly with the Far Eastern and Russian Institute. | Jackson |
| 434J Southeast Asia (5)
Offered jointly with the Far Eastern and Russian Institute. | Earle |
| 435J China: Topical Analysis (3)
Offered jointly with the Far Eastern and Russian Institute. | Staff |
| 436J China: Regional Analysis (3)
Offered jointly with the Far Eastern and Russian Institute. | Staff |
| 437J Japan (5)
Offered jointly with the Far Eastern and Russian Institute. | Kakiuchi |

- 503J Seminar: Southeast Asia (3, maximum 6)** Earle
Offered jointly with the Far Eastern and Russian Institute.
- 504J Seminar: Japan and Northeast Asia (3, maximum 6)** Kakiuchi
Offered jointly with the Far Eastern and Russian Institute.
- 505J Seminar: China and Northeast Asia (3, maximum 6)** Staff
Offered jointly with the Far Eastern and Russian Institute.
- 505 Seminar: Anglo-America (3, maximum 6)** Hudson, Marts
- 507J Seminar: Soviet Union (3, maximum 6)** Jackson
Offered jointly with the Far Eastern and Russian Institute.

GEOGRAPHIC TECHNIQUES

- 360 Introductory Cartography (5)** Heath, Sherman
- 361 Intermediate Cartography (5)** Heath, Sherman
- 363 Aerial Photograph Interpretation (2)** Marts
- 425J Graphic Techniques in the Social Sciences (5)** Schmid
Offered jointly with the Department of Sociology.
- 426 Statistical Measurement and Inference (5)** Garrison
- 458 Map Intelligence (3)** Sherman
- 462 Map Compilation and Design (5)** Heath, Sherman
- 464 Map Reproduction (3)** Heath, Sherman
- 490 Field Research (6, maximum 12)** Marts
(Formerly 499.)
- 520 Seminar: Cartography (3, maximum 6)** Sherman

GENERAL

- N500 Seminar (0)** Graduate Students, Staff
- 501 Seminar: Source Materials in Geographic Research (3)** Staff
- 502 Seminar: Writing and Critique (*, maximum 6)** Hudson, Martin
- 551 Seminar: Recent Trends in Geographic Research (3, maximum 9)** Staff
- 555 Seminar: History and Theory of Geography (*, maximum 6)** Staff
- 600 Research (*)** Staff
- 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 one of the undergraduate curricula. 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 other field experience which is approved by the department. In addition, all candidates for advanced degrees must have 481.

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

- 308 Structural Geology (5)** Barksdale
- 310 Engineering Geology (5)** Staff
- 323 Optical Mineralogy (5)** Coombs, Staff
- 330 General Paleontology (5)** Mallory
- 344 Field Methods (5)** Barksdale

361 Stratigraphy (5)	Wheeler
400 Advanced or Field Work in General Geology (*, maximum 15) (Offered Summer Quarter only.)	Staff
412 Physiography of the United States (5)	Mackin
414 Map Interpretation (5)	Mackin
424 Petrography and Petrology (5)	Coombs
425 Petrography and Petrology (5)	Misch
426 Sedimentary Petrography (5)	Staff
427 Ore Deposits (5)	Staff
429 Advanced Ore Deposits (3)	Staff
432 Advanced Paleontology (5)	Mallory
436 Micropaleontology (5)	Mallory
443 Advanced Structural Geology (5)	Misch
450 Elements of Seismology (5)	Neumann
480 History of Geology (3)	Barksdale
481 Preparation of Geologic Reports and Publications (3)	Coombs
501 Advanced Petrography and Petrology of Igneous Rocks (*)	Staff
503 Advanced Petrography and Petrology of Sedimentary Rocks (*)	Coombs
510 Advanced Studies in Physiography (*, maximum 10)	Mackin
515 Fluvial Morphology (*, maximum 5)	Mackin
516 Glacial Geology (5)	Mackin
520 Seminar (*)	Staff
521 Metamorphic Minerals (5)	Misch
522 Regional Metamorphism and Granitization (5)	Misch
523 Static Granitization (5)	Staff
530 Advanced Studies in Paleontology (*)	Mallory, Wheeler
532 Stratigraphic Paleontology (3)	Wheeler
540 Advanced Studies in Structural Geology (*)	Barksdale, Misch
545 Structure of Eurasia (5)	Misch
546 Structure of the Pacific Rim (5)	Misch
550 Advanced Studies in Geophysics (*, maximum 9)	Neumann
560 Advanced Studies in Stratigraphy (*)	Mallory, Wheeler
565 Paleozoic Stratigraphy (3)	Wheeler
568 Mesozoic Stratigraphy (3)	Wheeler
570 Advanced Studies in Mineralogy, Petrography, and Petrology (*)	Coombs, Misch
580 Advanced Studies in Economic Geology (*)	Coombs
600 Research (*)	Staff
Thesis (*)	Staff

GERMANIC LANGUAGES AND LITERATURE

Executive Officer: CURTIS C. D. VAIL, 229 Lewis 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

300	Phonetics (2)	Reed
	(Offered 1958-59.)	
310, 311	Introduction to the Classical Period (3,3)	Kahn, Sauerlander
312	Introduction to the German Novelle (3)	Sauerlander
401, 402, 403	Grammar and Composition (2,2,2)	Meyer, Roy, Vail
404	History of the German Language (5)	Meyer
	(Offered 1957-58.)	
410, 411, 412	History of German Literature (3,3,3)	Buck, Kahn, Wilkie
	(Offered 1958-59.)	
415, 416, 417	Nineteenth-Century Literature (3,3,3)	Roy, Sauerlander, Sommerfeld
	(Offered 1957-58.)	
418, 419	Naturalism, Expressionism, and Twentieth-Century Realism (3,3)	Roy
	(Offered 1958-59.)	
422	Analysis of German Poetry (3)	Sommerfeld
	(Offered 1958-59.)	
431	Lessing's Life and Dramatic Works (3)	Vail
	(Offered 1959-60.)	
433	Goethe: The Early Years (3)	Vail
	(Offered 1957-58.)	
434	Goethe: Life and Works, 1775-88 (3)	Buck
	(Offered 1957-58.)	
436	Goethe's Faust I (3)	Sommerfeld
	(Offered 1959-60.)	

437 Goethe's Faust II (3) (Offered 1959-60.)	Vail
438 Schiller's Historical Dramas (3) (Offered 1958-59.)	Kahn
450J Introduction to General Linguistics (5) Offered jointly with the Department of Anthropology.	Jacobs, Reed
497 Studies in German Literature (1-5, maximum 15)	Staff
498 Studies in the German Language (1-5, maximum 15)	Staff

COURSES IN ENGLISH

350 Masterpieces of German Literature in English (3)	Sommerfeld
351 Contemporary German Literature in English (3)	Rey
462 Goethe in English (3)	Sauerlander
464 Thomas Mann in English (3)	Rey

LITERATURE COURSES

500 Bibliography and Methodology (2) (Offered 1957-58.)	Sommerfeld
510 Literature of the Middle Ages (5) (Offered 1958-59.)	Buck
511 Reformation and Renaissance (3) (Offered 1958-59.)	Wilkie
512 Baroque (3) (Offered 1958-59.)	Wilkie
513 Eighteenth-Century Movements (3) (Offered 1958-59.)	Kahn
515 The Romantic Movement (4) (Offered 1957-58.)	Sommerfeld
516 The Drama of the Nineteenth Century (4) (Offered 1957-58.)	Sauerlander
517 The Literature of the Later Nineteenth Century (4) (Offered 1957-58.)	Rey
518, 519 The Literature of the Twentieth Century (3,3) (Offered 1958-59.)	Rey
531 Lessing (3) (Offered 1959-60.)	Vail
534 Goethe: Life and Works, 1775-88 (4) (Offered 1957-58.)	Buck
535 Goethe: Life and Works, 1788-1832 (4) (Offered 1957-58.)	Sommerfeld
538 Schiller (4) (Offered 1958-59.)	Kahn
590, 591, 592 Seminar in Literary History (1-5,1-5,1-5)	Staff
600 Research (*)	Staff
Thesis (*)	Staff

PHILOLOGY COURSES

501, 502, 503 Advanced Syntax and Synonymy (2,2,2)	Staff
505 Introduction to Linguistics (3) (Offered 1959-60.)	Reed
550 Gothic (5) (Offered 1957-58.)	Meyer
552 Old High German (5) (Offered 1957-58.)	Reed
555 Old Saxon (5) (Offered 1960-61.)	Reed
556 Middle High German (5) (Offered 1958-59.)	Meyer
557 Middle High German Literature in the Original (5) (Offered 1958-59.)	Reed
560 Modern Dialects (3) (Offered 1957-58.)	Reed

570 Sanskrit (3-5)
(Offered 1959-60.)

Reed

595, 596, 597 Seminar in Germanic Philology (1-5,1-5,1-5)

Staff

600 Research (*)

Staff

Thesis (*)

Staff

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; the subject within the third division is American history; subjects within a fourth division, Far Eastern history, may be selected by arrangement with the Department of History and the Far Eastern and Russian Institute. Fields in the history of science may be located within any of the four divisions of history.

MASTER OF ARTS. There are two programs leading to the Master of Arts degree in History. 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 a Ph.D. degree. The second or general program is designed to meet the interest 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 candidate should select one field from a subject in each of three 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, and are examined in only two fields of special study within the first three divisions named above. The third 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 and 502, at least two years of seminar work, participate in the work of the advanced seminar, and prepare at least four fields from subjects in each of three divisions of history described above. 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 take 501 and 502, to complete one year of seminar work, and to prepare for examinations in two fields of special study within the first three divisions named above. The remaining 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 at least two of the first three divisions of history named above.

COURSES

ANCIENT HISTORY

- | | |
|--|-------------|
| 401 Greece in the Age of Pericles (3)
(Offered 1958-59.) | Katz |
| 402 Alexander the Great and the Hellenistic Age (5)
(Not offered 1957-59.) | Katz |
| 403 The Roman Republic (3)
(Not offered 1957-59.) | Katz |
| 404 The Roman Empire (3)
(Offered 1957-58.) | Katz |

EUROPEAN HISTORY

Medieval Period

- | | |
|--|------------------------|
| 410 The Byzantine Empire (5) | Katz |
| 411 Medieval Civilization (5)
(Not offered 1957-59.) | Lucas |
| 412 Medieval Civilization (5) | Kaminsky, Lucas |
| 413 Medieval Civilization (5) | Lucas |

Early Modern Period

- | | |
|--|------------------|
| 414 Culture of the Renaissance (5) | Lucas |
| 415 The Reformation (5) | Lucas |
| 416 Monarchy in Europe, 1250-1750 (5) | Giesey |
| 422J Early Russian History (5)
Offered jointly with the Far Eastern and Russian Institute. | Treadgold |
| 429 France from the Reformation to the French Revolution (5)
(Offered alternate years; offered 1958-59.) | Lytle |

Modern Period

- | | |
|--|-----------------------|
| 423J Recent Russian History (5)
Offered jointly with the Far Eastern and Russian Institute. | Treadgold |
| 424J Russian Revolutionary Movement (5)
Offered jointly with the Far Eastern and Russian Institute. (Not offered 1957-58.) | Treadgold |
| 427 History of Eastern Europe, 1918-55 (5)
(Not offered 1957-59.) | Staff |
| 430 The French Revolution and Napoleonic Era, 1789-1815 (5) | Lytle |
| 431 Europe, 1814-70 (5)
(Not offered 1957-58.) | Emerson, Lytle |
| 432 Europe, 1870-1914 (5)
(Not offered 1957-58.) | Emerson |
| 433 Europe, 1914-45 (5) | Emerson |
| 436 Germany, 1648-1914 (5)
(Offered alternate years; offered 1958-59.) | Emerson |
| 437 Germany, 1914-45 (5)
(Offered alternate years; offered 1957-58.) | Emerson |

UNITED KINGDOM, BRITISH EMPIRE, AND COMMONWEALTH

- | | |
|---|-----------------|
| 470 England in the Seventeenth Century (5)
(Not offered 1957-59.) | Staff |
| 471 England in the Eighteenth Century (5)
(Not offered 1957-59.) | Costigan |

472	England in the Nineteenth Century (5) (Offered 1958-59.)	Costigan
473	England in the Twentieth Century (5) (Offered 1958-59.)	Costigan
474	Modern Irish History (5) (Offered 1957-58.)	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) (Offered alternate years; offered 1957-58.)	Mackirdy
481	History of the Commonwealth of Nations (5) (Offered alternate years; offered 1958-59.)	Mackirdy

AMERICAN HISTORY

441	American Revolution and Confederation (5) (Not offered 1957-59.)	Savello
442	The Colonial Mind (5) (Offered every four years; offered 1958-59.)	Savello
443	The Intellectual History of the United States (5) (Offered every four years; offered 1957-58.)	Savello
447	History of the Civil War and Reconstruction (5)	Pressly
450	Twentieth-Century America (5) Not open to students who have taken 343.	Pressly
457	The Diplomatic History of North America, 1492-1763 (5) (Not offered 1957-59.)	Savello
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)	Pressly
463	The Westward Movement (5)	Gates
464	History of Washington and the Pacific Northwest (5)	Gates

HISTORY OF SCIENCE

420	Science and the Enlightenment (5)	Woolf
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JAPANESE HISTORY

451J	History of Chinese-Japanese Relations (3) Offered jointly with the Far Eastern and Russian Institute.	Jansen
452J	Early Japanese History (5) Offered jointly with the Far Eastern and Russian Institute.	Jansen
453J	Tokugawa Period (5) Offered jointly with the Far Eastern and Russian Institute.	Jansen
454J	Modern Japanese History (5) Offered jointly with the Far Eastern and Russian Institute.	Jansen

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 examination in the fields selected.

510	Greek, Roman or Byzantine History (3-6)	Katz
514	Medieval and Renaissance History (3-6)	Lucas
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)	Savello
542	American History: Western (3-6)	Gates
543	American History: Civil War (3-6)	Pressly

544 American History: National Period (3-6)	Holt
545 American History: Twentieth Century (3-6)	Pressly
549J Japanese History (3-6) Offered jointly with the Far Eastern and Russian Institute.	Janson
575 English History (3-6)	Costigan
576 British Empire History (3-6)	MacKirdy

SEMINARS

503-504 Seminar in the Philosophy of History (3-6)-(3-6) (Offered alternate years; offered 1957-58.)	Costigan
517-518-519 Seminar in Ancient or Medieval History (3-6)-(3-6)-(3-6)	Katz, Lucas
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, in alternate years, with Far Eastern and Russian Institute; offered 1958-59.) 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.	Janson
553-554-555 Seminar in American History: Early (3-6)-(3-6)-(3-6)	Saville
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
Thesis (*)	Staff

HOME ECONOMICS

Acting 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.

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 12 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)	Sylvester
316 Demonstration Cookery (3)	Sylvester
321 Needlecraft (2)	Payne
322 Needlecraft (2)	Payne
329 Hand Weaving (2)	Bockway
334 Costume Design and Construction (3)	Payne

338 Clothing for the Family (3)	Payne, Wybourn
354 Family Economics and Finances (5)	Turnbull
407 Advanced Nutrition (3)	Johnson
408 Diet Therapy (3)	Johnson
415 Experimental Cookery (3)	Sylvester
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)	Nelson, Payne, Wybourn
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)	Parks
475 Institution Equipment (3)	Terrell
495 Special Problems in Home Economics (*, maximum 10)	Staff
507 Readings in Nutrition (*)	Johnson
Library research. Prerequisite, 407 or equivalent.	
515 Readings in Food Selection and Preparation (*)	Sylvester
Professional literature on recent developments. Prerequisite, 315 or equivalent, or permission.	
554 Social and Economic Problems of the Consumer (3-5)	Turnbull
Selected topics in the family economics field. Prerequisites, 454 or equivalent, or 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, Staff
Twelve months 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
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
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.

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 three of the four categories: algebra, analysis, geometry, and statistics. 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 three of the four categories: algebra, analysis, geometry, and statistics. 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

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
417, 418 Advanced Calculus I, II (3,3)	Staff
421, 422 Differential Equations (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)	Staff
(Offered Summer Quarter only.)	

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)	Staff
511, 512, 513 Special Topics in Algebra (3,3,3) 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)	Staff
531, 532, 533 Special Topics in Analysis (3,3,3) 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 Complex Variable (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.	Staff
541, 542, 543 Algebraic Topology (3,3,3) 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 1958-59.)	Staff
544, 545, 546 Differential Geometry (3,3,3) Differential geometry and curves and surfaces in ordinary space and in n-space. Riemannian geometry. (Offered alternate years; offered 1957-58.)	Staff
550 Seminar in Geometry (*, maximum 5)	Staff
551, 552, 553 Special Topics in Geometry (3,3,3) 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.	Staff
581, 582, 583 General Theory of Statistical Estimation and Testing Hypotheses (3,3,3) 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.	Staff
590 Seminar in Probability and Statistics (*, maximum 5) Reports by students and staff on contemporary research.	Staff
591, 592, 593 Special Topics in Statistics (3,3,3) 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).	Staff
600 Research (*) Prerequisite, permission.	Staff
Thesis (*)	Staff

Mathematics courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

- R436 Application of Complex Variables to Engineering Problems (5)**
R437 Advanced Mathematics for Science and Engineering Students (5)
R438 Advanced Calculus (5)
R439 Functions of a Complex Variable (5)
R440 Differential Equations (5)
R460 Vector Analysis (5)
R467 Numerical Analysis and Digital Computers (5)
 No credit for students who have taken 465, 466.
R481 Calculus of Probabilities (5)
R482 Classical Methods of Statistical Inference (5)
R491, R492 Mathematical Statistics I, II (5,5)
R493 Design and Analysis of Experiments (5)

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 421 (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) | Church |
| 340, 341 Physical Meteorology (5,5) | Fleagle |
| 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 Climatology (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 processes of the upper atmosphere; photochemical process. Upper atmospheric phenomena—sound propagation, auroral and night sky radiation, ionosphere, electrical currents, and magnetic variations. Role of the sun. Prerequisites, Physics 462 and Mathematics 422.
- 532 Atmospheric Electricity (3)** **Buettner**
Separation of charge in precipitation; lightning and the electrostatic field; formation and recombination of ions; Maxwell's equations; paths followed by charged particles. Prerequisites, 531, Mathematics 422, or permission.
- 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 423 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 422, 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 Atmospheric Turbulence (3,3)** **Badgley**
546: distinction between laminar and turbulent flow; analogy between kinetic theory of gases and turbulence theory; Reynolds method of averaging; mean and eddy motion; mixing-length theory; wind profiles in the lower atmosphere. Prerequisite, 442 or permission. 547: recent "statistical" theories of turbulence applied to the atmosphere. Diffusion of heat and matter in the atmosphere. Prerequisite, 546.
- 551 Special Methods of Atmospheric Analysis (5, maximum 10)** **Reed**
Preparation of data and the techniques required for selected advanced nonroutine types of analysis. Analysis of special synoptic situations. Prerequisite, 452 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.
- 571 Seminar on Atmospheric Radiation (3)** **Staff**
Study and critical discussion of a selected reading list devoted to radiation theory, spectra of water vapor and carbon dioxide; actinometric observations and the effects of radiation on other phenomena. Critical review of each topic is required. Prerequisites, Physics 462 and Mathematics 422.
- 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**
- Thesis (*)** **Staff**

MUSIC

Director: STANLEY CHAPPLE, 104 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 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 547, 568, 569, 577, 578, 579) 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

301 Contemporary Idioms (3)	McKay
304 Choral Literature (1)	Terry
307, 308, 309 Music History and Literature (3,3,3)	Terry, Woodcock, Irvine
317 Music Appreciation: Chamber Music (2)	Heinitz
321 Modal Counterpoint (3)	Babb
322 Tonal Counterpoint (3)	Verrall
330 Vocal or Instrumental Instruction (2-3, maximum 18)	Staff
331, 332, 333 Keyboard Transposition and Improvisation (2,2,2)	Beale
334, 335 Accompanying (3,3)	Woodcock
337, 338, 339 Repertoire (2,2,2)	Staff
340 University Concert Band (1, maximum 6)	Welke
344 Elementary School Music (4)	Swanson
346J Teachers' Course in Secondary School Music (4)	Normann
Two credits count as education and 2 as music. Offered jointly with the College of Education.	
347, 348 Music in the Americas (3,3)	Kinsella
350 Vocal or Instrumental Instruction (2-3, maximum 18)	Staff
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
377, 378, 379 Score Reading (2,2,2)	Irvine
380 Advanced Chamber Music (1, maximum 6)	Staff
384, 385, 386 Conducting (1,2,1)	Kirchner, Munro, Welke

- 401 Contemporary Idioms (3) McKay
- 407, 408, 409 Music History and Literature (3,3,3) Irvine, Terry, McKay
- 417 Music of the Middle Ages (3) Irvine
- 421 Modal Counterpoint (3) Babb
- 422 Tonal Counterpoint (3) Verrall
- 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) Welke
(Offered Summer Quarter only.)
- 447 Schumann (3) Woodcock
- 450 Vocal or Instrumental Instruction (2-3, maximum 18) Staff
- 452 Musical Form (3) Woodcock
- 453 Orchestration (3) Verrall
- 460 Sinfonietta (1, maximum 9) Chapple
- 464, 465 Opera Direction and Production (4,4) Rosinbum
- 467 History of Keyboard Music (3) Kinscella
- 474 The Curriculum in Music Education (3) Normann
- 480 Opera Theatre (2, maximum 6) Chapple, Rosinbum, Babb
- 481 Harmonic Analysis (3) Beale
Prerequisite, 203 or permission.
- 484, 485, 486 Conducting (2,1,1) Munro, 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 Choral Conducting (3) Munro
- 497, 498 History of Choral Music (3,3) Munro, Terry
- 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, evaluation of attitudes and achievement, prognosis of musical talent, musical learning, and factors related to musical performance.
- 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) Kinscella
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 Seminar in Theory and Notation (3,3) Irvine
Readings in theory and problems in notation. 577: middle ages to 1450; 578: renaissance through preclassic.
- 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
Rehearsal and preparation of musical groups for public performance.	
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, Vorrall
600 Research (*)	Staff
Prerequisite, permission.	
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)	Fleming
401 Physical Oceanography (5)	Barnes
403 Biological Oceanography (5)	Frolander
405 Geological Oceanography (5)	Staff
410 General Physical Oceanography (3)	Barnes
411 Ocean Tides and Waves (3)	Rattray
412 Ocean Currents (3)	Barnes
421-422 Chemical Oceanography (3-3)	Thompson
431 Biological Oceanography of the Plankton (4)	Frolander
433 Plankton Ecology (6) (Offered Summer Quarter only in alternate years; offered 1959.)	Frolander
452 Sedimentary Processes (3)	Staff
453 Sedimentary Techniques (2)	Staff
461 Applications of Oceanography (3)	Fleming
511, 512, 513 Marine Hydrodynamics (3,3,3) Methods for solving problems in physical oceanography. Prerequisite, a major in a physical science or permission.	Rattray
514 Field Work in Marine Hydrodynamics (6) Application of marine hydrodynamics principles to field measurements. (Offered Summer Quarter when demand is sufficient.) Prerequisite, a major in a physical science or permission.	Rattray
515 Waves (2) Application of marine hydrodynamics principles to the wave motion in the oceans. Prerequisites, 511, 512, and 513, or equivalent.	Rattray

- 516 Ocean Circulation (2)** **Rattray**
Hydrodynamic theories concerning the origin and characteristics of the major ocean currents. Prerequisites, 511, 512, or equivalent.
- 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, 440, 441, 442, 511, 512, and 513, or permission.
- 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)** **Thompson**
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisite, 421-422.
- 531 Seminar in Biological Oceanography (3, maximum 9)** **Frolander**
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)** **Staff**
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisites, 452 and 453.
- 600 Research (*)** **Staff**
Thesis (*) **Staff**

PHILOSOPHY

Executive Officer: ARTHUR E. MURPHY, 264 Savery Hall

The Department of Philosophy offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

COURSES

- 320 History of Ancient and Medieval Philosophy (5)** **Staff**
- 321 History of Modern Philosophy (5)** **Miller**
- 322 History of Recent Philosophy (5)** **Murphy**
- 347 Philosophy in Literature (5)** **Staff**
- 424 Recent American Philosophy (3)** **Murphy**
- 428 Chinese Philosophy (5)** **Shih**
- 431 Philosophy of Plato (3)** **Staff**
(Offered 1958-59.)
- 433 Philosophy of Aristotle (3)** **Staff**
(Offered 1957-58.)
- 436 British Empiricism (3)** **Melden**
(Not offered 1957-58.)
- 437 Philosophy of Hume (3)** **Melden**
(Offered 1958-59.)
- 438 Philosophy of Kant (3)** **Smullyan**
(Offered 1957-58.)
- 440 Advanced Ethics (5)** **Melden**
- 445 Philosophy of Art (3)** **Rader**
- 448 Philosophy in Nineteenth-Century Literature (5)** **Rader**
(Offered 1958-59.)
- 450 Epistemology (3)** **Smullyan**
- 453 Semantics (5)** **Miller**
- 456 Metaphysics (5)** **Murphy**

460 Introduction to the Philosophy of Science (5) (Offered alternate years; offered 1958-59.)	Miller
463 Philosophy of Mind (3)	Melden
465 Philosophy of History (5)	Rader
467 Philosophy of Religion (5) (Offered 1958-59.)	Dietrichson
469 Existentialist Philosophy (3) (Offered 1957-58.)	Dietrichson
470 Advanced Logic (5)	Smullyan
484 Reading in Philosophy (1-4, maximum 12)	Staff
490 Philosophy of Leibniz (3) (Offered 1957-58.)	Melden
520 Seminar in Ancient Philosophy (2)	Staff
521 Seminar in Modern Philosophy (2) (Not offered 1957-58.)	Miller
522 Seminar in Recent Philosophy (2)	Murphy
540 Seminar in Ethics (2)	Melden
545 Seminar in Philosophy of Art (2) (Offered 1958-59.)	Rader
550 Seminar in Epistemology (2)	Smullyan
556 Seminar in Metaphysics (2) (Offered 1958-59.)	Dietrichson
565 Seminar in Philosophy of History (2)	Rader
567 Seminar in Philosophy of Religion (2) (Offered 1957-58.)	Dietrichson
570 Seminar in Logic (2) (Offered 1957-58.)	Smullyan
584 Reading in Philosophy (1-4) Intensive reading in the philosophical literature. Prerequisite, permission of Executive Officer.	Staff
587 Contemporary Analytic Philosophy (3)	Melden
600 Research (1-6) Prerequisite, permission.	Staff
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.

A total of not less than 45 credits for women, 41 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)** Waters
(Offered Summer Quarter only.)
- 453 Methods and Materials in Health Teaching (Men and Women) (3)** Waters
- 465 The School Health Education Program (Men and Women) (3)** Mills, Reeves
- 503 Seminar in Health Education (Men and Women) (3)** Waters
Prerequisites, 453, 465, and Physical Education 345.
- 600 (See Physical Education 600.)**
- Thesis (Men and Women) (*)**

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
- 480 Principles of Movement (Women) (3)** Broer, Fox
- 493 Problems in Athletics (Men) (3)** Torney
- 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
B. Physical education
C. Physiology of exercise
D. Recreation education
E. Tests and measurements.
- 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.)**
- Thesis (Men and Women) (*)**

PHYSICS

Acting 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. The Department requires candidates for this degree to take four courses selected from those in the 500 series. A grade-point average of less than 3.00, unless there are compensating qualifications, will prevent the student from becoming a candidate for the degree. A thesis describing the results of a research investigation must be submitted. Each candidate will take the yearly departmental comprehensive examination until he has passed his oral master's examination.

Students in other fields desiring a minor in physics for a master's degree must submit 18 credits in undergraduate courses selected from those numbered above 300, and one graduate course.

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

320	Introduction to Modern Physics (3)	Staff
323	Introduction to Nuclear Physics (3)	Manley
325, 326, 327	Electricity and Magnetism (3,3,4)	Streib
350	Heat and Introduction to Thermodynamics and Kinetic Theory (3)	Streib
367, 368, 369	Special Problems (*,*,*)	Staff
371, 372	Properties of Matter (3,3)	Staff
	(Offered first time Autumn Quarter, 1958.)	
461, 462, 463	Introduction to Atomic & Nuclear Physics (3,3,3)	Staff
471, 472, 473	Laboratory in Atomic & Nuclear Physics (3,3,3)	Staff

- 481, 482, 483 Introduction to Mathematical Physics (3,3,3)** **Staff**
(Offered first time Autumn Quarter, 1958.)
- 491, 492, 493 Introduction to Theoretical Mechanics (3,3,3)** **Staff**
This sequence is being withdrawn; 493 will be offered for the last time Spring Quarter, 1958.
- 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 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 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.
- 550 X Rays (3)** **Staff**
(May not be offered 1957-59.) 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**
(May not be offered 1957-59.) Prerequisites, 509 and 518.
- 564 Relativity (3)** **Staff**
(May not be offered 1957-59.) Prerequisites, 506 and 515.
- 566 Theory of Collisions (3)** **Staff**
(May not be offered 1957-59.) Prerequisite, 518.
- 568 Theory of Solids (3)** **Staff**
Prerequisite, 518.
- 570 Radiation Theory (3)** **Staff**
(May not be offered 1957-59.) Prerequisite, 519.
- 572 Foundations of Statistical Mechanics (3)** **Staff**
(May not be offered 1957-59.)
- 574 Atomic and Molecular Interactions (3)** **Staff**
(May not be offered 1957-59.)
- 576 Selected Topics in Experimental Physics (*, maximum 6)** **Staff**
Prerequisite, permission.
- 578 Selected Topics in Theoretical Physics (*, maximum 6)** **Staff**
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.
- Thesis (*)** **Staff**
Prerequisite, permission.

Physics courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

R321 Introduction to Modern Physics (3)

R322 Introduction to Modern Physics (3)

- R337 Radiation and Shielding (3)
- R488 Introduction to Pile Physics (3)
- R493 Theoretical Physics I (3)
- R494 Theoretical Physics II (3)
- R498 Statistical Thermodynamics (3)
- R501 Nuclear Physics I (3)
- R502 Nuclear Physics II (3)
- R513 Electricity and Magnetism (4)
- R517 Quantum Mechanics I (5)
- R518 Quantum Mechanics II (5)
- R525 Statistical Mechanics (3)

POLITICAL SCIENCE

Executive Officer: KENNETH C. COLE, 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.

The Department cooperates with other colleges, departments, and schools in a program leading to the degree of Master of Arts in Urban Planning (see page 162).

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 fields: the administrative process, the development of American institutions, the economics of public activity, public law, public management, and administrative problems. Three fields are studied each year, and students undertake the analysis of various problems in each field. 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 (5) | Harbold |
| 362 Introduction to Public Law (5) | Cole |
| 411 The Western Tradition of Political Thought (5) | Harbold |
| 412 American Political Thought (5) | Harbold |
| 413 Contemporary Political Thought (5) | Harbold |
| 414 Oriental Political Thought (5) | Hsiao |
| 415 Analytical Political Theory (5) | Harbold |
| 418 The Evolution of Western Political Institutions (5) | Harbold |
| 460 Introduction to Constitutional Law (5) | 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 (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. | |
| 562, 563, 564 Public Law (3,3,3) | Cole |
| 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 |
| 376 State and Local Government and Administration (5) | Webster |
| 378 Rural Government (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) | Staff |
| 471 Administrative Management (5) | Staff |
| 472 Introduction to Administrative Law (5) | Shipman |
| 475 Problems of Municipal Government and Administration (5) | Webster |
| 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) | Shipman |
| Forms and characteristics of administrative activity, organization, and function; the executive; administrative discretion; administrative legislation and adjudication; responsibility and control. | |
| 573-574-575 Public Management (3-3-3) | Shipman |
| Methods and problems of managing public activities, emphasizing work supervision and control, management-staff problems, personnel administration, budgetary and fiscal administration, organization and methods analysis, reporting techniques, program planning and control. Prerequisite, admission to graduate curriculum in public administration or permission. | |

576-577-578 Administrative Problems (3-3-3)**Staff**

Supervised analysis of selected administrative problems in local, state, and national government and the preparation of action reports. Prerequisite, admission to graduate curriculum in public administration.

580 Seminar in State and Local Government (3)**Webster**

Critical analysis of governmental structure: areas of administration, functions, limitations on state and local authority, regionalism, and forms of regional control.

581 Seminar in Public Policy in Planning (5)**Webster**

Planning theory; law and administration; legal basis of governmental planning, with emphasis upon state, local, and regional government; the planning agency in government; general scope and limitations of powers and functions; policy determination and public relations; coordination with administrative departments; drafting enabling legislation, planning regulations, and zoning and subdivision ordinances.

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****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.

528, 530 Seminar in Regional Foreign Policy (3,3)**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****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)****Reshetar****441 Political Institutions of the Soviet Union (5)****Reshetar****445 Comparative Political Institutions (5)****Martin****540J Seminar on the Soviet Union: Government and Diplomacy (4, maximum 8)****Reshetar**

Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.

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****Thesis (*)****Staff**

PSYCHOLOGY

Executive Officer: ROGER B. LOUCKS, 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, 522 Fifth Avenue, New York City, or through a local center certified to give the test.

The applicant to the graduate program should have completed satisfactorily 30 quarter credits (20 semester credits) of undergraduate work in psychology (which include general psychology, advanced general psychology, statistical methods, and psychology of learning) and have maintained a grade-point average of 3.00 or higher during his senior year. If a student has less than this amount of work in psychology, but in other respects gives satisfactory evidence of qualifications for advanced work, he may be permitted to remove his undergraduate course deficiencies while pursuing a graduate program. In addition to the requirements in psychology, undergraduate preparation for graduate work in psychology should include approximately 10 quarter credits in biological sciences, 10 quarter credits in college mathematics, 20 quarter credits in social sciences other than psychology, and basic knowledge in two foreign languages (preferably French and German).

ADMISSION TO THE CLINICAL TRAINING PROGRAM. About 15 students per year will be accepted in the training program in clinical psychology after evaluation of various tests and interviews conducted by the Committee on Clinical Training.

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. 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. Candidates for the doctorate must first successfully complete Part I of the general examinations (qualifying examinations). The graduate student is expected to take Part I after two academic years (54 to 72 credits). In general, a student with graduate work at another university will be expected to take this section after one academic year.

Work in the major and minor usually totals not less than 135 credits beyond the bachelor's degree. The distribution of credits is usually as follows: 60 credits in the major field, 30 credits in the minor(s) or supporting fields, and 45 credits for thesis research. Reading knowledge of two foreign languages (preferably French and German) is required and both language examinations must be passed before the time of writing Part II of the general examinations (special areas examinations). 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 divided into two parts. Part I, qualifying examinations, will consist of four major areas: (1) general information; (2) history, systems, and theory; (3) experimental methodology; and (4) statistical methods. Part I must be successfully completed before the student is permitted to continue work toward the Ph.D.

Part II, special areas examinations, will consist of any two of the following seven areas of specialization: (1) quantitative techniques and theory of measurement; (2) clinical and psychopathology; (3) developmental and child; (4) social and personality; (5) physiological and comparative; (6) sensation and perception; and (7) learning and motivation. The student will not be permitted to take Part II until he has fulfilled the language and other requirements of the Graduate School.

Repetition of either Part I or Part II of the examination will be permitted only on faculty recommendation. Such a recommendation will ordinarily require a delay of one year for either Part I or Part II.

MINORS FOR ADVANCED DEGREES IN PSYCHOLOGY. The following subject areas may be pursued as a minor 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(s) in which he intends to minor.

MINOR IN PSYCHOLOGY. Graduate students desiring to minor in psychology are expected to have as prerequisite at least 20 credits in psychology, including advanced general psychology and 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)	Heather, Smith
305 Abnormal Psychology (5)	Strother
306 Child Psychology (5)	Bijou, Baer
307 Psychology of Adolescence (3)	Baer
308 Genetic Psychology (5)	Bijou, Baer
309 Psychology of Exceptional Children (3)	Bijou
331 Applied Psychology (3)	Culbert
336 Industrial Psychology for Engineers (3)	Culbert
345 Social Psychology (3)	Culbert, Edwards
400 Psychology of Learning (5)	Smith
401, 402 Contemporary Psychology Theory (3,3)	McKeever
403 Psychology of Motivation (3)	Smith
405 Personality (5)	Sarason
406 Experimental Psychology (5)	Loucks
407-408 History of Psychology (3-3)	Esper
409AJ Training of the Mentally Retarded (5)	Bijou
Offered jointly with the College of Education.	

- 409BJ Psychology of the Mentally Retarded (5)** **Bijou**
Offered jointly with the College of Education.
- 413 Tests and Measurements (5)** **Heathers**
- 416 Animal Behavior (3)** **Horton**
- 421 The Neural Basis of Behavior (5)** **Loucks**
- 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**
- 446 Research Methods in Social Psychology (3)** **Edwards**
- 447 Psychology of Language (5)** **Esper**
- 449 Psychology of Social Movements (3)** **Culbert**
- 462 Readings in Psychology (1-3, maximum 9)** **Staff**
- 484 Laboratory in Child Behavior (5)** **Baer**
- 501 Problems in Learning Theory (3)** **McKeever**
Selected topics in the interpretation and evaluation of current theories of learning. Prerequisite, permission.
- 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 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**
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**
May be repeated for credit. Prerequisite, permission.
- 528 Seminar in Experimental Psychology (2)** **Hormans**
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.
- 581 Individual Testing (Children) (5)** **Sarason**
Construction, administration, and scoring of individual mental tests used with children. Prerequisites, 306, 413, and permission.
- 582 Individual Testing (Adults) (5)** **Heathers**
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 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 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. 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 Graduate School of Social Work.
- 600 Research (*)** **Staff**
The name of the staff member with whom research will be done should be indicated in registration. Prerequisite, permission.
- Thesis (*)** **Staff**

ROMANCE LANGUAGES AND LITERATURE

Executive Officer: HOWARD L. NOSTRAND, 110 Lewis 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 48-51).

MASTER OF ARTS. The Department's requirements are:

- 1. LANGUAGE.** Oral proficiency in the major language.
- 2. COURSE WORK.** At least 36 credits, usually divided between a major and a 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.

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 quarter 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 (Peninsular 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) 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, in consultation with his adviser, one or more papers on a special aspect or aspects of his work.

6. **GENRE.** The student will be expected to acquire a substantial 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 |
| 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. (Offered 1957-58.) | |
| 521, 522, 523 | Phonemic Analysis and Description (2,2,2) | Dorfman |
| | The bases of phonology; 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 |
| 572, 573 | 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.) | |
| 581, 582, 583 | Problems and Methods of Literary History (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 |
| | Thesis (*) | |

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 1958-59.)

FRENCH

- 301, 302, 303 Advanced Composition (2,2,2)** **David**
304, 305, 306 Survey of French Literature (3,3,3) **Keller, Nostrand, Simpson**
307, 308 Thèmes (2,2) **Staff**
319 Nineteenth Century Prose in English (3) **Keller**
320 Contemporary Novel in English (3) **Weiner**
327, 328, 329 Advanced Conversation (2,2,2) **Staff**
330 Conversational French (2½-4, maximum 12) **Staff**
(Offered Summer Quarter only.)
341 Phonetics (3) **Creore, David**
358, 359 Advanced Syntax (2,2) **Chessex**
390 Supervised Study (2-5, maximum 20) **Staff**
416 Rabelais and Montaigne in English (3) **Keller**
417 Racine and Molière in English (3) **Chessex**
418 Literature of the Enlightenment in English (3) **Hanzeli**
421, 422, 523 Prose (3,3,3) **Keller, Hanzeli, Weiner**
421: classical prose. (Offered 1958-59.)
422: eighteenth-century prose. (Offered 1958-59.)
423: contemporary prose. (Offered 1957-58.)
424, 425, 426 Modern Prose Fiction (3,3,3) **Simpson, C. Wilson, Weiner**
424: The novel, 1800-50. (Offered 1957-58.)
425: The novel, 1850-1900. (Offered 1959-60.)
426: The novel, 1900-50. (Offered 1959-60.)
430 Advanced Conversational Spanish (1-3, maximum 5) **Ayllon**
(Offered Summer Quarter only.)
431, 432, 433 Lyric Poetry (3,3,3) **Creore, Nostrand, Weiner**
431: Renaissance poetry. (Offered 1958-59.)
432: romantic poetry. (Offered 1957-58.)
433: Parnassians, symbolists, and contemporary poetry. (Offered 1959-60.)
441, 442, 443 Drama (3,3,3) **Chessex, Creore**
441: classical tragedy. (Offered 1958-59.)
442: romantic drama. (Offered 1958-59.)
443: modern drama. (Offered 1959-60.)
444, 445, 446 Drama (3,3,3) **Chessex, Hanzeli**
444: Molière. (Offered 1958-59.)
445: eighteenth-century comedy. (Offered 1957-58.)
446: modern comedy. (Offered 1957-58.)
451, 452, 453 Moralists and Essayists (3,3,3) **Keller, Hanzeli, David**
451: Montaigne. (Offered 1957-58.)
452: from Montesquieu to Comte. (Offered 1959-60.)
453: essayists of the twentieth century. (Offered 1959-60.)
501 Studies in Renaissance Prose (5) **Keller**
Rabelais and Montaigne. (Offered 1958-59.)
502 Studies in Renaissance Poetry (5) **Creore**
The Pléiade. (Offered 1957-58.)
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 1958-59.)
513 Old French Literature (3) **Simpson**
Literary backgrounds; reading and discussion of selected texts. (Offered 1957-58.)
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 1958-59.)
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 1957-58.)

- 600 Research (2-5, maximum 20)** **Staff**
Thesis (*)

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**

- 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 Renaissance Prose and Poetry (3,3,3)** **Budel**

551: Early Renaissance: Pulci, Poliziano, Lorenzo il Magnifico, Bioardo, Sannazaro, Marsilio Ficino, Pico della Mirandola. (Offered 1957-58.)

552: High Renaissance: Castiglione, Ariosto, Machiavelli, Folengo, Bembo, Trissino. (Offered 1957-58.)

553: Late Renaissance: Michelangelo, Tasso, Bandello, Pietro Aretino. (Offered 1957-58.)

- 561, 562, 563 Italian Literature of the Nineteenth and Twentieth Centuries (3,3,3)** **Budel**
(Offered 1958-59.)

- 600 Research (2-5, maximum 20)**

Thesis (*)

PORTUGUESE

- 390 Supervised Study (2-5, maximum 20)** **C. Wilson**

PROVENÇAL

- 534 Old Provençal (3)** **Simpson**
(Offered 1957-58.)

RUMANIAN

- 536 Rumanian Language (5)** **Staff**
Rumanian grammar; readings in the language and lectures on its history. (Not offered 1957-58.)

- 537 Rumanian Literature (5)** **Staff**
History of Rumanian literature from the sixteenth century; the contemporary novel; the poetry of Mihail Eminescu. (Not offered 1957-58.)

SPANISH

- 301, 302, 303 Advanced Composition and Conversation (3,3,3)** **Staff**

- 304, 305, 306 Survey of Spanish Literature (3,3,3)** **Staff**

- 315 Latin-American Authors in English (5)** **Vargas-Baron**

- 318 Don Quijote in English (3)** **W. Wilson**

- 327, 328, 329 Advanced Conversation (2,2,2)** **Staff**

- 330 Conversational Spanish (2½-4, maximum 12)** **Ayllon**
(Offered Summer Quarter only.)

- 358, 359 Advanced Syntax (2,2)** **Staff**

- 390 Supervised Study (2-5, maximum 20)** **Staff**

- 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 1958-59.)

- 451, 452, 453 Spanish Literature since 1700 (3,3,3)** **McDonald**

- 461, 462, 463 **Spanish Literature of the Golden Era (3,3,3)** W. Wilson
(Offered alternate years; offered 1957-58.)
- 471, 472, 473 **Individual Spanish Authors (3,3,3)** Staff
(Offered alternate years; offered 1958-59.)
- 481, 482, 483 **Spanish-American Literature (3,3,3)** Bary, Vargas-Baron
(Offered alternate years; offered 1957-58.)
- 484 **The Colonial Period in Spanish-American Literature (3)** Vargas-Baron
(Offered alternate years; offered 1958-59.)
- 485 **The Romantic and Costumbrista Movements in Spanish-American Literature (3)** Vargas-Baron
- 486 **The Modernista Movement in Spanish-American Literature (3)** Vargas-Baron
(Offered alternate years; offered 1958-59.)
- 487 **The Contemporary Spanish-American Novel (3)** Vargas-Baron
(Offered alternate years; offered 1958-59.)
- 511 **The Poema de Mio Cid (3)** W. Wilson
(Offered alternate years; offered 1958-59.)
- 512 **Epic Poetry (3)** W. Wilson
The epic material in old Spanish literature and its later treatment in poetry and drama. Special investigations and reports. (Offered alternate years; offered 1958-59.)
- 513 **The Spanish Ballad (3)** W. Wilson
The origin and evolution of the Spanish ballad. (Offered alternate years; offered 1958-59.)
- 521 **The Renaissance in Spain (5)** Ayllon
(Offered alternate years; offered 1957-58.)
- 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)** Dorfman
A survey of the phonological, morphological, and syntactical development of the Spanish language from its origins to the present. (Offered 1957-58.)
- 571 **The Modern Essay (3)** Vargas-Baron
Leading essayists of Spain and Spanish America. (Offered 1957-58.)
- 572 **Modern Poetry (3)** Vargas-Baron
Romanticism and later movements in Spanish and Spanish-American poetry. (Offered 1957-58.)
- 600 **Research (2-5, maximum 20)**
- Thesis (*) Staff

SCANDINAVIAN LANGUAGES AND LITERATURE

Executive Officer: SVERRE ARESTAD, 226 Lewis 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
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
380 Ibsen and His Major Plays in English (2)	Arestad
381 Strindberg and His Major Plays in English (2)	Johnson
382 Twentieth-Century Scandinavian Drama 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.

The Department cooperates with other departments, colleges, and schools in a program leading to the degree of Master of Arts in Urban Planning (see page 162).

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)	Larson, Staff
331 Population Problems (5)	Staff
352 The Family (5)	Bowerman

353 Social Factors in Marriage (3)	Bowerman
362 Race Relations (5)	Barth
365 Urban Community (5)	Cohen
371 Criminology (5)	Hayner, Schrag
389 Reading in Selected Fields (2-5, maximum 15)	Staff
410 History of Sociological Thought (5)	Staff
411, 412, 413 Systematic Sociology (3,3,3)	Dodd
414 Sociological Theory (5)	Lundberg
415 Theory of Social Organization (5)	Staff
420 Methods of Sociological Research (5)	Faris
421 Methodology: Case Studies and Interviewing (3)	Camilleri
423 Advanced Social Statistics (5)	Bowerman, Camilleri
425J Graphic Techniques in the Social Sciences (5) Offered jointly with the Department of Geography.	Schmid
426 Methodology: Quantitative Techniques in Sociology (3)	Bowerman
427 Statistical Classification and Measurement (3)	Camilleri
428-429 Sampling and Experimentation (3-3)	Camilleri
430 Human Ecology (5)	Cohen, Schmid
440 Primary Interaction and Personal Behavior (5)	Faris
442 Public Opinion (3)	Larsen, Miyamoto
443 Mass Communication (3)	Larsen
445 Social Movements (3)	Miyamoto
446 Social Adjustment of the Worker (3)	Miller
447 Social Control (5)	Lundberg
448 Sociometric Analysis and Group Structure (5)	Schrag
450 Contemporary American Institutions (5)	Miller
451 Social Change and Trends (5)	Miller
455 Housing in the American Community (5)	Cohen
458 Institutional Forms and Processes (5)	Faris
460 Social Differentiation (5)	Staff
463 American Negro Community (3)	Barth
466 Industrial Sociology (5)	Miller
467 Industry and the Community (3)	Miller
472 Juvenile Delinquency (5)	Hayner, Schrag
473 Penology (5)	Hayner, Schrag
N510, N511, N512 Departmental Seminar (0,0,0) Monthly meetings with reports on independent research by graduate students and staff members.	Staff
521, 522, 523 Seminar in Methods of Sociological Research (3,3,3) Prerequisites, 223, 414, and 420, or equivalents.	Lundberg
528 Seminar in Selected Statistical Problems in Social Research (3)	Camilleri
530 Advanced Human Ecology (3) Prerequisites, 230 or 430, and 15 credits in social science.	Schmid
531 Demography (3) Research problems in population and vital statistics. Prerequisites, 331, and 15 credits in social science or permission.	Schmid
540 Seminar in Social Interaction (3) 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.	Miyamoto
541 Seminar on Small Group Research (3) 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.	Miyamoto
543 Communications Seminar (3)	Larsen
550, 551, 552 Marriage and the Family (3,3,3) 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.	Bowerman

- 566, 567 Industrial Sociology Seminar (3,3)** **Miller**
Research training in industrial sociology. Readings and field projects. Prerequisite, 466 or equivalent.
- 571 Correctional Institutions (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.
- 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**
(Offered alternate years; offered 1958-59.)
- 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 1957-58; 425 offered 1958-59.)
- 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 1957-58.) 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 1958-59.) 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 1958-59.) 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 1957-58.) 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)** **Franzke**

ORAL INTERPRETATION OF LITERATURE

- 340 Oral Interpretation of Prose (3)** **Grimes**
- 345 Choral Speaking (3)** **Grimes**
(Offered alternate years; offered 1958-59.)
- 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 1957-58.) Prerequisite, 440.

TEACHING OF SPEECH

- 352 Introduction to the Teaching of Speech (2)** **Nelson**
- 357 Debate and Discussion Problems in High School and College (2½)** **Richards**
(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 1958-59.)

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)** **Carrell**
- 476 Language Development of the Child (3)** **Staff**
(Offered alternate years; offered 1958-59.)
- 478 Interview Techniques for Speech and Hearing Rehabilitation (3)** **Staff**
(Offered alternate years; offered 1957-58.)
- 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 1957-58.) 571: dysarthria, especially cerebral palsy. (Offered alternate years; offered 1957-58.) 572: aphasia. (Offered alternate years; offered 1958-59.) 573: pathologic disorders of voice. (Offered alternate years; offered 1957-58.) 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)** **Carrell**
(Offered alternate years; offered 1958-59.) Prerequisite, 475 or permission.
- 578 Psychogenic Factors in Speech and Hearing Disorders (2)** **Staff**
Psychogenic factors as etiological agents in speech and hearing disorders. (Offered alternate years; offered 1957-58.) Prerequisite, Psychology 305 or permission.

HEARING

- 480 Introduction to Hearing (3 or 5)** Hanley
- 481, 482 Principles and Methods of Aural Rehabilitation (5,5)** Palmer
- 484 Clinical Practice in Aural Rehabilitation (1-5, maximum 15)** Palmer, Staff
- 485 Medical Backgrounds for Audiology (2)** Phillips
(Offered alternate years; offered 1958-59.)
- 487 Audiometry (2)** Hanley
- 488 Hearing Aid Evaluation and Selection (2)** Hanley
(Offered alternate years; offered 1958-59.)
- 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 1958-59.) 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 tests of auditory function; clinical practice. (Offered alternate years; offered 1957-58.) Prerequisite, 487.

GENERAL

- 400 Backgrounds in Speech (5)** Nilsen, Rahskopf
- 499 Undergraduate Research (2-5)** Staff
Prerequisite, permission. Field must be indicated in registration.
A. Voice and phonetics D. Radio-TV speech
B. Public address E. Speech correction and hearing
C. Oral interpretation
- 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
- Thesis (*)** Staff

ZOOLOGY

Executive Officer: ARTHUR W. MARTIN, 142 Johnson Hall

The Department of Zoology offers courses leading to the degrees of Master of Science and Doctor of Philosophy.

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**
- 358 Vertebrate Physiology (6)** **Martin**
- 362 Natural History of Vertebrates (5)** **Snyder**
(Offered alternate years; offered 1957-58.)
- 381 Microtechnique (4)** **Hsu**
- 400 General Physiology (5)** **Florey**
- 402 History of Zoology (3)** **Hatch**
- 403 Comparative Vertebrate Histology (5)** **Staff**
- 423 General 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**
Must be accompanied by 457.
- 463 Natural History of Amphibia and Reptiles (5)** **Svihla**
(Offered alternate years; offered 1957-58.)
- 464 Natural History of Birds (Ornithology) (5)** **Richardson**
(Offered alternate years; offered 1958-59.)
- 465 Natural History of Mammals (5)** **Svihla**
(Offered alternate years; offered 1958-59.)
- 475 Vertebrate Zoogeography (3)** **Svihla**
- 498 Special Problems in Zoology (3 or 5)** **Staff**
- 506 Topics in Experimental Embryology (6, maximum 12)** **Staff**
(Offered at Friday Harbor Summer Quarter only.) 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**
- 528 Experimental Protozoology (6)** **Osterud**
Cultivation; identification; cytology; physiology and genetics; general literature and current research in protozoology. (Offered alternate years; offered 1958-59.) Prerequisite, 423 or equivalent.
- 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)** **Flore**
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)** **Ilig**
History, principles, and procedures of zoological taxonomy; review of biological bases of phylogeny; history and principles of zoological nomenclature. Prerequisite, permission.
- 600 Research (*)** **Staff**
Thesis (*) **Staff**

COLLEGE OF BUSINESS ADMINISTRATION

Dean: AUSTIN GRIMSHAW, 210 Commerce Hall

The College of Business Administration offers courses leading to the degrees of Master of Arts, Master of Business Administration, 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; 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 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. Full standing is granted applicants with a grade-point average of 3.00 or higher during their senior year, with the necessary prerequisites for work in the chosen graduate field. A grade-point average of less than 3.00 but above 2.75 will, if the student is admitted, result in provisional standing.

The candidate for a graduate degree in the College of Business Administration must (1) have a bachelor's degree in business administration from an approved college or (2) present not less than 45 quarter credits in accounting, business fluctuations, business law, business statistics, corporation finance, economics, human relations, marketing, and production. Candidates 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.

A student must have a 3.00 (B) average in the last quarter of his senior year to be eligible for graduate courses (500 and 600 series) in the first quarter of graduate work. He 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 including the thesis or the seminars under the nonthesis program. At least 24 credits must be in business administration courses. Students may elect to complete General Business 570, 571-572 in lieu of completing a formal thesis. The following courses are required:

	CREDITS
Policy and Administration 560 or 561	3
Policy and Administration 590, 591, or 596	3
Accounting 591 or 592	3
Thesis or General Business 570, 571-572	9
Electives (at least 6 credits in 500 series other than policy and administration, accounting controls, and General Business 570, 571-572)	18
	<hr/> 36

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.

The College cooperates with several other colleges, departments, and schools in a program leading to the degree of Master of Arts in Urban Planning (see page 162).

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. 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 candidate for the doctoral degree must demonstrate competence in four areas of study, at least three of which must be in the College of Business Administration. The candidate also must complete a minimum of 15 credits in courses numbered 500 or above in the fields of business and its environment, economics, or other social sciences; concentration of study in any of these areas may be used to satisfy one of the four area requirements. 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 fields.

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.

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
350 Budgetary Control (2)	Staff
351 Distribution Cost Analysis (2)	Staff
360 Advanced Accounting (5)	Staff
420 Income Tax II (3)	Staff
470 Auditing I (5)	Staff
471 Auditing II (3)	Staff
480 Government Accounting I (3)	Staff
485 Consolidations and Mergers (3)	Staff
486 Fiduciary Accounting (2)	Staff
490 C.P.A. Problems (3)	Staff
495 Advanced Accounting Theory (3)	Staff
520, 521, 522 Seminar (3,3,3)	Staff
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. 522: 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.	
591, 592 Seminar in Administrative Controls (3,3)	Staff
Accounting and statistical controls employed by management. 591: major administrative control techniques, including the accounting plan, budgets, standard costs, cost analyses, inventory control, and profit planning. 592: major aspects of budgetary control, principles and application. Prerequisite, permission. 255 or 330 is recommended. 591 is not a prerequisite for 592.	
604 Research (*, maximum 10)	Staff
Prerequisite, permission.	
Thesis (*)	Staff

BUSINESS AND ITS ENVIRONMENT

552 Legal Aspects of Business Administration (3)	Staff
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)	Staff
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)	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. (Formerly General Business 590.) Prerequisite, permission.	
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. (Formerly General Business 593.) 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. (Formerly General Business 594.) Prerequisite, permission.

598 Current Problems in Business (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. (Formerly General Business 598.) Prerequisite, permission.

604 Research (*, maximum 10) **Staff**
Prerequisite, permission.

Thesis (*) **Staff**

BUSINESS LAW

302 Business Law (5) **Staff**

420 Law in Accounting Practice (3) **Staff**

BUSINESS STATISTICS

341 Sampling (5) **Staff**

344 Administrative Applications of High-Speed Computers (2) **Staff**

442 Administrative Applications of Statistical Control (3) **Staff**

443 Statistical Problems (3) **Staff**

444 Advanced Administrative Applications of High-Speed Computers (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.

Thesis (*) **Staff**

BUSINESS WRITING

410 Business Reports (5) **Staff**

FINANCE

334 Credits and Collections (5) **Staff**

340 Securities Markets (5) **Staff**

344 Principles of Investment (5) **Staff**

367 International Finance (5) **Staff**

410 Mortgage Banking (3) **Staff**

423 Problems in Bank Administration (5) **Staff**

426 Management of Bank Funds (5) **Staff**

446 Investment Analysis (5) **Staff**

450 Problems in Corporation Finance (5) **Staff**

520 Seminar in Banking Problems (3) **Staff**
Selected problems of contemporary and permanent significance in domestic and international banking and finance. Prerequisite, permission.

521 Seminar in Money Markets (3) **Staff**
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. Integrating corporation finance and banking, 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) **Staff**
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.

604 Research (*, maximum 10) **Staff**
Prerequisite, permission.

Thesis (*) **Staff**

FOREIGN TRADE

340 Trade Problems of Europe and Latin America (5) **Staff**

350 Trade Problems of the Far East (5)	Staff
420 Foreign Trade Practices (5)	Staff
470 Problems in Foreign Operations Management (5)	Staff
520, 521 Seminar (3,3)	Staff
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.	
604 Research (*, maximum 10)	Staff
Prerequisite, permission.	
Thesis (*)	Staff

GENERAL BUSINESS

439 Business Fluctuations (5)	Staff
462 Responsibilities of Business Leadership I (3)	Staff
570 Seminar in Business Research (3)	Staff
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)	Staff
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.	
604 Research (*, maximum 10)	Staff
Prerequisite, permission.	
Thesis (*)	Staff

HUMAN RELATIONS IN BUSINESS AND INDUSTRY

460 Human Relations in Business and Industry (5)	Staff
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INSURANCE

360 Life Insurance for the Individual (5)	Staff
370 Property Insurance (5)	Staff
375 Casualty Insurance (5)	Staff
460 Life Insurance for Business (5)	Staff
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.	
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
431 Retail Planning and Control (5)	Staff
441 Retail Sales Promotion (3)	Staff
491 Marketing Problems (5)	Staff
520, 521, 522 Seminar (3,3,3)	Staff
Social, economic, and business implications of marketing operation, institutions, and policies. Each quarter is concerned with different aspects of the problem. Prerequisites, one marketing course and permission.	

- 604 Research (*, maximum 10)** **Staff**
Prerequisite, permission.
- 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, collective bargaining, supervision, job evaluation, and safety. Prerequisite, permission.
- 604 Research (*, maximum 10)** **Staff**
Prerequisite, permission.
- Thesis (*)** **Staff**

POLICY AND ADMINISTRATION

- 463 Administrative Practices (5)** **Staff**
- 470 Business Policy (5)** **Staff**
- 471 Problems of the Independent Businessman (5)** **Staff**
- 560, 561 Policy Determination and Administration (3,3)** **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. Prerequisites, Master of Business Administration candidacy and permission for 560; 560 for 561.
- 590, 591 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. Prerequisite, permission.
- 596 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 organization of various outstanding business leaders. Prerequisite, permission.
- 604 Research (*, maximum 10)** **Staff**
Prerequisite, permission.
- 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, 521 Seminar (3,3)** **Staff**
Advanced study in policy formation and administration of manufacturing enterprises. Research, reading and reports on current problems in field. 520 has 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. 521 is concerned with the integration of all the major functions of production management toward the major goals of the manufacturing organization. Each course is a separate unit and need not be taken in sequence. Prerequisite, permission.
- 604 Research (*, maximum 10)** **Staff**
Prerequisite, permission.
- Thesis (*)** **Staff**

REAL ESTATE

- 410 Real Estate Appraisals, Brokerage, and Management (5)** **Staff**
- 604 Research (*, maximum 10)** **Staff**
Prerequisite, permission.
- Thesis (*)** **Staff**

TRANSPORTATION	Staff
311 Railroad Transportation (5)	Staff
313 Air Transportation (5)	Staff
315 Highway Transportation (5)	Staff
317 Water Transportation (5)	Staff
435 Industrial Transportation Problems (5)	Staff
440 Industrial Traffic Management (5)	Staff
452 Transportation Insurance (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)	Staff
Prerequisite, permission.	
Thesis (*)	Staff

SCHOOL OF DENTISTRY

Dean: MAURICE J. HICKEY, C301 Health Sciences Building

The School of Dentistry offers courses leading to the degree of Master of Science in Dentistry, with a major in orthodontics, pedodontics, or restorative dentistry, and to a certificate in orthodontics, pedodontics, or restorative dentistry.

To be eligible for graduate study, the applicant must be a graduate of either a school of dentistry approved by the Council on Dental Education of the American Dental Association or a university school of dentistry outside North America whose curriculum and admission requirements are similar to those of this School. Acceptance must be approved by the Graduate Admissions Committee of the School of Dentistry. This approval is 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.

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 that will 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 is generally used, and students are encouraged to further their interests in research in their own department or in cooperation with other departments. The opportunity for collaborative research is excellent because of the close proximity of the other colleges and departments in the University.

MASTER OF SCIENCE IN DENTISTRY. A minimum of six consecutive quarters (18 months) of residence is required for a major in orthodontics, five quarters for a major in pedodontics, and a minimum of three quarters for a major in restorative dentistry. No foreign language is required.

ORTHODONTICS. Required courses are: Dentistry 500-501, 510, 511, 512, 513, 522, 523; 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); and Public Health and Preventive Medicine 472 (Applied Statistics in Health Sciences).

PEDODONTICS. Required courses are: Dentistry 500-501, 510, 511, 512, 513, 522, 523; Orthodontics 500; Pediatrics 505; Pedodontics 500, 501, 502, 503, 504, 546, 547, 548, 549, 550; Psychiatry 450; and Public Health and Preventive Medicine 472.

RESTORATIVE DENTISTRY. Required courses are: Dentistry 511, 522, 580, 581,

582, 583; Public Health and Preventive Medicine 472; 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, psychology, public health, and speech.

CERTIFICATE IN ORTHODONTICS, PEDODONTICS, OR RESTORATIVE 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 take the same courses and maintain the same academic standards as the graduate student. These programs are not administered by the Graduate School and no thesis is required. The minimum residence requirement for a certificate in orthodontics is six consecutive quarters; in pedodontics, five quarters; in restorative dentistry, three quarters.

COURSES

DENTAL SCIENCE AND LITERATURE

400, 401, 402 Applied Dental Science (1,2,2) Staff of the Schools of Dentistry and Medicine

DENTISTRY

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) 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 studies of the head; growth of the head and development of the dentition from birth through maturity; analysis of the factors that produce normal occlusion and malocclusion. Each course is a prerequisite to the following course. (Department of Orthodontics)

522 Dental Caries Control (2) Law, Staff
Seminar on etiology and control of dental caries. Discussion based on assigned reading on physiology, composition of saliva, chemical composition of the teeth, oral microbiology, degradation of carbohydrates, systematic factors in the caries process, fluorides, enzyme inhibitors, and caries susceptibility tests. (Department of Pedodontics)

523 Public Health Dentistry (1) Hoffman

580 Gynathodynamics (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)

583 Reproduction of Oral Tissues (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)

FIXED PARTIAL DENTURES

300, 301, 302 Fixed Partial Dentures (1,1,1)

Guthrie

346 Clinical Crowns and Fixed Partial Dentures (5)

Morrison, Staff

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 technics of fabrication of restoration. Clinical considerations in respect to insertion and maintenance.

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

300, 301, 302 Operative Dentistry (1,1,1) Hamilton

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 technics 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.

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

300, 301 Oral Diagnosis and Treatment Planning (1,1) Degering, Jacobson

346 Clinical Oral Diagnosis and Treatment Planning (1) Staff

400, 401, 402 Advanced Oral Diagnosis and Treatment Planning (1,1,1) Jacobson

446 Advanced Clinical Oral Diagnosis and Treatment Planning (1) 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 (4,5,5,5,5,6) 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.

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.

- 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.
- 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.

PERIODONTOLOGY

- 300-301, 302 Periodontology (1-1,1)** **Staff**
- 304 Endodontics (1)** **Ingle**
- 331 Oral Pathology (4)** **Staff**
- 346 Clinical Periodontology (3)** **Staff**
- 349 Clinical Endodontics (1½)** **Staff**
- 400 Advanced Periodontology (1)** **Staff**
- 446 Advanced Clinical Periodontology (3)** **Staff**
- 449 Advanced Clinical Endodontics (1½)** **Staff**

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**
- 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 pre-paring 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.

- 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 a written final examination 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 a written final examination 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)	Foa
402 Child Study and Development (3)	Staff
403 Psychology of Elementary School Subjects (3)	Staff
404 Education of Exceptional Children (5)	Hayden
405 Problems of Adolescence (5)	Staff
406 Character Education (3)	Staff
408 Mental Hygiene for Teachers and Administrators (3)	Staff
409AJ Training of the Mentally Retarded (5)	Staff
Offered jointly with the Department of Psychology. (Offered Summer Quarter only.)	

409BJ Psychology of the Mentally Retarded (5)	Staff
Offered jointly with the Department of Psychology. (Offered Summer Quarter only.)	
410 Educational Sociology (3)	Jessup
415 Principles of Safety Education (3)	Corbally
415D Principles of Safety Education: Driver Education (5)	Corbally
417 Adult Education (3)	Jessup
420 Theory and Technique of Kindergarten and Primary Teaching (3)	MacDonald
421 Remedial Education (3)	Fea
422 Remedial Education Clinic (3)	Fea
425 Remedial Reading (3)	Fea
430 Public School Administration (3)	Strayer
431 School Finance (3)	Strayer
433 Elementary School Organization and Administration (3)	Jessup
434 High School Organization and Administration (3)	Strayer
435 Administration and Supervision of Junior High Schools (3)	Staff
437 School Supervision (3)	Jessup
439 Pupil Personnel and Progress Reporting (3)	Staff
445V Principles and Objectives of Vocational Education (3)	Baily
447 Principles of Guidance (3)	Salyer
448 Improvement of Guidance Techniques (3)	Salyer
455 Auditory and Visual Aids in Teaching (3)	Hayden
456 Auditory and Visual Aids in Teaching (3)	Hayden
457 Audio-visual Aids Management (3)	Hayden
460J Field Training in Health Education (5)	Vavra
Offered jointly with the Department of Public Health and Preventive Medicine.	
461 Elementary School Curriculum (3)	Jessup
466 Workshop in Curriculum Improvement (1-15, maximum 15)	Draper
467 Principles and Techniques of Curriculum Improvement (3)	Draper
470 Historical Backgrounds of Educational Methods (3)	Staff
474 Workshop in the Improvement of Teaching (5)	Staff
475 Improvement of Teaching (3)	Staff
475A Improvement of Teaching: Secondary Mathematics (3)	Staff
475B Improvement of Teaching: Arithmetic (3)	Vopni
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: Science (3)	Vopni
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

- 480 History of Education (5) Jessup
- 482 Advanced Tools and Materials (3) Bailly
- 483 Organization and Administration of Industrial Education (3) Bailly
- 484 Comparative Education (5) Jessup
- 485 Advanced General Shop for Industrial Education Teachers (3) Bailly
- 486 Trends in Industrial Education (3) Bailly
- 487 Instructional Analysis for Industrial Education Teachers (3) Bailly
- 488 Philosophy of Education (3) Staff
- 489 Current Problems in Industrial Education (3) Bailly
- 490 Educational Statistics (5) Dvorak
- 491 Advanced Educational Measurements (3) Dvorak
- 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, 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)** **Draper**
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)** **Draper**
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)** **Draper**
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.
- 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
- 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 in *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 chemical, civil, and electrical 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. 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 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 program consists of an integrated series of courses offered by the cooperating departments. Courses are listed below. Descriptions of the courses will be found in the sections devoted to the respective departments:

Chemical Engineering	484	Introduction to Nuclear Engineering
Chemical Engineering	580	Nuclear Engineering
Civil Engineering	559	Control of Radioactive Wastes
Electrical Engineering	497	Nuclear Instruments
Electrical Engineering	500	Nuclear Reactor Theory
Electrical Engineering	501	Nuclear Reactor Theory
Mechanical Engineering	487	Tracer Techniques in Mechanical Engineering Measurements
Mechanical Engineering	531	Heat Transfer
Mechanical Engineering	538	Nuclear Power Plants
Metallurgical Engineering	444	Nuclear Metallurgy
Metallurgical Engineering	445	Nuclear Metallurgy Laboratory

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 421 (Differential Equations); Physics 320 (Introduction to Modern Physics); Physics 323 (Introductory Nuclear Physics); Metallurgical Engineering 441 (Physical Metallurgy); Metallurgical Engineering 442 (Physical Metallurgy Laboratory); and Chemical 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 00), and Master of Aeronautical Engineering. 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.

COURSES

- | | |
|---|-----------------------|
| 300, 301, 302 Aerodynamics (3,3,3) | Staff |
| 320 Aerodynamics Laboratory (3) | Staff |
| 330, 331, 332 Aircraft Structural Analysis (3,3,3) | Dill, Weikel |
| 350 Aircraft Structural Laboratory (2) | Dill, Weikel |
| 360 Aircraft Engines (3) | Eastman |
| N390-N391-392 Seminar (0-0-1) | Eastman, Staff |
| 404 Introduction to Theoretical Aerodynamics (3) | Ganzer, Street |
| 410, 411, 412 Aircraft Design (3,3,3) | Staff |
| 422 Aerodynamics Laboratory (3) | Staff |
| 425 Flight Test Laboratory (3) | Joppa |
| 441 Advanced Structural Design (3) | Weikel |
| 461 Jet Propulsion (3) | Ganzer |
| 462 Propellers and Moving Wing Systems (3) | Eastman |
| 470 Analytical Problems in Aeronautics (3) | Staff |
| 480 Elementary Dynamics (3) | Ganzer, Martin |
| 481 Elementary Aero-elasticity (3) | Ganzer, Martin |
| 499 Special Projects (2-5, maximum 10) | Staff |
| 505 Aerodynamics of Incompressible Fluids (3) | Street |
| 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. | |
| 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. Prerequisite, 505. | |
| 508 Aerodynamics of Compressible Fluids (3) | Street |
| Thermodynamics of ideal gases; isentropic flow in one dimension, shock waves, equations of motion in nonviscous flow; airfoils and wings; similarity laws. | |
| 509 Aerodynamics of Compressible Fluids (3) | Street |
| Theory of characteristics; equations in the hodograph plane, exact solutions; linearized supersonic flow over wings and bodies of revolution; laminar compressible boundary layer. Prerequisite, 508. | |
| 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) | Martin, Weikel |
| 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) | 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)** **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)** **Martin**
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, 530, 553, and 572.
- 553 Aircraft Vibrations (3)** **Martin**
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)** **Martin**
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)** **Martin, 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.) Prerequisites, Mathematics 421 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. Prerequisites, Mathematics 421 for 571 and 573; 571 for 572.
- 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**
- 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 128), 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

- N381, N382 Field Trip (0,0)** David
- 384 Industrial Stoichiometry (4)** David
- 385 Chemical Engineering Thermodynamics (4)** McCarthy
- 470 Transport Process Principles (4)** McCarthy
- 471, 472, 473 Unit Operations (3,3,3)** Johanson, Moulton
- 474, 475, 476 Unit Operations Laboratory (2,2,2)** Babb
- 481 Inorganic Chemical Processes (3)** Moulton
- 482 Organic Chemical Processes (3)** Babb, Moulton
- 483 Chemical Engineering Process Design (4)** Babb, Moulton
- 484 Introduction to Nuclear Engineering (3)** Babb, Moulton
- 485 Industrial Electrochemistry (3)** Moulton
(Offered when demand is sufficient.)
- 498 Senior Investigations (1-6)** Staff
- 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 fractioning equipment. (Offered alternate years; offered 1958-59.) 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 1957-58.) Prerequisites, 570 and 575 or permission.
- 574 Fluid Flow (3)** 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, 385.
- 580 Nuclear Engineering (3)** Babb
An advanced course in engineering analysis and design of nuclear reactor systems. The course covers heat generation and distribution in nuclear reactor systems; the removal and utilization of heat for power production; transient behavior of reactor systems; fuel cycles and processing of irradiated reactor fuels; shielding of nuclear radiations. Prerequisites, 484 and Electrical Engineering 500.
- 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 1957-58.) 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 1958-59.) 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**
Thesis (*) **Staff**

Chemical engineering courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

- R475 Diffusional Processes I (4)**
R476 Diffusional Processes II (4)
R484 Process Instrumentation and Control (4)
R486 Heat Transmission (4)
R487 Advanced Engineering Thermodynamics (4)
R488 Analytical Treatment of Chemical Engineering Processes (4)
R489 Chemical Engineering Economic Balance (4)
R490 Chemical Engineering Kinetics (4)
R494 Reactor Design (4)

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 128), 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.

Thesis (*) **Staff**

SURVEYING

- 315 Photogrammetry (3)** **Chittenden, Colcord**

TRANSPORTATION ENGINEERING

- 321 Roads and Pavements (3)** **Ekse, Meese, Sawhill**
403 Principles of Urban Planning (3) **Horwood**
422 Railway Engineering (3) **Ekse**
423 River and Harbor Engineering (3) **Ekse, Meese**
424 Highway Design (3) **Ekse**
426 Airfield Design (3) **Ekse**
428 Highway Economics and Administration (3) **Hennes, Horwood**
429 Traffic Engineering (3) **Horwood, Sawhill**
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.

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 Hydraulic Power (3) **Campbell, Richey**
448 Reclamation (3) **Campbell, Van Horn**
547 Advanced Hydraulic Power (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.
559 Control of Radioactive Wastes (3) **Bogan, Sylvester**
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. Prerequisites, Physics 320 or equivalent, and permission.

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, Sergov
485 Applied Structural Analysis (3) Miller
491 Advanced Professional Design (2-5, maximum in one field, 15) Staff
560 Photoelasticity (3) Sergov
 Introduction of stress determination using polarized light and transparent plastics. To gain familiarity with the polariscope, the making of models, and solution of some common engineering problems in two dimensions. Modern photoelastic theory, plastics and similitude. Prerequisite, graduate standing or permission.
571 Advanced Strength of Materials (3) Chenoweth, Sergov
 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.
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 Suspension Structures (3)** **Farquharson**
Fundamental principles of structural action as applied to suspension bridges, suspended pipe lines, conveyors, and transmission lines. Analysis for dead and live loading and static wind action. The mechanisms of wind excitation on typical cross sections and their application to various modes of vibration.

Civil engineering courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

- R442 Advanced Fluid Mechanics (3)**
R571 Advanced Strength of Materials (3)

ELECTRICAL ENGINEERING

Executive Officer: AUSTIN V. EASTMAN, 201 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 128), 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

- | | |
|---|--------------|
| 300 Elements of Electrical Engineering (5) | Staff |
| 301 Electrical Machinery (5) | Staff |
| 311 Electric Transients (4)
To be taken concurrently with 312. | Staff |
| 312 Electric Transients Laboratory (1)
To be taken concurrently with 311. | Staff |
| 331 Fields and Materials (5) | Staff |
| 333 Vacuum Tubes and Electronics (4)
To be taken concurrently with 334. | Staff |

- 334 Electronics Laboratory (1)** **Staff**
To be taken concurrently with 333.
- 340 Alternating-Current Machinery (4)** **Staff**
To be taken concurrently with 341.
- 341 Alternating-Current Machinery Laboratory (2)** **Staff**
To be taken concurrently with 340.
- 400 Vacuum Tubes and Electronics (5)** **Staff**
- 430 Individual Projects (2-5, maximum 10)** **Staff**
- 440 Vacuum-Tube Circuits (6)** **Staff**
- 450 Advanced Alternating Currents (6)** **Staff**
- 453 Electric Power Systems (3)** **Robbins**
- 457 Industrial Control (3)** **Hoard**
- 460, 461 Vacuum-Tube Circuits (5,5)** **Staff**
- 469 Advanced Field Theory (4)** **Staff**
- 470 Communication Networks (5)** **Staff**
- 473 High-Frequency Circuits (5)** **Cochran**
- 479 Radio Design (2)** **Cochran**
Must be preceded or accompanied by 461.
- 497 Nuclear Instruments (3)** **Fechter**
- 500 Nuclear Reactor Theory (5)** **Fechter**
The origin, measurement, and control of radiation; properties of gamma rays, neutrons, and charged particles; principles of dosimetry; radiation shielding problems; engineering techniques and instruments used in monitoring and controlling radiation; Atomic Energy Commission and Federal policies. Prerequisites, Physics 323 or equivalent, Chemical Engineering 484 or taken concurrently.
- 501 Nuclear Reactor Theory (3)** **Fechter**
A continuation of 500, covering types and functions of nuclear reactors; time behavior of nuclear reactors; fundamentals of reactor control; nuclear reactor instrumentation and applications. Includes one 3-hour laboratory per week. Prerequisite 500.
- 510 Introductory Network Theory (5)** **Lewis**
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**
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**
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)** **Borgsoth**
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, 470.
- N520-N521-522 Seminar (0-0-2)** **Lewis**
Required for all graduate students.
- 545 Power Transmission (5)** **Borgsoth**
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)** **Borgsoth**
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)** **Borgsoth**
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 1958-59.) Prerequisites, 333 and 510, which may be taken concurrently with 562.
- 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, 460 and 470.
- 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 Radiation and Propagation (4)** **Swarm**
Theory of radiation; impedance characteristics and radiation patterns of thin linear antenna elements; properties and synthesis of antenna arrays; field intensity calculations; theory of tropospheric and ionospheric propagation; propagation anomalies. Includes one four-hour laboratory on alternate weeks. Prerequisite, 331.
- 572 Microwave Network Theory (4)** **Hold**
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, 469, 470, and 510.
- 574 Microwave Antennas (4)** **Hold**
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.
- 576 Communication Theory (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, permission.
- 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 alternate weeks. (Offered alternate years; offered 1957-58.) Prerequisite, 470.
- 582 Feedback Control Systems I (4)** **Bergsoth**
Function of feedback control systems, physical characteristics and transfer functions of typical components, analysis of transient and frequency response of linear systems, methods of graphical analysis, and system stability criteria. Prerequisite, 510.
- 583 Feedback Control Systems II (3)** **Bergsoth**
Design and analysis of multiple loop linear systems, experimental design and analysis procedures, control system synthesis, nonlinear control systems, describing functions and phase plane analysis. Prerequisite, 582.
- 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.
- 600 Research (2-5)** **Staff**
Thesis (*) **Staff**

Electrical engineering courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

R490 Electronics (5)

R491 Radiological Engineering (5)

R590 Electric Transmission Problems I (5)

R591 Electric Transmission Problems II (4)

R592 Servomechanisms (3)

R593 Analogs and Analog Computers (4)

MECHANICAL ENGINEERING

Executive Officer: BRYAN T. McMINN, 316 Guggenheim Hall

The Department of Mechanical Engineering offers courses leading to the degrees of Master of Science in Engineering (see page 128), and Master of Science in Mechanical Engineering.

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, air conditioning and refrigeration, nuclear power, 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, 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.

COURSES

305 Production Tooling (1)	Kenny, Zylstra
306 Production Techniques (1)	Schaller, Snyder
307 Production Planning (1)	Schaller, Snyder
312 Machine Tool Fundamentals (3) Not open to engineering students.	Kenny, Zylstra
320 Thermodynamics (5)	Childs, McMinn, Nordquist
324 Experimental Thermodynamics (3)	Crain, Firey, McIntyre, Shouman
325 Thermodynamics for Nonmajors (3)	Childs, Nordquist, Shouman, Thomas
328 Elementary Thermodynamics (3) Not open to engineering students.	Hendrickson
329 Refrigeration (3) Not open to engineering students.	Hendrickson
340 Engineering Materials (3)	Balise, Day, Mills, Meador
341 Aircraft Materials (2)	Schaller
342 Industrial Materials and Processes (3) Not open to engineering students.	Mills
361, 362 Machine Design (3,3)	Balise, Crain, Day, Kioling, Morrison
367 Dynamics of Machines (3)	Balise, Morrison, Nordquist
368 Kinematics (3)	Day, Kioling, Morrison
403 Tool Design (3)	Zylstra
410 Engineering Administration (3)	Owens, Schaller
411 Engineering Economy (3)	Schaller, Zylstra
414 Industrial Safety (2)	Zylstra
415 Quality Control (3)	Owens, Zylstra
417 Methods Analysis (3)	Owens
418 Work Simplification (2)	Owens
424 Power Plants (5)	Waibler
425 Air Conditioning (3)	Crain, Hendrickson
426 Thermodynamics for Nonmajors (5)	Childs, Crain, Nordquist
428 Refrigeration (3)	Hendrickson, McMinn
430 Introduction to Heat Transfer (3)	Childs, Firey, Waibler
432 Thermodynamics of Fluid Flow (3)	Childs
436 Friction and Lubrication (3)	Firey, Mills
443 Instrumentation (3)	Balise
463 Mechanical Engineering Analysis I (3)	Balise
466 Machine Design (4)	Balise, Day, Morrison

- 468 Machine Design (3)** Balise, Day, Morrison, Kielsing
- 469 Dynamics of Machines (3)** Balise, Morrison, Nordquist
- 481 Internal Combustion Engines (3)** Firey, Guidon
- 482 Internal Combustion Engine Laboratory (3)** Firey, Guidon
- 483 Internal Combustion Engine Design (3)** Firey, Guidon
- 487 Tracer Techniques in Mechanical Engineering Measurements (3)** Firey
- 490, 491, 492 Naval Architecture (3,3,3)** Rowlands
- 521 Thermodynamics (3)** McMin, Nordquist, Waibler
A critical study of the fundamental concepts of thermodynamics; nonflow and steady-flow processes; enthalpy; point properties; reversibility; vapors vs. perfect gases. Prerequisites, 320 and graduate standing or permission.
- 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.
- 535 Reactor Engineering (3)** Mills
Review of pile theory; analysis of thermodynamic and heat-transfer problems of reactors; shielding and thermal stress factors; problems of instrumentation and control. Not open to nuclear engineering majors. Prerequisite, graduate standing in mechanical engineering or permission.
- 538 Nuclear Power Plants (3)** Waibler
Study of the design, construction, operation, and maintenance of nuclear power plants. Characteristics of various kinds of reactors as related to the heat-power cycle. Engineering management of nuclear power plants. Prerequisite, Chemical Engineering 580.
- 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 difficulty of control; modes of control; analysis of pneumatic components; advantages and limitations of equipment. Lectures and laboratory. Prerequisite, graduate standing in engineering or permission.
- 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.
- 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.
- 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 tor-

sional 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**
Thesis (*) **Staff**

Mechanical engineering courses offered through the University of Washington at the Graduate School of Nuclear Engineering, Richland, Washington.

R429 Heat-Power Cycles (5)

R461 Plate Theory (3)

R523 Heat Transfer and Fluid Flow (5)

R568 Mechanical Vibrations (3)

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 128), 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
304 Process Ceramics: Drying and Firing (4)	E. E. Mueller
N306, N307 Ceramic Engineering Excursion (0,0)	Staff
311-312 Physical Ceramics: Structure and Reactions (3-3)	J. I. Mueller
313 Physical Ceramics: Colloids and Rheology (3)	J. I. Mueller
402-403 Equipment and Plant Design (2-2)	E. E. Mueller, Campbell
411 Physical Ceramics: Ceramic Equilibria (3)	J. I. Mueller
412J X-ray Analytical Techniques (2)	J. I. Mueller
Offered jointly with the Division of Metallurgical Engineering.	
421 Ceramic Bodies Laboratory (3)	Campbell
422 Ceramic Petrography (2)	Kelly

- 440 Glass Technology (3)** E. E. Mueller
- 450 Pyroprocessing of Nonmetallics (3)** Bauer
- 460 Ceramic Coatings for Metals (3)** E. E. Mueller
- 470 Refractories (3)** E. E. Mueller
- 500 Ceramic Vitreology (3)** E. E. Mueller
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.
- 510 Advanced Ceramic Equilibria (3)** E. E. Mueller
Deviation of phase equilibrium relations in ceramics, studies of crystalline solutions, and analytical treatment of multicomponent phase equilibrium systems.
- 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.
- 521 Identification of Ceramic Materials (3)** J. I. Mueller
Theory and use of X-ray diffraction techniques for qualitative identification. Prerequisite, Physics 355 or equivalent.
- 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.
- 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

- 300 Assaying (3)** Lloyd
- 301 Fire Assaying (3)** Staff
- 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 Process Metallurgy: Plant Practices (2)** Staff
- 361, 362, 363 Physical Metallurgy (4,4,4)** Roberts
- 412J X-ray Analytical Techniques (2)** J. I. Mueller
Offered jointly with the Division of Ceramic Engineering.
- 421 Chemical Metallurgy: Advanced (4)** Lloyd
- 441 Engineering Physical Metallurgy (3)** Polonis
- 442 Engineering Physical Metallurgy Laboratory (1)** Polonis, Staff
May be taken concurrently with 441.
- 444 Nuclear Metallurgy (3)** Polonis
- 445 Nuclear Metallurgy Laboratory (2)** Polonis
- 450 Light Metals (3)** Roberts
- 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.
- 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 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 Theory of Metals and Alloys (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 Theory of Metals and Alloys (3)** Roberts
Kinetics of tempering carbon and low-alloy steels, theories of nucleation and grain growth phenomena, recrystallization, precipitation hardening. Prerequisite, 561.
- 563 Theory of Metals and Alloys (3)** Roberts
Diffusion theory, martensitic transformations, and other solid state transformations. Prerequisite, 562.
- 600 Research (*)** Staff
- Thesis (*)** Staff

Metallurgical engineering courses offered through the University of Washington

at the Graduate School of Nuclear Engineering, Richland, Washington.

- R411 Engineering Metallurgy I (4)
- R441 Elementary Physical Metallurgy (4)
- R532 Metallurgical Thermodynamics (5)
- R561 Structure of Solids (4)
- R567 Advanced Physical Metallurgy (5)

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

	Staff
306 Mine Excursion (1, maximum 2)	
322 Methods of Mining (4)	Anderson
325 Mineral Land Valuation (2)	Anderson
330 Mine Surveying (2)	Anderson
331 Mine Mapping (1)	Anderson
361 Mineral Dressing: Preparation (3)	Brien
362 Mineral Dressing: Concentration (4)	Brien
425 Barodynamics (2)	Pifer
426 Exploration and Development of Mineral Deposits (3)	Pifer
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
581J Mineral Industry Economics (3)	Pifer
Offered jointly with the Division of Metallurgical Engineering.	
483 Mining Laws (1)	Pifer
485 Industrial Minerals (3)	Brien
520 Seminar (1, maximum 6)	Staff
Lectures and discussions; review of research problems and recent literature. Required for all graduate students.	

- 521 Metal Mining (*)** **Andersen, 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, equipment and maintenance; safety and costs; rectangular, square, and circular shafts.
- 523 Coal Mining (*)** **Pifer**
Studies in coal mining, preparation, or coking with particular reference to the Pacific Northwest. Prerequisite, graduate standing.
- 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**
- Thesis (*)** **Staff**

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

- 401 Safety Practices in Forest Industries (2)** **Pearce**
- 403 Timber Physics (3)** **Bryant**
- 404 Timber Physics (5)** **Bryant**
- 406 Microtechnique (3)** **Thomas**
- 407 Forest Economics (2)** **Robertson**
- 408 Forest Economics and Finance (5)** **Robertson**
- 409 Forest Policy and Administration (3)** **Marckworth**
- 410 Advanced Forest Soils (3)** **Gessel**
- 423 Application of Silvicultural Methods (3)** **Scott**
- 424 Advanced Silviculture (3)** **Scott**
- 430 Advanced Forest Fire Control (3)** **Schaeffer**
- 440 Construction (4)** **Stenzel**
- 441 Forest Engineering (5)** **Pearce**
- 442 Logging Engineering (5)** **Pearce**
- 446, 447, 448, 449 Logging Engineering Field Studies (3,5,5,3)** **Pearce**
- 455 Forest Influences (4)** **Gessel, Scott**
- 460 Forest Management (5)** **Robertson**
- 461 Forest Management (3)** **Robertson**
- 465 Forest Photo Interpretation (3)** **Robertson**
- 466, 467, 468, 469 Senior Management Field Studies (5,5,4,2)** **Robertson**
- 470 Forest Products Industries (5)** **Erickson**
- 471 Timber Design (3)** **Bryant**
- 472 Plywood, Lamination, and Glues (5)** **Bryant**

476	Wood Pulp (6)	Grondal
478	Advanced Wood Technology (5)	Bryant, Erickson
481	Milling (5)	Thomas
482	Manufacturing Problems (5)	Thomas
483	Theory and Practice of Kiln Drying (3)	Grondal
484	Forest Products and Field Studies (2)	Thomas
485	Forest Products Seminar (2)	Staff
495	Research Methods Seminar (3)	Bryant
510	Seminar in Forest Soils (2) Prerequisites, 410 and permission.	Gessel
512	Soil Morphology and Classification (3) 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.	Gessel
513	Methods of Forest Soil Survey (5) 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 of instructor.	Gessel
520	Seminar (1, maximum 3) Required of graduate students.	Staff
521	Advanced Silvics (5) A consideration of current literature and topics in forest tree ecology and physiology.	Scott
522	Advanced Silviculture (3) A detailed study of the literature dealing with the more recent applications of silviculture in world forestry.	Scott
523	Forest Tree Seed (2) The study of forest tree seed, including structure, development, production, collection, provenance, storage, germination, dormancy, and stimulation. Prerequisite, permission.	Scott
525	Research Methods in Forest Ecology (2) 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.	Gessel, Scott
540	Advanced Forest Engineering (5) Logging organization and management; logging cost analysis and budgeting. Prerequisite, permission of instructor.	Pearce
560	Forest History and Policy (3) Special studies in the development and administration of forest policies in the United States and/or in other countries. Prerequisites, 408, 409, and 460 or equivalent.	Marckworth
562	Forest-Management Plans (3-5) 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 or equivalent.	Robertson
570	Advanced Wood Preservation (3) Permeability of wood; theory of penetration; treating plants, their equipment and design. Prerequisites, 370 and 371.	Erickson
590, 591, 592	Graduate Studies (2-5,2-5,2-5) Study in fields for which there is not sufficient demand to warrant the organization of regular courses.	Staff
600	Research (*)	Staff
	Thesis (*)	Staff

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 librarian-

ship. 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 875,000 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.
- 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 *Schools of Medicine and Dentistry 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) | Bodemer |
| 328-329 Gross Anatomy (6-4) | Blandau, Everett |
| 330 Microscopic Anatomy (4) | Roosen-Runge |
| 331 Neuroanatomy (2) | Everett |
| 350-351 Human Function and Structure (6-6) (See Conjoint Courses, page 154.) | |
| 401-402 Gross Anatomy (10-6) | Staff |
| 404 Human Embryology (3) | Blandau |
| 405-406 Microscopic and Submicroscopic Anatomy (3-5) | Bennett |
| 409 Basis of Neurology (3,5, or 8) (See Conjoint Courses, page 154.) | |
| 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 (4) | Everett |
| Techniques of using radioactive isotopes as tracers in biological research. Prerequisite, permission. | |
| 540 Prenatal Anatomy I (4) | Johnson |
| The study and dissection of the fetus and the newborn, emphasizing the thoracic cavity. Primarily intended for pediatricians and surgeons. Prerequisite, permission. | |
| 541 Prenatal Anatomy II (4) | Johnson |
| The study and dissection of the fetus and the newborn, emphasizing the spine and extremities. Primarily intended for orthopedists. Prerequisite, permission. | |
| 542 Prenatal Anatomy III (4) | Johnson |
| The study and dissection of the fetus and the newborn, emphasizing the head and neck. Primarily intended for practitioners of otorhinolaryngology, ophthalmology, neurology, and pediatrics. Prerequisite, permission. | |
| 543 Prenatal Anatomy IV (4) | Johnson |
| The study and dissection of the fetus and the newborn, emphasizing the abdomino-pelvic cavities. Primarily intended for pediatricians and surgeons. | |
| 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) | Thornburg |
| Quantitative studies of cell structure and function using light microscope, phase microscope, polarizing microscope and microspectrophotograph. Prerequisite, permission. | |
| 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4) (See Conjoint Courses, page 154.) | |
| 600 Research (*) | Staff |
| Prerequisite, permission. | |
| 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 (*)
(Graduate students by permission.) | Staff |
| 520 Seminar (1-3, maximum 9)
Prerequisite, permission. | Staff |
| 521 Physical Biochemistry Seminar (1)
Prerequisite, permission. | Dandliker |
| 562 Physical Biochemistry (2)
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 1957-58.) Prerequisites, 482 and Chemistry 357 or permission. | Dandliker |
| 563, 564 Proteins (2,2)
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 1957-58.) Prerequisites, 562 or permission for 563; 563 for 564. | Dandliker, Neurath, Wilcox |
| 565, 566, 567 Enzymes and Enzyme Action (2,2,2)
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. Prerequisites, 482 and Chemistry 357, or permission for 565; 565 for 566; 566 for 567. | Fischer, Huennekens |
| 568 Biochemistry of Lipides (2)
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. | Hanahan |
| 569 Topics in Bio-organic Chemistry (2)
Application of organic chemistry to selected problems in biochemistry, illustrated by the determination of structure, total synthesis, and mechanism of action of such compounds as nucleotides and peptides. Prerequisite, 482 or permission. | Huennekens, Wilcox |
| 570 Biochemical Aspects of Disease (2)
An advance treatment of topics related to normal and altered metabolism. Those diseases in which the biochemical approach has been particularly helpful in a study of etiology or in diagnosis and treatment will be considered. Topics will be presented and discussed by the participating students and the staff. Prerequisite, 482 or permission. | Krebs |
| 583 Advanced Biochemistry Laboratory (3)
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. | Staff |
| 600 Research (*)
Prerequisite, permission. | Staff |
| 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, Groman, Ordal, Rickenberg, Whiteley, Zahler
	Fundamental physiological and metabolic processes of bacteria. (Offered alternate years; offered 1958-59.) Prerequisite, permission of instructor.	
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, Caryophanaeae, and Borrelomycetaceae. (Offered alternate years; offered 1957-58.) Prerequisite, permission.	
540	Filterable Viruses (*, maximum 4)	Evans, Groman
	(Offered alternate years; offered 1957-58.) Prerequisites, -442 and permission; histology is recommended.	
550	Advanced Immunology (*, maximum 4)	Weiser
	(Offered alternate years; offered 1958-59.) Prerequisites, 441- and permission.	
600	Research (*)	Staff
	Thesis (*)	Staff

PATHOLOGY

Acting Executive Officer: LESTER D. ELLERBROOK, D509 Health Sciences Building

COURSES

321, 322-323-424-425, 426	Medical Technology (5,6-5-6-6,16)	Staff
441-442-443	General and Special Pathology (5-5-5)	Staff
446-447	Laboratory Procedures (*-*) (See Conjoint Courses, page 154.)	
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.
- 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 degrees 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 154.)
- 401-402 Advanced Human Physiology (7-7)** Ruch, Staff
- Conjoint 408 Conjoint Research Projects (2)** (See Conjoint Courses, page 154.)
- Conjoint 409 Basis of Neurology (3,5, or 8)** (See Conjoint Courses, page 154.)
- 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
- 491 Medical Physics (2)** Staff
- 492 Selected Topics in Physiology and Biophysics (2)** Staff
- 493 Techniques in Cardiopulmonary Diagnosis (2)** 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. 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 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, cardiachometer, thermocouples, gradient calorimeter). Prerequisites, 532 and permission.
- 535 Operative Techniques in Neurophysiology (2-5)** Patton, Ruch
Deafferentation, decerebration, and Sherrington reflex preparation; osteoplastic bone flap, Horsley-Clarke apparatus, and reconstruction of lesions; primate colony and operating room management. Prerequisite, permission.
- 600 Research (*)** Staff
Prerequisite, permission.
- Thesis (*)** Staff

PUBLIC HEALTH AND PREVENTIVE MEDICINE

Executive Officer: WILLIAM E. REYNOLDS, B506 Health Sciences Building

COURSES

409	Biostatistics (2)	Bennett, Reynolds
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
425	Epidemiology of Communicable Diseases (1)	Reynolds
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, Pate, Bovee
453	Industrial Hygiene Techniques (3)	Kusian, Pate, Bovee
460J	Field Training in Health Education (5) Offered jointly with the College of Education. (Offered Summer Quarter only.)	Vavra
461	School and Community Health Programs (5)	Mills, Reeves, Vavra
463	Community Organization for Health Education (3)	Vavra
464	Community Health Education Techniques (3)	Vavra
470	Introduction to Biometry (3)	Bennett
472	Applied Statistics in Health Sciences (2-4)	Bennett
475	Clerkships and Seminar (*)	Staff
476	Advanced Biometry (5)	Bennett
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) Offered jointly with the School of Nursing.	Leahy, Vavra
492J	Problems in International Health (2) Offered jointly with the School of Nursing.	Leahy, Reynolds
496	Concept of the Child (3) (See Conjoint Courses, below.)	
497	Medical Students' Elective (*) (Graduate students by permission.)	Staff
502J	Applied Group Development Principles (3) 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.	Burke, Vavra

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.		

- 408 Conjoint Research Projects (2)** **Carlson, Krebs, Blandau**
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 (*-*) **Staff**
 Offered by the Departments of Pathology and Medicine. Prerequisite, permission for graduate students.
496 Concept of the Child (3) **Deisher, Baldwin, 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) **R. Johnson**
 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 for nonmedical students.

PEDIATRICS

Executive Officer: ROBERT A. ALDRICH, C520 Health Sciences Building

COURSES

- 496 Concept of the Child (3)** (See Conjoint Courses above.)
505 Physical Growth of the Well Child (2) **Moll, 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**
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.
557 Clinical Psychiatry (2) **Staff**
 Discussion of clinical psychiatry considering causation, prevention, treatment, and rehabilitation. Not open to students who have taken 457. Prerequisite, 267 or 451 or permission.
558 Seminar: Interviewing (2) **Staff**
 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)
Conferences, seminars, and round-table discussions of advanced surgical topics and recent literature in the field. | Harkins, Merendino, Nyhus |
| 581, 582, 583, 584 | Surgical Anatomy I, II, III, IV (4,4,4,) (See Conjoint Courses, page 154.) | |
| 590 | Surgical Experimental Techniques (5)
Basis for graduate research and advanced thesis work. | Harkins, Merendino, Nyhus |
| 598 | Seminar in Urology (*)
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. | McDonald, Staff |
| 600 | Research (*) | Harkins, McDonald, Merendino, Morris, Payne, Foltz, Nyhus, Ward, Staff |
| 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. These courses provide for graduate study and advanced professional preparation and research in teaching in various clinical specialties or in administration in schools of nursing, or nursing services in hospitals, or public health nursing agencies. They are designed to develop research ability and superior professional competence and to prepare the graduate for positions of administrative, teaching, or advanced clinical responsibility and for assumption of leadership in nursing.

Each student's background is considered individually in the planning of her program.

The patterns outlined below are the usual ones for the master's degrees. Candidates for the Master of Arts are encouraged to take a minor which will serve as the basis for a doctoral degree.

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.

COURSES

430 Advanced Nursing Field Work (3)	Staff
431 Advanced Nursing Field Work (2)	Staff
432 Principles of Advanced Nursing (2)	Lucas, Wasson
435 Practice Supervision in Nursing (3)	Smith, Staff
436 Practice Teaching in Nursing (3)	Wasson, Staff
454 Administration in Nursing (2)	Smith
455 Administration of Schools of Nursing (3)	Hoffman
456 Nursing Service Administration (3)	Smith
459 Current Literature in Nursing (2)	Staff
462 Teaching in Schools of Nursing (3)	Wasson
463 Personnel Guidance Programs in Nursing (3)	Lucas
464 The Role of the Nurse in Mental Hygiene (2-3)	Kinney
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.	
493 Public Health Nursing Aspects of Adult Hygiene (3)	Kinney
498 Methods of Supervision in Public Health Nursing (3)	Leahy
501 Development of Nursing Procedures (2)	Wasson
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)	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 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)** **Kinney**
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)** **Lewis, Lucas**
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 Nursing and Psychosomatic Conditions (3)** **Ely**
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)** **Lucas**
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)** **J. Anderson**
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**
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 as a Class A college and is a member of the American Association of Colleges of Pharmacy. The degrees of Master of Science and Doctor of Philosophy are offered.

MASTER OF SCIENCE. Candidates must have the degree of Bachelor of Science in Pharmacy 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 45 credits in course work and thesis must be presented, including not less than 27 credits of course work exclusive of nonthesis research.

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. Specialization is offered in pharmaceutical chemistry, pharmacognosy, and pharmacy.

A total of not less than 135 credits in course work and thesis must be presented, including not less than 56 credits in course work exclusive of nonthesis research. This rule does not apply to those graduate students enrolled before January 1, 1955. The credits earned for the master's degree may be applied toward the doctor's degree.

COURSES

PHARMACEUTICAL CHEMISTRY

- 497 Pharmaceutical Chemistry and Toxicology (5)** **Fischer**
- 511-512-513 Advanced Pharmaceutical Chemistry (3-3-3)** **Krupski**
pH determination and buffer systems, fluorometry, chromatography, ion exchange, and the use of various instruments for scientific investigations and vitamin determinations. (Offered every third year; offered 1958-59.)
- 520 Seminar (1, maximum 3)** **Staff**
Graduate students attend seminars every quarter while in residence, but a maximum of 1 credit per year is allowed.

- 521, 522, 523 Advanced Organic Medicinal Products (3,3,3)** **McCarthy**
 Synthesis, isolation, and relation between structure and physiological activity for the important classes of medicinal agents. (Offered every third year; offered 1957-58.)
- 526, 527, 528 Advanced Organic Medicinal Products Laboratory (2,2,2)** **McCarthy**
 Synthesis of important medicinal products and isolation of active principles from natural sources. (Offered every third year; offered 1957-58.)
- 531 Plant Chemistry (3)** **McCarthy**
 Alkaloids, including methods of isolation, degradation studies, proof of structure, and synthesis of alkaloids, with emphasis on pharmaceutical compounds. (Offered every third year; offered 1959-60.)
- 532 Plant Chemistry (3)** **McCarthy**
 Production, isolation, and chemistry of the volatile oils and of sterols, with emphasis on pharmaceutical compounds. (Offered every third year; offered 1959-60.)
- 533 Plant Chemistry (3)** **McCarthy**
 Glycosides and related compounds, including methods of isolation, proof of structure, synthesis, and activity, with emphasis on pharmaceutical compounds. (Offered every third year; offered 1959-60.)
- 600 Research (*)** **Staff**
Thesis (*) **Staff**

PHARMACOGNOSY

- 405 Advanced Pharmacognosy (3)** **Tylor**
- 406 Medicinal Plants (2)** **Tylor**
- 411 Hormones and Glandular Products (3)** **Goodrich**
- 412 Serums, Vaccines, and Allergens (2)** **Goodrich**
- 520 Seminar (1, maximum 3)** **Staff**
 Graduate students attend seminars every quarter while in residence, but a maximum of 1 credit per year is allowed.
- 600 Research (*)** **Staff**
Thesis (*) **Staff**

PHARMACY AND PHARMACY ADMINISTRATION

- 473 Cosmetic Manufacturing (3)** **Rising**
- 483 Hospital Pharmacy (3-5)** **Plein**
- 520 Seminar (1, maximum 3)** **Staff**
 Graduate students attend seminars every quarter while in residence, but a maximum of 1 credit per year is allowed.
- 540 Pharmaceutical Emulsions (2)** **Rising**
 Problems in the preparation of emulsions in pharmaceutical manufacturing. Prerequisites, Chemistry 239 and either Chemistry 351, 352, 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**
Thesis (*) **Staff**

GRADUATE SCHOOL OF SOCIAL WORK

Director: VICTOR I. HOWERY, 103 Social Work Hall

The Graduate School of Social Work offers a two-year, six-quarter program leading to the degree of Master of Social Work. This post-graduate professional curriculum is based upon undergraduate preparation in the social sciences, including some work in each of the following: anthropology, economics, political science, psychology, and sociology. It is recommended that a course in statistical methods and one in physiology be included in the undergraduate preparation. During the course of study, students may emphasize an interest in social case work, community organization, social group work, agency administration, or research. Completion of the course of study may lead to positions as case workers and supervisors in family and children's agencies, in psychiatric clinics, in hospitals and courts, in correctional institutions, as research workers in social agencies, as workers or supervisors in group work agencies, and as staff workers in community organization agencies. The student program includes a supervised field

work assignment in an approved social agency for two or three days a week in both the first and second year of study. In addition to tuition costs and general fees, each student must plan for the cost of transportation to and from the field work agency (approximately \$15.00 a month) and the payment of a special laboratory fee for the field work course.

Students are encouraged to plan toward the full curriculum, but those unable to study longer than one academic year can complete in that time the necessary educational preparation for positions. Undergraduate courses are available for students who expect to enter employment in a social agency without graduate work, and for students who have a general interest in the study of social welfare services.

MASTER OF SOCIAL WORK

Degree requirements include satisfactory completion of the prescribed curriculum, a minimum of three quarters in residence at this School, the equivalent of field work in six quarters, a comprehensive examination, and completion of either an individual thesis or a group research project. The research requirement is more generally met by the completion of a three-quarter research course. Instruction includes material on the methods of social work research and field practice in social work research through group research projects. Field practice includes experience in research design, collection and analysis of data, and preparation of a report.

Detailed information about admission requirements and the curriculum is available upon request to the Registrar, University of Washington, or the Director of the Graduate School of Social Work, University of Washington.

COURSES

- | | |
|---|-------------------------------------|
| 300 Field of Social Work (3) | Parsons, Lawrence, Lecturers |
| 302 Introduction to Child Welfare (2) | Lawrence, Parsons |
| 304 Case Work Interviewing (2) | Reiss, Lawrence |
| 306 Public Welfare Programs in the United States (3) | Parsons, Casey |
| 502 Development of Social Service Programs (2) | Howery, Walter, Lawrence |
| 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. Prerequisite, 511. | |
| 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. | |
| 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**
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**
Continuation of 533. Prerequisite, permission.
- 535 Advanced Field Work (4, maximum 12)** **Macdonald, Staff**
Prerequisite, 515.
- 536 Seminar: Supervision (3)** **Staff**
Functions of the supervisor in case-work agencies, as teacher, case consultant, and administrative officer; review of literature; study of supervisory processes and techniques through analysis of case material illustrating the three functions of the supervisors; the supervisory relationship—transference and counter-transference in supervision; management of supervisory load. Prerequisite, permission.
- 546 Emotional Disturbances in Children (2)** **Staff**
Psychiatric problems of children; a discussion of the therapeutic process; the role of the social work therapist; the child's participation in treatment; types of play material used; interpretations and evaluations of progress. Prerequisite, permission.
- 556 Medical Information for Social Work (2)** **Ferguson, Medical Lecturers**
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, Medical Lecturers**
Continuation of 556. Prerequisite, 556.
- 570 Administration of Social Agencies (2)** **Howery**
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)** **Casey, 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.
- 584 Public Assistance Policy and Method (3)** **Staff**
Administrative aspects of a public welfare agency program as related to case-work services; the development and effective use of policy in agency planning and provision of individualized service as applied to practice. 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.
- 590-591-592 Social Work Research (2-2-2)** **Staff**
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.

Thesis (*)

Staff

URBAN PLANNING

Chairman: DONALD H. WEBSTER, 266 Smith Hall

Coordinating Committee: Donald H. Webster, Professor of Political Science; Myer R. Wolfe, Associate Professor of Urban Planning, College of Architecture and Urban Planning; Bayard O. Wheeler, Professor of Business Administration; Edgar M. Horwood, Associate Professor of Civil Engineering; John C. Sherman, Associate Professor of Geography; Calvin F. Schmid, Professor of Sociology.

Advisers: Edwar M. Horwood, Thesis Adviser; Myer R. Wolfe, Registration Adviser.

Field Coordinator: Floyd M. Jennings, Planning Consultant, Bureau of Governmental Research and Services.

An interdepartmental curriculum leading to the degree of Master of Arts in Urban Planning is offered by the College of Architecture and Urban Planning; the Colleges of Business Administration and of Engineering; and the Departments of Geography, Political Science, and Sociology. The curriculum is supervised by an interdepartmental Coordinating Committee, under the Graduate School, which is composed of representatives from the participating academic divisions.

The program for the degree in urban planning is designed to prepare students to meet the growing demand for professionally trained administrators and technicians in city and urban planning, especially in Washington State and the Pacific Northwest.

Candidates are admitted to the curriculum on application approved by the Coordinating Committee. All inquiries about the program should be addressed to the Chairman of the Committee.

A limited number of compensated internships are available through arrangements with municipalities in the state. If approved by the Coordinating Committee, an internship project may be used as source material for a thesis.

The degree will be awarded upon satisfactory completion of 60 or more credits, which includes 9 credits for thesis. Not more than 6 credits may be waived for any *required* course or its equivalent taken before entrance to the program. Participation in an interdepartmental seminar may be required with or without credit. The varying background of training and experience found among candidates for this degree permits the adjustment of the student's program to meet individual needs and objectives. Ordinarily, the program of study may be begun either during Autumn, Winter, or Spring Quarters. No foreign language is required.

The curriculum includes, but is not limited to, the courses listed below. *Prerequisite* courses are those suggested as part of the undergraduate preparation for entrance into the curriculum. Some deficiencies in prerequisite courses may be removed after admission to graduate study. *Required* courses are the core of the graduate program. Candidates take all the required courses except those previously completed and those for which substitutions are approved by the Committee. *Recommended* courses are those from which the student may choose electives to supplement the core courses.

PREREQUISITES

Urban Planning 380 Introduction to City Planning (3)
or **Civil Engineering 403** Principles of Urban Planning (3)

General Business 101 Introduction to Business (5)
or **Economics 200** Introduction to Economics (5)

Geography 360 Introductory Cartography

Political Science 376 State and Local Government and Administration (5)
or **475** Problems of Municipal Government and Administration (5)

Sociology 110 Survey of Sociology (5) or 310 General Sociology (5)

Sociology 223 Social Statistics (5)

or Mathematics 281 Elements of Statistical Method (5)

REQUIRED

Urban Planning 480 City Planning Practice (3)

Urban Planning 590 City Planning Problems (7)

Urban Planning 591 City Planning Problems (7)

Urban Planning 592 City Planning Problems (7)

Civil Engineering 595 Advanced Professional Design and/or Analysis (2-5, maximum in one field, 15)

Geography 441 Industrial Geography (3 or 5) or 442 Commercial Geography (3 or 5) or 477 Urban Geography (3 or 5)

Political Science 581 Seminar in Public Policy in Planning (5)

Real Estate 301 Principles of Urban Real Estate (5)

Sociology 331 Population Problems (5) or 430—Human Ecology (5)

Thesis (*)

RECOMMENDED

Civil Engineering 315 Photogrammetry (3)

Civil Engineering 350 Introduction to Sanitary Engineering (3)

Civil Engineering 428 Highway Planning (3)

Civil Engineering 429 Traffic Engineering (3)

Communications 303 Public Relations (3)

Economics 350 Public Finance and Taxation I (5)

Geography 258 Maps and Map Reading (2)

Geography 277 Cities of the United States (3)

Geography 444 Geography of Water Resources (3) or (5)

Geography 464 Map Reproduction (3)

Political Science 470 Introduction to Public Administration (5)

Sociology 365 Urban Community (5)

Sociology 420 Methods of Sociological Research (5)

Sociology 425J Graphic Techniques in the Social Sciences (5)

Sociology 455 Housing in the American Community (5)

Sociology 530 Advanced Human Ecology (3)

Sociology 531 Demography (3)

Transportation 301 Principles of Transportation (5)

Urban Planning 485 Housing (2)

Urban Planning 490, 491, 492, 493, (7,7,7,7) City Planning Design

Urban Planning 593 City Planning Problems (7)

SCHOOL OF NUCLEAR ENGINEERING

Richland, Washington

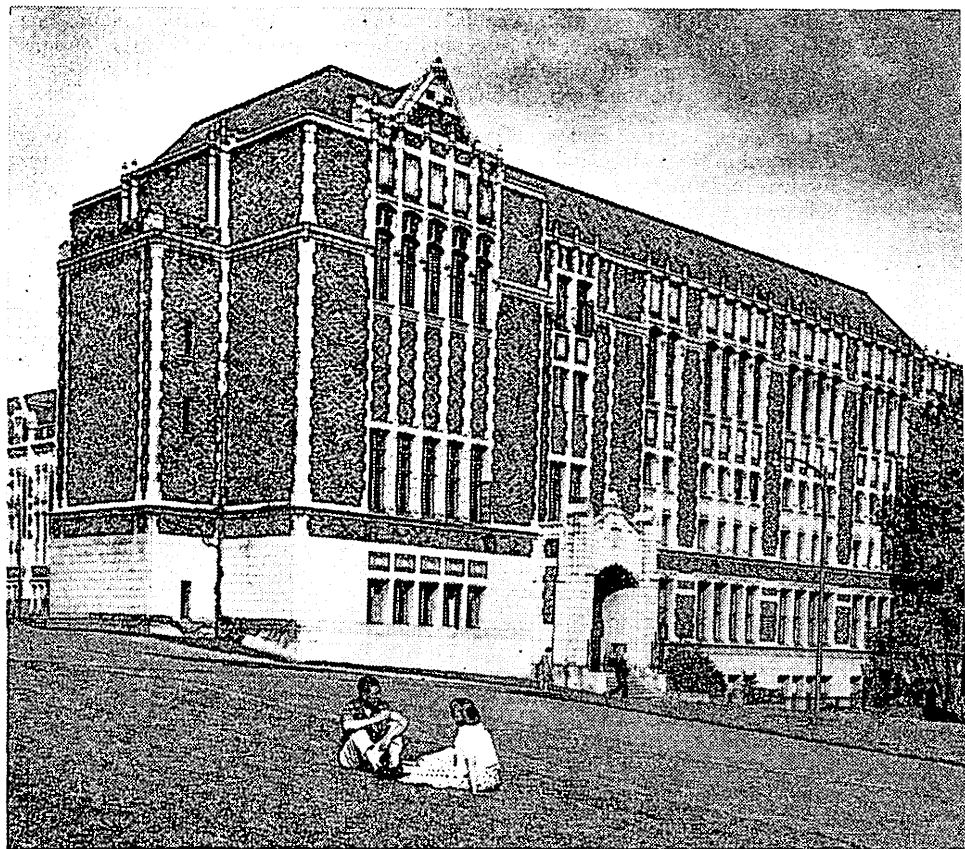
The University of Washington cooperates with General Electric Company in its School of Nuclear Engineering at Richland, Washington. The School serves the people of the Hanford Project including employees of the Atomic Energy Commission, General Electric, and principal subcontractors, who wish to benefit by continued study in parallel with their industrial duties.

Certain courses in the departments of chemistry, mathematics, physics, and chemical, civil, electrical, mechanical, and metallurgical engineering have been officially approved by the Graduate School of the University as part of this cooperative program. Such courses may be taken at Richland and presented in partial

fulfillment of requirements for an advanced degree at the University of Washington. Students who expect to present credits for the advanced degree here must submit credentials and be officially admitted to the Graduate School at the University of Washington prior to enrolling for course work at Richland.

Courses approved by the Graduate School for the School of Nuclear Engineering at Richland, Washington, appear in this Bulletin immediately following the course listings of the departments mentioned in the paragraph above. All course numbers are preceded by an R.

BULLETIN • UNIVERSITY OF WASHINGTON



SCHOOL OF LAW

1958-1960

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; and publications of the Division of Adult Education and Extension Services, 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 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

CORRESPONDENCE STUDY

EVENING CLASSES

BULLETIN
UNIVERSITY OF WASHINGTON

General Series No. 923

May, 1958

Published monthly at Seattle, Washington, by the University of Washington from October to July, inclusive. No issues in August and September. Entered as second-class matter December 18, 1947, at the post office at Seattle, Washington, under the Act of August 24, 1912.

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CALENDAR

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 9—JUNE 13 Registration for Summer Quarter

ACADEMIC PERIOD

JUNE 16—MONDAY	Instruction begins
JUNE 20—FRIDAY	Last day to add a course for the full quarter
JULY 4—FRIDAY	Independence Day holiday
JULY 23—WEDNESDAY	First term ends
JULY 24—THURSDAY	Second term begins
AUGUST 29—FRIDAY	Instruction ends

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 25—THURSDAY	ALL first-year students must register in person
SEPT. 30—TUESDAY	Registration (in person) second-year and third-year students
SEPT. 26-SEPT. 30	Orientation program for first-year students

ACADEMIC PERIOD

OCT. 1—WEDNESDAY	Instruction begins (8 a.m.)
OCT. 7—TUESDAY	Last day to add a course
NOV. 5—WEDNESDAY	Last day to drop a course
NOV. 11—TUESDAY	State Admission Day holiday
NOV. 26—DEC. 1	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 19—FRIDAY	Instruction ends

WINTER QUARTER, 1959

REGISTRATION PERIOD

Nov. 17-Nov. 19 Preliminary registration

ACADEMIC PERIOD

JAN. 5—MONDAY	Instruction begins
JAN. 9—FRIDAY	Last day to add a course
FEB. 9—MONDAY	Last day to drop a course
FEB. 23—MONDAY	Washington's Birthday and Founder's Day holiday
MAR. 20—FRIDAY	Instruction ends

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 4—6 Preliminary registration

ACADEMIC PERIOD

MAR. 30—MONDAY	Instruction begins
APR. 3—FRIDAY	Last day to add a course
MAY 4—MONDAY	Last day to drop a course
MAY 22—FRIDAY	Governor's Day
MAY 30—SATURDAY	Memorial Day holiday
JUNE 7—SUNDAY	Baccalaureate Sunday
JUNE 12—FRIDAY	Instruction ends
JUNE 13—SATURDAY	Commencement

SUMMER QUARTER, 1959

REGISTRATION PERIOD

JUNE 8—JUNE 12	Registration for Summer Quarter
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ACADEMIC PERIOD

JUNE 15—MONDAY	Instruction begins
JUNE 19—FRIDAY	Last day to add a course for the full quarter
JULY 4—SATURDAY	Independence Day holiday
JULY 22—WEDNESDAY	First term ends
JULY 23—THURSDAY	Second terms begins
AUGUST 31—MONDAY	Instruction ends

AUTUMN QUARTER, 1959

REGISTRATION PERIOD

SEPT. 24—THURSDAY	<i>ALL</i> first-year students must register in person
SEPT. 29—TUESDAY	Registration (in person) second-year and third-year students
SEPT. 25—SEPT. 29	Orientation program for first-year students

ACADEMIC PERIOD

SEPT. 30—WEDNESDAY	Instructions begins (8 a.m.)
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Dates subject to change. For further information consult with the School of Law.

ADMINISTRATION

BOARD OF REGENTS

HAROLD S. SHEFELMAN, *President*

JOHN L. KING, *Vice-President*

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President of the University

Registrar

Comptroller and Treasurer

Business Manager

Dean of Students

Dean of the School of Law

Assistant to the Dean

SCHOOL OF LAW FACULTY

Amandes, Richard B., 1958, *Assistant to the Dean; Assistant Professor of Law*
(Legal Research and Writing)

A.A., 1948, A.B., 1950, California (Berkeley); LL.B., 1953, Hasting's College of Law, San Francisco; LL.M., 1956, New York University. Admitted to practice in California.

Cosway, P. 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., 1956, Washington State College; LL.B., 1940, Washington. Admitted to practice in Washington.

Fletcher, Robert, 1956, *Associate Professor of Law*

(Personal Property, Code Pleading, 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 Bibliography, 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. 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 (1956), *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, Code Pleading, 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 (1956), *Assistant Professor of Law*
(Constitutional Law, Criminal Law, Local Government Law, Problems in Constitutional Law)
B.A., 1951, M.A. 1952, Colorado College; LL.B., 1955, Colorado. Admitted to practice in Colorado.
- Nottelmann, Rudolph H., 1927, *Professor of Law*
(Equity, Trusts and Fiduciary Administration, Comparative Law, Restitution)
B.A., 1912, LL.D., 1952, Monmouth College; M.A., 1913, Illinois; LL.B., 1922, Yale.
- Peck, Cornelius J., 1954 (1956), *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, Domestic Relations, Government Regulation of Business)
B.S., 1948, LL.B., 1948, Washington; LL.M., 1953, Chicago. 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*
(Legal Administration, 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 (1957), *Assistant Professor of Law*
(Legal Research and Writing, Conflict of Laws, Trial and Appellate Practice, Administrative Law)
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 M.....	Judge, King County Superior Court, Seattle
Denny, 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
Meakim, Roger J.....	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 W.....	Judge, King County Superior Court, Seattle
Royal, Raymond.....	Judge, King County Superior Court, Seattle
Shorett, Lloyd W.....	Judge, King County Superior Court, Seattle
Steinert, William.....	Judge, Washington State Supreme Court, Retired
Walterskirchen, F. A.....	Judge, King County Superior Court, Seattle
Wilkins, William J.....	Judge, King County Superior Court, Seattle
Wright, Eugene.....	Judge, King County Superior Court, Seattle

ASSOCIATE LECTURERS IN ESTATE PLANNING

Alkire, Durward.....	Accountant (Touche, Niven, Bailey, and Smart), Seattle
Bernbaum, Sanford M.....	Penn Mutual Life Insurance Company, Seattle
Cooper, John M.....	Attorney, National Bank of Commerce, Seattle
Crosby, Gordon E., Jr.....	General Agent, New England Mutual Life Insurance, Seattle
Graves, Victor.....	Trust Officer, People's National Bank, Seattle
Harding, John.....	Trust Officer, Seattle Trust & Savings Bank
Osborn, Charles F.....	Attorney (Bogle, Bogle, and Gates), Seattle
Palmer, Harvard E.....	Vice-President and Trust Officer, Seattle-First National Bank
Rohlf, Marcus.....	United States Internal Revenue Bureau
Schneider, William.....	Secretary, Washington State Tax Commission
Stone, Charles I.....	Attorney (Holman, Mickelwait, Marion, Black, and Perkins), Seattle
Williams, DeWitt.....	Attorney (Eggerman, Rosling, and Williams), Seattle

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

GENERAL INFORMATION

THE 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 131,386 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. The Library is the largest law school library west of the Mississippi.

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 State Court of Appeals for the Ninth Circuit holds a session in the city each autumn. The superior court for King County, the justice courts, the municipal police 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 and a Law School annual, conducts the School's moot court competition, and aids in the operation of the Legal Aid and United States Attorney's programs.

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 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.

UNITED STATES ATTORNEY'S PROGRAM

Each year the United States Attorney for the Western District of Washington, whose offices are in Seattle, selects a limited number of third-year students of unusual ability to work as volunteer law clerks in his office. Each student is assigned work with an Assistant United States Attorney on both civil and criminal cases. Student law clerks may be present at interviews with prospective witnesses; they assist in the research necessary for preparation of the government's briefs, memoranda, and pleadings; and they observe at first hand the processes of formulation of trial strategy and litigation. The experience obtained under the close supervision of the Assistant United States Attorneys is a valuable supplement to a student's education.

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 twenty-nine hundred 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 1957-58 are: Willard J. Wright, '39, Seattle, president; John Huneke, '35, Spokane, vice-president; James Gay, '43, Seattle, treasurer; and Luvern V. Rieke, '49, Seattle, executive secretary. Trustees: Dudley Perrine, '39, Port Orchard; Robert Sherwood, '38, Bellingham; Harold Pebbles, '33; Olympia; Ken Hawkins, '38, Yakima; Robert Brooke, '49, Spokane; John Krilich, '44, Tacoma; Harry Cross, '40, Law School. Overseers of the Law School Alumni Fund: Oluf Johnson, '36, Bremerton; Joe Pemberton, '35, Bellingham; J. S. Applegate, '41, Yakima; Donald Simpson, '39, Vancouver; Donald W. Gaiser, '39, Spokane; Judge John D. Cochran, '32, Tacoma; Harry Cross, '40, Law School.

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 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 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.

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 University Registrar.

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 September 1 of the year in which he desires to enter Law School. Summer School applicants must take the test before June 1.* 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 ten days 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. This rule will become operative in June, 1959. 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 Aptitude 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 Aptitude Test Score		Grade-Point Average (on a 4.00 basis)
L.S.A.T.	Points	G.P.A.
605 and above	10	3.32 and above
555 - 604	9	3.11 - 3.31
530 - 529	8	2.92 - 3.10
501 - 529	7	2.78 - 2.91
478 - 500	6	2.65 - 2.77
451 - 477	5	2.54 - 2.64
430 - 450	4	2.47 - 2.53
403 - 429	3	2.31 - 2.46
355 - 402	2	2.17 - 2.30
200 - 354	1	2.00 - 2.16
	1	Below 2.00

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 430 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 2.47 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 430 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. 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).

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 registrar to delay mailing the transcripts until all grades and the degree, if any, upon which the applicant is relying for admission, are recorded.* Summer school applicants should take note of the slightly different procedure as set forth under Rule 6b.

Rule 6. Time Limits.

a. 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. September 1; *and*

(2) Arrangements must be made by the applicant, not later than September 1, to have completed transcripts of his undergraduate work mailed to the School of Law as early as possible, but not later than September 5.

b. To be eligible for consideration for enrollment in the Summer Session:

(1) An application on the official form must be received at the School of Law by 5:00 p.m. June 11; *and*

(2) Transcripts of all college work recorded to date must be received at the School of Law by 5:00 p.m. June 11, and final transcripts for all applicants who had uncompleted work at the time of application must be mailed directly to the School of Law as soon as available thereafter, and in no case later than 5:00 p.m. June 30; *and*

(3) The applicant's Law School Admission Test score must be received by the School of Law prior to June 11.

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 or a summer session, as the case may be. 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 17), 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 too 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.

A health examination, including chest X ray, under the supervision of the University Health Center, is a required part of registration for all new students and all former students who have not attended the University within the last calendar year. This requirement may be fulfilled by bringing an X ray taken within the last six months by your physician or another health agency. *The X ray itself must be presented, rather than the X-ray report.*

Before a new out-of-state student will be given a notice of admission, he must submit a medical report on a medical questionnaire form supplied by the Registrar and completed by a physician at the time of the application for admission. This form will be mailed to prospective law students during the processing of their applications.

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 21).

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.

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 1958 will be able to graduate in December, 1960, and thus be eligible for the state bar examination in January, 1961. 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 SCHOOLS

The Law School offers a limited number of courses for (1) its own students who are qualified and who desire to accelerate, or who are following a prescribed part-time program, or who seek to lighten their load in succeeding years, or who desire to take additional subject-matter; for (2) 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; and for (3) beginning students who plan to pursue a part-time program of law study.

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 seeking a degree from this School of Law who apply for admission in the Summer Quarter must comply with the admission procedures set forth on pages 14-18.

Summer Quarter courses are listed on pages 29-30.

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 or Alaska for at least a year immediately prior to registration. Domicile connotes a present intention of permanent residence. Temporary residence in the state merely for the purpose of attending school, performing duties while in the military service, or for reasons of health or pleasure is not a basis for the establishment of legal domicile. 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 nonresident when their credentials come from schools outside Washington and Alaska. 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	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
Ticket for Autumn, Winter, and Spring Quarters, \$5.00; for Winter and Spring Quarters only, \$3.00; for Spring Quarter only, \$3.00.	

Law Library Fee, per quarter 10.00**Grade Sheet Fee** .25

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

Transcript Fee .50

One transcript is furnished without charge; the fee is charged payable in advance, for each additional copy. Typewritten title transcripts for all students entering the University prior to Autumn Quarter, 1929, are \$1.00 per copy.

Graduation Fee 10.00**SPECIAL FEES**

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00 per credit; 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**Tuition, Incidental, and ASUW Membership Fees**

Resident students	\$213.00
Nonresident students	528.00

Law Library Fees 30.00**Athletic Admission Ticket (optional)** 3.00-5.00**Accident Insurance (optional)** 3.60**Books and Supplies** 115.00**Board and Room**

Double room and meals in Men's Residence Halls	600.00
Room and meals in Women's Residence Halls	540.00-630.00
Room and meals in fraternity or sorority house	660.00-700.00
Initial cost of joining a fraternity or sorority is not included; this information may be obtained from the Interfraternity or Panhellenic Councils.	

Personal Expenses 200.00

AWARDS, SCHOLARSHIPS, AND LOANS

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 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. Applications must be submitted to the Dean of the Law School not later than July 15 of each year on forms obtained from the Dean's Office.

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 senior Seattle citizen and lawyer.

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 \$50.

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. Applications must be submitted to the Dean of the School of Law not later than July 15 of each year on forms obtained from the Dean's Office.

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.

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.

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.

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 Security Transactions may receive a copy of the problem and appropriate instructions in the Office of the Assistant to the Dean. The award is made by Ivor Lusty, a graduate of the School.

JAMES M. BAILEY MEMORIAL SCHOLARSHIP. Awards to "outstanding students in law" are made during the summer for the following academic year from a sum of

\$500 administered by the trustees of Consolidated Charities. The awards are made on the basis of scholastic promise and achievement and financial need.

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.

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.

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.

WOMEN'S AUXILIARY TO THE SEATTLE BAR ASSOCIATION SCHOLARSHIP. A scholarship awarded annually by the Women's Auxiliary to a third-year law student based upon need, scholarship, and character, with special emphasis on need.

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.

WARREN G. MAGNUSON SCHOLARSHIPS. Awarded to the University each year, one of which will be awarded to a law student interested in Admiralty Law.

DR. JOHN T. ROBSON FUND. Research in forensic medicine.

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.



THE PROGRAM IN LAW

THE PROGRAM IN LAW

THE 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 curriculum of the Law School is designed to prepare young men and women not only for the practice of law but also for professional responsibility as attorneys. Emphasis during the first year is on legal reasoning, with the case system as the norm. Small-group and individual training in the use of law books, in legal writing, and in appellate advocacy, under the guidance of group instructors, also starts in the first year. A course in legal administration acquaints students with the nature and sources of law, the nature of the legal profession, and the machinery of adjudication. All courses during this year are required. They are for the most part the basic, fundamental subjects with which all lawyers must be familiar and upon which the later courses in the curriculum are built.

The second-year courses are also required. Built upon the first year, they carry the student into the detailed problems of procedural law, with equity, pleading, and evidence, and into business and government law, with commercial transactions, business associations, constitutional law, and taxation. Although stress during this period remains on legal reasoning, the "know-how" approach is also emphasized. Drafting and legal writing are component parts of several of these courses, and statutes and materials other than cases are employed. To facilitate effectiveness of classroom presentation and to encourage student discussion and participation, most of the course offerings during the first two years are divided into two sections.

During the third year the emphasis is on the techniques of problem solving, counseling, and advocacy. Small-group, problem, and seminar courses are widely employed. In these courses, students are given problems which call for application of skill in legal reasoning, in problem spotting, in research, in memorandum writing, and in counseling or advocacy. The student must investigate not only the legal but also the business, social, political, or economic aspects of his problem before giving his advice. Finally, the student must draft the legal documents necessary to put his solution into operation.

On the procedural side, students who take Trial and Appellate Practice are required to prepare and try a case, based on actual facts, before a judge, who is in fact a judge, employing Washington court procedures.

The curriculum during the third year calls for the successful completion of 42 credits of work, almost all of which is elective. The particular objectives of this year's work are to develop broad familiarity with different types of legal situations and to provide the opportunity for concentration in a field of primary interest.

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 Legal Administration (3).....	<i>Stevens</i>
120 Personal Property (4).....	<i>Johnson, Fletcher</i>
121 Real Property (3-3).....	<i>Cross, Johnson</i>
132 Criminal Law and Procedure (2-3).....	<i>Cosway, Morris</i>
140 Torts (3-3-4).....	<i>Peck, Richards</i>
141 Agency (3).....	<i>Johnson, Taylor</i>
160, 161, 162 Legal Research and Writing (1,2,1).....	<i>Gallagher, Trautman,</i> <i>Amandes, Staff</i>

SECOND YEAR

200 Commercial Transactions (4-3).....	<i>Cosway, Taylor</i>
201 Business Associations (3-3).....	<i>Gose, Meisenholder</i>
210 Evidence (3-3).....	<i>Meisenholder, Richards</i>
212 Equity (3-3).....	<i>Cross, Nottelmann</i>
213 Jurisdiction, Venue, and Code Pleading (4).....	<i>Fletcher, Meisenholder</i>
230 Constitutional Law (2-2-3).....	<i>Fletcher, Morris</i>
231 Taxation (2-3).....	<i>Harsch, Gose</i>
234 Administrative Law (4).....	<i>Peck, Trautman</i>

THIRD YEAR

Property

320 Trusts and Fiduciary Administration (3-3).....	<i>Nottelmann</i>
*321 Land Transactions (2-3).....	<i>Cross</i>
322 Future Interests (3).....	<i>Fletcher</i>

* Will not be offered 1958-59.

323 Community Property (2).....	Cross
*324 Landlord and Tenant (3).....	Staff
325 Estate Planning (2-2).....	Harsch, Kehoe
328 Conveyancing (4).....	Cross

Commerce

300 Credit Transactions (3-3).....	Shattuck
301 Corporation Finance and Related Tax Problems (2-2).....	Gose, Taylor
302 Creditors' Rights (3).....	Cosway
307 Insurance (3).....	Taylor
*308 Mortgages (3).....	Shattuck
*309 Suretyship (3).....	Shattuck
314 Federal Jurisdiction and Procedure (3).....	Meisenholder
329 Natural Resources (3).....	Johnson

Public

331 Legislation (3).....	Harsch
332 State and Local Taxes (3).....	Harsch
334 Labor Law (3).....	Peck
335 Local Government Law (3).....	Morris
336 Government Regulations of Business (2-2).....	Rieke
339 Labor Relations (3).....	Peck
*340 World Law (3).....	Staff
350 Social Legislation (2).....	Cosway
354 Problems in Constitutional Law (2).....	Morris

Miscellaneous

310 Trial and Appellate Practice (3-2).....	Trautman
312 Damages (2).....	Johnson
313 Restitution (3).....	Nottelmann
†341 Office Management and Professional Responsibility (0).....	Stevens
342 Admiralty (3).....	Richards
343 Conflict of Laws (4).....	Trautman
344 Domestic Relations (2).....	Rieke
348 Wills and Administration (4).....	Gose
352 Comparative Law (3).....	Nottelmann
398 Research Problems in Law (1-5).....	Staff

SUMMER, 1958

‡120a Personal Property (4).....	Trautman
†§132a-b Criminal Law and Procedure (2-3).....	Peck
‡141b Agency (3).....	Gose
307b Insurance (3).....	Johnson
309a Suretyship (3).....	Shattuck
323b Community Property (2).....	Trautman
§324a-b Landlord and Tenant (1-1).....	Peck
334b Labor Law (3).....	Wollett
342b Admiralty (3).....	Richards
§343a-b Conflict of Laws (3-2).....	Stumberg
349a Wills (3).....	Richards

SUMMER, 1959 (Tentative)

‡120a Personal Property (4).....	Staff
†§132a-b Criminal Law and Procedure (2-3).....	Staff

* Will not be offered 1958-59.

** Will not be offered 1959-60.

† Required.

‡ Available to first-year students.

§ Both terms must be taken to receive credit.

‡141b Agency (3).....	Staff
302a Creditors' Rights (3).....	Staff
308b Mortgages (3).....	Staff
323b Community Property (2).....	Staff
327a Trusts (3).....	Staff
§328a-b Conveyancing (2-2).....	Staff
344a Domestic Relations (2).....	Staff
356b Unfair Competition (3).....	Staff

‡ Available to first-year students.

§ Both terms must be taken to receive credit.

LL.B. DEGREES CONFERRED 1955-56

Anderson, Edwin C., Jr.	Jensen, Roberta Jean
Bartke, Richard W.	Johnson, Arlis W.
Benson, Merritt D.	Johnson, W. Roger
Bohlke, Charles D.	Johnson, Stanley K.
Bonesteel, Richard D.	Kendall, James D.
Brosche, William F., Jr.	Kovarik, John F.
Burgess, Donald R.	Lee, Leslie A.
Butterworth, Fred R.	Lindell, Rocky V.
Cameron, William D.	Loucks, Richard R.
Campbell, Craig P.	Lynch, Walter G.
Chapin, Francis H., Jr.	McClure, Charles I.
Costello, John J.	Minor, Don A.
Craig, Eugene J.	Moody, Thomas H.
Crees, Robert R.	Pearce, Stanley K.
Crevling, Lois M.	Powell, William J.
Crittenden, Max D.	Power, Layton A.
Dixon, Robert E.	Rakow, Ross R.
Driano, Dominick V.	Reid, Ramon P.
Fletcher, Betty B.	Salley, James L.
Fransen, Caroldean D.	Samuels, Stanley M.
Furber, James A.	Schweinler, David E.
Gamble, Emile P.	Shulkin, Jerome
Glann, James D.	Sinsheimer, Walter J.
Griffin, Robert G.	Smith, Eugene H.
Gulick, Peter V.	Stafford, Shannon E.
Harris, John P.	Sullivan, Frank L.
Harris, Roy E.	Tretheway, Joseph H.
Hendel, Douglas R.	Tuui, Liem Eng
Hilpert, Edward T., Jr.	Viert, William G.
Hiscock, David F.	Vincent, Donald P.
Hunter, Charles E.	Vincent, Maxwell J.
Huntington, Ronald	Walker, Richard E.
Huppin, Charles E.	Walton, Peter B.
Inslee, Evan E.	Westberg, Robert M.
Jensen, Richard J.	Young, James R.

LL.B. DEGREES CONFERRED, 1956-57

Allen, John R.	Collier, Gerald F.
Anderson, Eugene C.	Combs, Jerome F.
Beuck, Wendell L.	Countryman, Charles C.
Bond, Donald H.	Cox, Milton R.
Burns, James D.	Cunningham, James R.
Carlson, Laurence M.	Dawson, Donald A.

Dewell, Julian C.
 Dishnow, Jay V., Jr.
 Douglas, Donald R.
 Edwards, Malcolm L.
 Foley, Thomas S.
 Gill, Roger J.
 Gittinger, David W.
 Gober, James B.
 Greene, Bernard D.
 Guterson, Lewis
 Hahn, August F.
 Hanley, Terence
 Hansen, Clifford A.
 Harlow, Bruce A.
 Hemmen, Marion H.
 Howard, Frank D.
 Huff, George R.
 Hufford, Luzerne E., Jr.
 Johnson, Charles R.
 Johnson, Charles V.
 Johnson, Donald L.
 Jones, K. Dennis
 Kennedy, James E.
 Koontz, James M.
 Lane, Arthur T.
 Lee, Raymond J.
 Loftus, Thomas D.
 McFeely, Dennis D.

McKenna, James E., Jr.
 McNair, Lee R.
 Mays, William H.
 Niemela, Edna J.
 O'Dea, George W.
 Payne, Frank W.
 Praeger, John R.
 Pucher, George E.
 Redman, Robert R.
 Regan, Jack B.
 Robinson, William M.
 Robson, John T.
 Rosatto, Emanuel E.
 Schneiderman, Barry A.
 Shuh, Clarence J.
 Silvernale, Lawrence D.
 Springer, William G.
 Steere, Peter K.
 Thompson, Donald H.
 Thompson, Robert H.
 Thorp, Franklin K.
 Thurlow, Gary
 Treiger, Irwin L.
 Verzani, Robert J.
 Walgren, Gordon L.
 Walker, Rex M.
 Williams, Roger L.
 Zylstra, Theodore D.

LAW SCHOOL HONORS, PRIZES, SCHOLARSHIPS, AND AWARDS FOR THE ACADEMIC YEAR 1955-56

Honor Graduate in Law

Betty Binns Fletcher

With High Honors in Law

Betty Binns Fletcher

With Honors in Law

Richard W. Bartke
 Douglas Robert Hendel
 Robert Myers Westberg

Order of the Coif

Richard W. Bartke
 Betty Binns Fletcher
 Douglas Robert Hendel
 Stanley Morton Samuels
 Robert Myers Westberg

Law Class of 1939 Scholarship

Robert Myers Westberg

Last Week Award

Eugene J. Craig

Vivian M. Carkeek Scholarship

Malcolm L. Edwards

Vivian M. Carkeek Prize

Richard W. Bartke

W. G. McLaren Prize

Edwin S. Thomas, Jr.

Nathan Burkan Memorial Competition

Caroldean Dale Fransen

Ivor Lusty Award

Robert Myers Westberg

Law School Alumni Scholarship

James D. Kendall
 Peter B. Walton

Moot Appellate Court Competition

1st prize—Gordon L. Walgren
 2nd prize—William G. Springer
 3rd prize—Julian C. Dewell
 4th prize—Barry A. Schneiderman

**Seattle Life Insurance and Trust
Council Will Drafting Contest**

1st prize—Douglas R. Hendel
2nd prize—Richard W. Bartke
3rd prize—Peter V. Gulick
Honorable Mention—
Betty B. Fletcher

**William Wallace Wilshire Memorial
Scholarship**

Richard W. Bartke
Wendell L. Beuck
Donald H. Bond

Allen L. Carr
Joseph J. Farris
Robert G. Griffin
A. Eugene Hammermaster
Douglas R. Hendel
Stanley M. Johanson
Roger L. Williams
James R. Young
Theodore D. Zylstra

**Women's Auxiliary to the Seattle
Bar Association Scholarship**

Malcolm L. Edwards 1956-57

**LAW SCHOOL HONORS, PRIZES, SCHOLARSHIPS, AND AWARDS
FOR THE ACADEMIC YEAR 1956-57**

Honor Graduate in Law
Irwin L. Treiger

With Highest Honors in Law
Irwin L. Treiger

With Honors in Law
Eugene C. Anderson

Order of the Coif
Eugene C. Anderson
Donald H. Bond
Malcolm L. Edwards
Irwin L. Treiger
Theodore D. Zylstra

James M. Bailey Memorial Scholarship
Kenneth F. Ingalls

Vivian M. Carkeek Prize in Law
Donald H. Bond

Vivian M. Carkeek Scholarship
Rex M. Walker

Judge Robert M. Jones Memorial Award
Clarence J. Shuh

Law Class of 1939 Scholarship
Irwin L. Treiger

Law School Alumni Scholarship
Francis Thomas Daley
James M. Koontz

**Law School Alumni Scholastic
Improvement Prizes**
Donald A. Dawson (3rd year)
Donald D. Haley (2nd year)

Law Week Award
Donald A. Dawson

Legal Aid Bureau Program Award
Edwin S. Thomas, Jr.

Ivor Lusty Award
Donald H. Thompson

W. G. McLaren Prize
William B. Stoeback

Moot Appellate Court Competition
Oral Argument

1st prize—Donald P. Badgley
2nd prize—Joseph J. Farris
3rd prize—Stanley M. Johanson
4th prize—Allen L. Carr
5th prize—Douglas J. Smith
6th prize—Stephen R. Schaefer

Brief Writing

1st prize—Joseph J. Farris and
Douglas J. Smith

**Seattle Life Insurance and Trust Council
Will Drafting Contest**

1st prize—Donald H. Bond
2nd prize—Irwin L. Treiger
3rd prize—Clarence J. Shuh

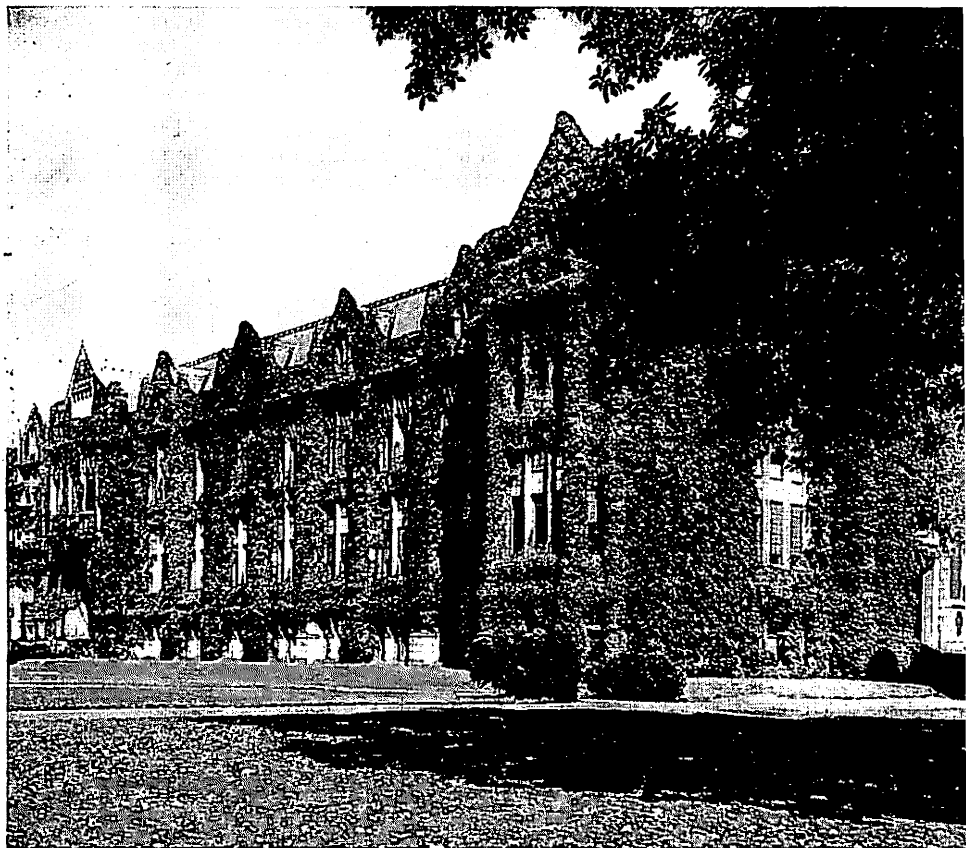
**William Wallace Wilshire Memorial
Scholarship**

Donald H. Bond
Bennett A. Box
Allen L. Carr
Donald A. Dawson
Malcolm L. Edwards
Joseph J. Farris
John A. Hamill
Joseph D. Holmes, Jr.
Robert B. Hughes
Stanley M. Johanson
Edward B. O'Connor
David H. Olwell
Roland I. Saylor
Gordon L. Walgren
Theodore D. Zylstra

**Women's Auxiliary to the Seattle Bar
Association Scholarship**

Malcolm L. Edwards 1956-57
Gilbert J. Price, Jr. 1957-58

BULLETIN • UNIVERSITY OF WASHINGTON



**SCHOOL OF
MEDICINE
1958-1960**

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; and publications of the Division of Adult Education and Extension Services, 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 Registrar.

General Bulletins

HANDBOOK OF SCHOLARSHIPS
UNIVERSITY RULES AND REGULATIONS (FOR REGISTERED STUDENTS ONLY)
INTRODUCTION TO THE UNIVERSITY

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
CORRESPONDENCE STUDY
EVENING CLASSES

BULLETIN
UNIVERSITY OF WASHINGTON
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CALENDAR

All fees must be paid at the time of registration.

AUTUMN QUARTER, 1958

SEPT. 23—TUESDAY	Instruction begins, Medicine III and IV, Term 1 (8 a.m.)
OCT. 1—WEDNESDAY	Instruction begins, Medicine I and II (8 a.m.)
NOV. 8—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
NOV. 10—MONDAY	Instruction begins, Medicine IV, Term 2 (8 a.m.)
NOV. 11—TUESDAY	State Admission Day holiday, Medicine I and II
NOV. 20—THURSDAY	Instruction ends, Medicine III (5 p.m.)
NOV. 21—FRIDAY	Instruction begins, Medicine III, Term 2 (8 a.m.)
NOV. 26—DECEMBER 1	Thanksgiving recess (5 p.m. to 8 a.m.)
DEC. 15-19	Examinations, Medicine I and II
DEC. 19—FRIDAY	Instruction ends, Medicine I and II (5 p.m.)
DEC. 23—TUESDAY	Christmass recess begins, Medicine III and IV (5 p.m.)
JAN. 5—MONDAY	Christmas recess ends, Medicine III and IV (8 a.m.)

WINTER QUARTER, 1959

JAN. 5—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
JAN. 10—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
JAN. 12—MONDAY	Instruction begins, Medicine IV, Term 3 (8 a.m.)
FEB. 4—WEDNESDAY	Instruction ends, Medicine III (5 p.m.)
FEB. 5—THURSDAY	Instruction begins, Medicine III, Term 3 (8 a.m.)
FEB. 23—MONDAY	Washington's Birthday and Founder's Day holiday
FEB. 28—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
MAR. 2—MONDAY	Instruction begins, Medicine IV, Term 4 (8 a.m.)
MAR. 16-20	Examinations, Medicine I and II
MAR. 20—FRIDAY	Instruction ends, Medicine I and II (5 p.m.)

SPRING QUARTER, 1959

MAR. 30—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
APR. 7—TUESDAY	Instruction ends, Medicine III (5 p.m.)
APR. 8—WEDNESDAY	Instruction begins, Medicine III, Term 4 (8 a.m.)
APR. 18—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
APR. 20—MONDAY	Instruction begins, Medicine IV, Term 5 (8 a.m.)
MAY 30—SATURDAY	Memorial Day holiday
JUNE 8-12	Examinations, Medicine I, II, and III
JUNE 12—FRIDAY	Instruction ends, Medicine I, II, III, and IV (5 p.m.)
JUNE 13—SATURDAY	Commencement

AUTUMN QUARTER, 1959

SEPT. 22—TUESDAY	Instruction begins, Medicine III and IV, Term 1 (8 a.m.)
SEPT. 30—WEDNESDAY	Instruction begins, Medicine I and II (8 a.m.)
NOV. 7—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
NOV. 9—MONDAY	Instruction begins, Medicine IV, Term 2 (8 a.m.)
NOV. 11—WEDNESDAY	State Admission Day holiday, Medicine I and II
NOV. 19—THURSDAY	Instruction ends, Medicine III (5 p.m.)

NOV. 20—FRIDAY	Instruction begins, Medicine III, Term 2 (8 a.m.)
NOV. 25-30	Thanksgiving recess (5 p.m. to 8 a.m.)
DEC. 14-18	Examinations, Medicine I and II
DEC. 18—FRIDAY	Instruction ends, Medicine I and II (5 p.m.)
DEC. 23—WEDNESDAY	Christmas recess begins, Medicine III and IV (5 p.m.)
JAN. 4—MONDAY	Christmas recess ends, Medicine III and IV (8 a.m.)

WINTER QUARTER, 1960

JAN. 4—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
JAN. 9—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
JAN. 11—MONDAY	Instruction begins, Medicine IV, Term 3 (8 a.m.)
FEB. 3—WEDNESDAY	Instruction ends, Medicine III (5 p.m.)
FEB. 4—THURSDAY	Instruction begins, Medicine III, Term 3 (8 a.m.)
FEB. 22—MONDAY	Washington's Birthday and Founder's Day holiday
FEB. 27—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
FEB. 29—MONDAY	Instruction begins, Medicine IV, Term 4 (8 a.m.)
MAR. 14-18	Examinations, Medicine I and II
MAR. 18—FRIDAY	Instruction ends, Medicine I and II (5 p.m.)

SPRING QUARTER, 1960

MAR. 28—MONDAY	Instruction begins, Medicine I and II (8 a.m.)
APR. 4—MONDAY	Instruction ends, Medicine III (5 p.m.)
APR. 5—TUESDAY	Instruction begins, Medicine III, Term 4 (8 a.m.)
APR. 16—SATURDAY	Instruction ends, Medicine IV (1 p.m.)
APR. 18—MONDAY	Instruction begins, Medicine IV, Term 5 (8 a.m.)
MAY 30—MONDAY	Memorial Day holiday
JUNE 6-10	Examinations, Medicine I, II, and III
JUNE 10—FRIDAY	Instruction ends, Medicine I, II, III, and IV ((5 p.m.)
JUNE 11—SATURDAY	Commencement

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
MRS. J. HERBERT GARDNER	La Conner
CHARLES M. HARRIS	Entiat
HELEN E. HOAGLAND, <i>Secretary</i>	
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OFFICERS OF ADMINISTRATION

CHARLES E. ODEGAARD, Ph.D.	<i>President of the University</i>
FREDERICK P. THIEME, Ph.D.	<i>Assistant to the President</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>
GEORGE N. AAGAARD, M.D.	<i>Dean of the School of Medicine</i>

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GEORGE N. AAGAARD, M.D.	<i>Dean of the School of Medicine; Chairman of the Board</i>
MAURICE J. HICKEY, M.D., D.M.D.	<i>Dean of the School of Dentistry</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>
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>
LLOYD S. WOODBURN, Ph.D.	<i>Dean of the College of Arts and Sciences</i>
MARY ADAMS, <i>Secretary</i>	

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RICHARD J. BLANDAU, M.D., Ph.D.	<i>Assistant Dean</i>
JAMES W. HAVILAND, M.D.	<i>Assistant Dean</i>
MARY ADAMS, B.A.	<i>Assistant to the Dean</i>

HEALTH SCIENCES ADMINISTRATIVE OFFICERS

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WILLIAM R. COOK, B.S.	<i>Personnel</i>
DERWIN R. DE MERS.	<i>Business Manager</i>
JAMES H. FARNSWORTH, M.S.	<i>Director of Scientific Stores</i>
DONALD F. HISCOX, B.F.A.	<i>Administrative Assistant</i>
RICHARD L. JOHNSON.	<i>Buyer</i>
GEORGE A. LEHMAN, B.S.	<i>Plant Engineer</i>

TOMMY W. PENFOLD, D.V.M.	Veterinarian
JESSIE W. PHILLIPS, B.F.A.	Director Medical Illustration
SEYMOUR STANDISH, JR. B.A.	Assistant to the Chairman of the Board of Health Sciences

UNIVERSITY HOSPITAL ADMINISTRATIVE OFFICERS

LEROY S. RAMBECK, B.A.	Hospital Administrator
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

(As of June 20, 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.

ADMINISTRATION

AGAARD, George N., 1954 <i>Dean of the School of Medicine</i> B.S., 1934, M.B., 1936, M.D., 1937, Minnesota	DEMARSH, Quin B., 1947 (1955) <i>Clinical Associate Professor of Anatomy</i> B.S., 1935, Washington; M.S., 1937, M.B., 1939, M.D., 1940, Northwestern
BLANDAU, Richard J., 1949 <i>Assistant Dean of the School of Medicine</i> A.B., 1935, Linfield College; Ph.D., 1939, Brown; M.D., 1948, Rochester	EMMEL, Harry Elwin, 1948 <i>Clinical Associate in Anatomy</i> B.A., 1936, Willamette; M.D., 1940, Oregon
HAVILAND, James W., 1947 <i>Assistant Dean of the School of Medicine</i> A.B., 1932, Union College (New York); M.D., 1936, Johns Hopkins	EVERETT, Newton B., 1946 (1948) <i>Professor of Anatomy</i> B.S., 1937, M.S., 1938, North Texas State College; Ph.D., 1942, Michigan
NOLAN, Donald E., 1951 <i>Administrative Consultant</i> M.D., 1936, Minnesota	FINLAYSON, Bliss L., 1948 <i>Clinical Associate in Anatomy</i> B.A., 1928, Brigham Young; M.D., 1933, Jefferson Medical College
SHERWOOD, Kenneth K., 1947 <i>Administrative Consultant</i> B.S., 1923, B.M., 1925, M.D., 1926, Minnesota	FITZMAURICE, Bertrand T., 1946 <i>Clinical Associate in Anatomy</i> B.S., 1930, Washington; M.D., 1934, Northwestern

BASIC SCIENCES

ANATOMY

BENNETT, Henry Stanley, 1948 <i>Professor of Anatomy; Executive Officer of the Department of Anatomy</i> A.B., 1932, Oberlin College; M.D., 1936, Harvard	GREENWALD, Gilbert S., 1956 <i>Instructor in Anatomy</i> A.B., 1949, California; M.A., 1951, California; Ph.D., 1954, California
BLANDAU, Richard J., 1949 (1951) <i>Professor of Anatomy; Assistant Dean, School of Medicine</i> A.B., 1935, Linfield College; Ph.D., 1939, Brown; M.D., 1948, Rochester	GRIFFITH, Charles A., 1956 <i>Clinical Associate in Anatomy</i> B.A., 1942, Harvard; M.D., 1945, M.S., 1955, Washington
BODEMER, Charles W., 1956 <i>Instructor in Anatomy</i> B.A., 1951, Pomona College; M.A., 1952, Claremont Graduate School; Ph.D., 1956, Cornell	HAMPTON, James C., 1957 <i>Instructor in Anatomy</i> B.S., 1950, Idaho; M.S., 1952, Idaho; Ph.D., 1957, Washington
BOGARDUS, George M., 1956 <i>Clinical Associate in Anatomy</i> M.D., 1938, Duke	HEATH, Sherburne W., 1952 (1953) <i>Clinical Associate in Anatomy</i> A.B., 1941, Whitman College; M.D., 1945, Marquette
BONICA, John J., 1950 <i>Clinical Associate in Anatomy</i> M.D., 1942, Marquette	HENRY, Frank C., 1949 <i>Clinical Associate in Anatomy</i> A.B., 1934, James Millikin (Illinois); M.D., 1940, Illinois
BOYDEN, Edward A., 1955 (1956) <i>Research Professor of Anatomy</i> A.B., 1909, A.M., 1911, Ph.D., 1916, Harvard	JENSEN, Lyle H., 1949 <i>Associate Professor of Anatomy</i> B.A., 1939, Walla Walla College; Ph.D., 1943, Washington
	KLEMPERER, Wolfgang, 1948 <i>Clinical Associate in Anatomy</i> M.D., 1936, Cornell
	LASHER, Earl Parsons, 1946 (1955) <i>Clinical Assistant Professor of Anatomy</i> B.A., 1931, M.D., 1934, Cornell

- LINDAHL, Wallace W., 1947 (1953)
Clinical Instructor in Anatomy
B.S., 1933, Washington State College;
M.D., 1938, Northwestern
- LUFT, John H., 1956 (1958)
*Assistant Professor of Anatomy and
Senior Research Fellow, National
Institutes of Health*
B.S., 1949, M.D., 1953, Washington
- MULLINS, John R., 1957
Clinical Associate in Anatomy
B.S., 1942, Gonzaga; M.D., 1945,
St. Louis
- 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 (1955)
Clinical Instructor in Anatomy
B.A., 1932, Brown; M.D., 1938, McGill
(Canada)
- RIEKE, William O., 1958
Instructor in Anatomy
M.D., 1958, Washington
- ROESEN-RUNGE, Edward C., 1952 (1955)
Associate Professor of Anatomy
M.D., 1936, Hamburg (Germany)
- RUMERY, Ruth E., 1955 (1956)
Research Instructor in Anatomy
B.S., 1943, New Hampshire; M.S., 1947,
Ph.D., 1952, Rochester
- 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
*Instructor in Anatomy,
Physiology and Biophysics*
B.A., 1949, Arizona; M.A., 1950,
Ph.D., 1953, Michigan State
- SWARTZ, Edgar, 1950 (1955)
Clinical Instructor in Anatomy
A.B., 1942, Ohio; M.D., 1945, Cincinnati
- THORNBURG, Wayne, 1951
Assistant Professor of Anatomy
B.A., 1940, Yankton College; M.S., 1948,
Ph.D., 1952, Illinois
- WATSON, Wilbur E., 1946 (1955)
Clinical Instructor in Anatomy
B.S., 1930, Washington; M.D., 1935,
McGill (Canada)

BIOCHEMISTRY

- DILS, Raymond R. A., 1958
Research Associate of Biochemistry
B.S., 1954, Ph.D., 1958, Birmingham
(England)
- 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
- HANAHAN, Donald James, 1950 (1953)
Associate Professor of Biochemistry
B.S., 1941, Ph.D., 1944, Illinois
- HUENNEKENS, Frank M., Jr., 1951
(1954)
Associate Professor of Biochemistry
B.S., 1943, Ph.D., 1948, California

- KELLER, Patricia J., 1955 (1956)
*Research Assistant Professor of
Biochemistry*
B.S., 1945, Detroit; Ph.D., 1953,
Washington University
- KRAUT, Joseph, 1953 (1958)
Assistant Professor of Biochemistry
B.S., 1950, Bucknell; Ph.D., 1953,
California Institute of Technology
- KREBS, Edwin G., 1948 (1952)
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 College
- MEINHART, Josephine O., 1954 (1956)
Research Instructor in Biochemistry
A.B., 1950, Vassar; Ph.D., 1954, Yale
- MURACHI, Takashi, 1957
Research Associate in Biochemistry
D.Med.Sc. Kyoto (Japan)
- NEURATH, Hans, 1950
*Professor of Biochemistry; Executive
Officer of the Department of
Biochemistry*
Ph.D., 1933, Vienna (Austria)
- STEIN, Eric A., 1954
Research Instructor in Biochemistry
Ph.D., 1954, Geneva (Switzerland)
- TALBERT, Preston, 1955 (1956)
Research Instructor in Biochemistry
B.S., 1950, M.S., 1951, Howard
University; Ph.D., 1955, Washington
University
- TOMIZAWA, Henry H., 1952 (1958)
Lecturer in Biochemistry
B.S., 1949, Iowa State College;
Ph.D., 1952, Illinois
- WATTS, Ruth, 1957
Research Instructor in Biochemistry
B.S., 1921, Washington; M.S., 1925,
Yale; Ph.D., 1930, Chicago
- WILCOX, Philip E., 1952
Associate Professor of Biochemistry
B.S., 1943, California Institute of
Technology; Ph.D., 1949, Wisconsin

MICROBIOLOGY

- BINGHAM, Margaret N., 1956
Research Instructor in Microbiology
B.A., 1936, Stanford; M.D., 1940, Oregon
- BOOHER, Zina K., 1958
Research Associate in Microbiology
B.S., 1946, Cornell; M.S., 1955, Ph.D.,
1957, Washington
- BRANCATO, Frank P., 1958
Clinical Instructor in Microbiology
B.S., 1948, Long Island; A.M., 1949,
Boston; Ph.D., 1952, Washington State
College
- CHAMBERS, Velma C., 1956 (1958)
*Research Instructor and 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, 1940 (1954)
Instructor in Microbiology
B.S., 1934, M.S., 1952, Washington
- EATON, Norman R., 1957
*Research Instructor in Medicine and
Microbiology*
B.A., 1951, California; M.S., 1953, Ph.D.,
1955, 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., 1923, M.A., 1926, Ph.D., 1931, California
- 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
- RIDGWAY, George, 1956
Research Instructor in Microbiology
B.S., 1949, M.S., 1951, Ph.D., 1954, Washington
- VENNESLAND, Kirsten, 1954
Clinical Instructor in Microbiology
B.S., 1934, M.D., 1942, Chicago
- WEISER, Russell S., 1934 (1949)
Professor of Microbiology (Immunology)
B.S., 1930, M.S., 1931, North Dakota State; Ph.D., 1934, Washington
- WHITELEY, Helen R., 1953 (1958)
Research Assistant Professor of Microbiology
B.A., 1942, California; M.S., 1947, Texas; Ph.D., 1951, Washington
- WOOD, Edward M., 1956
Research Instructor in Microbiology
B.S., 1949, Oregon State College; Ph.D., 1952, Cornell
- ZAHLER, Stanley A., 1954 (1957)
Assistant Professor of Microbiology
A.B., 1948, New York University; S.M., 1949, Ph.D., 1952, Chicago
- ## PATHOLOGY
- BENDITT, Earl P., 1957
Professor of Pathology; Executive Officer of the Department of Pathology
B.A., 1937, Swarthmore; M.D., 1941, Harvard
- BENNETT, James G., 1951
Clinical Instructor in Pathology
B.A., 1935, Central College; M.D., 1939, Harvard
- BITAR, Emmanuel, 1949
Clinical Instructor in Pathology
B.S., 1935, Washington; M.D., 1939, Oregon
- BROWN, David V., 1951 (1952)
Clinical Assistant Professor of Pathology
B.A., 1935, Reed College; 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)
- ELLERBROOK, Lester D., 1946 (1949)
Associate Professor of Pathology
A.B., 1932, Hope College; Ph.D., 1936, New York
- ERIKSEN, Nils, 1949 (1957)
Research Assistant Professor of Pathology
B.S., 1939, Ph.D., 1944, Washington
- GRIFFITH, Paul C., 1953
Assistant Professor of Pathology
A.B., 1941, M.D., 1943, Nebraska
- HABERMAN, Clayton R., 1954
Assistant in Pathology
B.S., 1947, M.D., 1949, Wisconsin
- HAIR, Raymond, 1951 (1952)
Assistant Professor of Pathology
B.S., 1942, Albright College; M.D., 1945, Jefferson Medical College
- 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)
- MARTIN, George M., 1957
Instructor in Pathology
B.S., 1949, M.D., 1953, Washington
- MASON, David G., 1947 (1949)
Clinical Assistant Professor of Pathology
B.A., 1930, M.D., 1935, Oregon
- POWELL, Clermont S., 1954
Clinical Instructor in Pathology
M.D., 1948, Jefferson Medical College
- PREHN, Richmond T., 1958
Assistant Professor of Pathology
M.D., 1947, Long Island College of Medicine
- PRIEST, Robert E., 1957
Instructor in Pathology
B.A., 1950, Reed College; M.D., 1954, Chicago
- REIFF, Robert H., 1952
Instructor in Pathology
A.B., 1939, Whitman College; Ph.D., 1944, Minnesota; M.D., 1949, Tennessee
- 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
- SREEBNY, Leo M., 1957
Associate Professor of Pathology
D.D.S., 1945, Ph.D., 1954, Illinois
- TESLUK, Henry, 1956
Clinical Instructor in Pathology
A.B., 1941, M.D., 1943, Cornell
- TOOLEY, George E., 1948
Clinical Instructor in Pathology
A.B., 1933, M.D., 1937, Kansas
- WAGNER, Bernard M., 1958
Associate Professor of Pathology
M.D., 1944, Hahnemann Medical College
- WIEGENSTEIN, Louise, 1948 (1953)
Instructor in Pathology
B.S., 1938, Simmons College; M.D., 1946, Tufts

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
- FALK, Gertrude**, 1954
Assistant Professor of Pharmacology
B.S., 1947, Antioch College; Ph.D., 1952, Rochester
- FREDERICKSON, Evan L.**, 1956
Assistant Professor of Pharmacology
B.S., 1947, M.D., 1950, Wisconsin; M.S., 1953, Iowa
- HOLLIDAY, Audrey R.**, 1957
Research Instructor in Pharmacology
B.A., 1945, M.S., 1949, Ph.D., 1957, Washington
- HORITA, Akira**, 1954
Assistant Professor of Pharmacology
A.B., 1950, M.S., 1951, Ph.D., 1954, Washington
- LOOMIS, Ted Albert**, 1947 (1955)
State Toxicologist; Professor of Pharmacology
B.S., 1939, Washington; M.S., 1941, Ph.D., 1943, Buffalo; M.D., 1946, Yale
- MAGEE, Donald F.**, 1951
Associate Professor of Pharmacology
B.A., 1944, Oxford (England); M.A., B.M., B.Ch., 1948, Oxford (England); Ph.D., 1952, Illinois
- MURRAY, Alan K.**, 1957
Research Associate in Pharmacology
B.S., 1953, M.S., 1957, Washington
- RICHARDSON, Howard L.**, 1955
Clinical Assistant Professor of Pharmacology
M.A., 1940, M.D., 1940, Oregon
- THIERSCH, John B.**, 1950 (1954)
Research Associate Professor of Pharmacology
M.D., 1935, Bern (Switzerland); M.D., 1935, Freiburg (Germany); M.D., 1938, Adelaide (Australia); M.D., 1951, Washington
- WEST, Theodore C.**, 1949 (1955)
Assistant Professor of Pharmacology
B.S., 1948, M.S., 1949, Ph.D., 1952, Washington

PHYSIOLOGY AND BIOPHYSICS

- BRAND, Edmund H.**, 1953 (1956)
Research Instructor in Physiology and Biophysics
B.S., 1947, Pacific
- CARLSON, Loren D.**, 1945 (1955)
Professor of Physiology and Biophysics
B.S., 1937, St. Ambrose; Ph.D., 1941, Iowa
- CRYSTAL, Dean K.**, 1947
Clinical Associate in Physiology and Biophysics
B.S., 1936, Washington; B.A., 1938, Oxford (England); M.D., 1941, Johns Hopkins
- DE VITO, June L.**, 1955 (1958)
Research Instructor in Physiology and Biophysics
B.A., 1947, British Columbia (Canada); M.A., 1949, Ph.D., 1954, Washington

- KAWAHATA, Aikoh**, 1958
Research Associate
M.D., 1935, Kyoto University School of Medicine (Japan)
- LEE, John**, 1957
Research Instructor
B.A., 1953, M.D., 1957, Washington
- MCCREA, L. Katherine**, 1953
Clinical Assistant in Physiology and Biophysics
B.S., 1927, M.S., 1931, 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
Instructor in Physiology and Biophysics and Anatomy
B.A., 1949, Arizona; M.A., 1950, Mich. 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**
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, (1955)
Associate Professor of Physiology and Biophysics
B.A., 1930, M.A., 1932, British Columbia (Canada); Ph.D., 1934, Toronto (Canada)

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
- BREYSE, 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
- BRYSON, Sylvia**, 1949 (1956)
Clinical Associate in Public Health and Preventive Medicine
B.S., 1942, George Peabody College

- BUCOVE, Bernard, 1957
Clinical Assistant Professor of Public Health and Preventive Medicine
M.D., 1937, D.P.H., 1946, Toronto (Canada)
- COTHRAN, Walter W. W., 1957
Associate in Public Health and Preventive Medicine; Campus Sanitarian
B.S., 1955, Washington
- 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
- FOUNTAIN, John H., 1949
Clinical Instructor in Public Health and Preventive Medicine
B.S., 1927, M.D., 1929, Georgetown; M.P.H., 1942, Harvard
- 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
- HALL, Nora Page, 1950 (1954)
Clinical Associate in Public Health and Preventive Medicine
B.S., 1937, Washington State College; M.P.H., 1950, California
- HANDSCHIN, Richard, 1955
Clinical Associate in Public Health and Preventive Medicine
A.B., 1942, Illinois; M.D., 1953, Rochester
- HANKS, Thrift G., 1952
Clinical Instructor in Public Health and Preventive Medicine
B.S., 1934, M.S., M.D., 1939, Illinois
- HATLEN, Jack B., Jr., 1952
Lecturer in Public Health; Campus Sanitarian
B.S., 1949, M.S., 1958, Washington
- HOFFMAN, Olin Eber, 1953
Clinical Instructor in Public Health and Preventive Medicine
D.D.S., 1921, Iowa; M.P.H., 1943, Michigan
- JENSEN, Emil C., 1946
Clinical Instructor in Public Health and Preventive Medicine
B.S. in C.E., 1936, Washington; M.S., 1938, Harvard
- KAHL, John A., 1946
Clinical Assistant Professor of Public Health and Preventive Medicine
B.S., 1933, M.D., 1935, Nebraska; M.P.H., 1940, Johns Hopkins
- KRATZ, Frederick W., 1956
Clinical Associate in Public Health and Preventive Medicine
M.D., 1924, Maryland
- KUSIAN, Ross N., 1952 (1953)
Director Environmental Research; Clinical Assistant Professor of Public Health and Preventive Medicine
B.S. in M.E., 1949, Washington; M.S. in M.E., 1952, Utah
- LANE, Wallace, 1957
Clinical Associate Professor of Public Health and Preventive Medicine
A.B., 1933, M.A., 1935, M.D., 1939, Kansas; M.P.H., 1951, Johns Hopkins
- 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
- MILLS, Caswell A., 1954
Lecturer in Public Health and Preventive Medicine and Men's Physical Education
B.A., 1935, Minot State Teachers College; M.A., 1943, Washington
- MYKUT, Margaret, 1951 (1954)
Clinical Instructor in Public Health and Preventive Medicine
B.S., 1938, Oregon; M.A., 1944, Washington
- NORTHROP, Cedric, 1947 (1954)
Clinical Assistant Professor in Public Health and Preventive Medicine
B.A., 1930, M.D., 1936, Oregon
- ORMROD, George H., 1954
Clinical Associate in Public Health and Preventive Medicine
B.A., 1943, M.A., 1949, Iowa
- PATE, John B., 1954
Research Associate in Public Health and Preventive Medicine
B.S., 1952, M.S., 1958, Washington
- RAVENHOLT, Reimert T., 1956
Clinical Instructor in Public Health and Preventive Medicine
B.S., 1948, M.B., M.D., 1951, Minnesota; M.P.H., 1956, California
- REED, Samuel I., 1949 (1954)
Clinical Associate in Public Health and Preventive Medicine
B.S., 1940, Washington
- REEVES, G. Spencer, 1950
Associate Professor of Public Health and Preventive Medicine
B.S., 1933, M.S., 1937, Oregon; M.P.H., 1951, California
- 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
- SEARING, Lyall D., 1950
Clinical Associate in Public Health and Preventive Medicine
B.S., 1928, M.S., 1932, Oregon State College
- STANDISH, Seymour Myles, Jr., 1956
Lecturer in Public Health and Preventive Medicine; Assistant to the Chairman of the Health Sciences Division
B.A., 1942, Washington
- VAN AMBURGH, J. E., 1951 (1954)
Clinical Associate in Public Health and Preventive Medicine
B.S., 1935, Washington State College
- 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
- WHITE, Kathleen E., 1956
Research Instructor in Public Health and Preventive Medicine
B.S., 1950, B.S., 1951, M.S., 1954, Washington

- WILKEY, John R., 1949 (1952)
Clinical Assistant 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

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
- 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
- BICKLE, John A., 1949
Affiliate in General Practice
 M.D., 1929, McGill (Canada)
- BRILL, John P., Jr., 1949 (1953)
Lecturer in Forensic and Legal Medicine
- BRYANT, Maurice E., 1949
Affiliate in General Practice
 B.S., 1937, Washington State College; M.D., 1940, Louisville
- 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., 1935, Hawaii; M.D., 1939, College of Medical Evangelists
- CHRISTOFFERSEN, Olaf H., 1949
Affiliate in General Practice
 M.D., 1917, Rush Medical College
- COLLIER, Boy N., 1955
Affiliate in General Practice
 A.B., 1921, Northwestern; M.D., 1925, Louisville
- CONNER, Charles E., 1953
Affiliate in General Practice
 B.S., 1934, Washington; M.D., 1938, Colorado
- CORPRON, Douglas S., 1953
Affiliate in General Practice
 M.D., 1921, Cincinnati
- DAY, Charles G., 1949
Affiliate in General Practice
 B.A., 1935, M.D., 1938, Oregon
- DODSON, Alfred E., Jr., 1953
Affiliate in General Practice
 B.A., 1945, M.D., 1947, Oregon
- DOUGLASS, Charles W., 1953
Affiliate in General Practice
 B.S.M., 1939, M.D., 1941, Creighton
- DREWELOW, Kenneth R., 1949
Affiliate in General Practice
 B.S., 1932, M.D., 1935, Nebraska
- 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., 1946, M.D., 1929, Western Reserve
- FRICK, Wesley V., 1949
Affiliate in General Practice
 B.S., 1929, M.S., M.D., 1931, Oregon
- FRITZ, Harold D., 1949
Affiliate in General Practice
 M.D., 1924, Cincinnati
- GAHRINGER, John E.
Affiliate in General Practice
 B.S., 1923, M.S., 1924, M.D., 1925, Chicago
- 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
- GREENWELL, Joseph L., 1949
Affiliate in General Practice
 B.S., 1929, Washington; M.D., 1933, Pennsylvania
- GUDGEL, Kenneth E., 1951
Affiliate in General Practice
 B.S., 1945, M.D., 1948, Iowa
- GUITEAU, Judson A., 1955
Affiliate in General Practice
 B.S., 1940, M.D., 1950, Washington
- HAGGLAND, Paul B., 1949
Affiliate in General Practice
 M.D., 1935, Virginia
- 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
- HARRISON, Harmon G., 1953
Affiliate in General Practice
 B.S., 1949, Seattle; M.D., 1951, St. Louis
- HARRISON, John H., 1949
Affiliate in General Practice
 A.B., 1932, M.A., 1933, Gonzaga; M.D., 1938, Chicago
- HICKS, W. W., 1952
Affiliate in General Practice
 M.D., 1920, Virginia
- HIGHMILLER, Ralph H., 1949
Affiliate in General Practice
 B.A., 1928, M.D., 1935, Oregon
- 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., 1949, 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
- KLAAREN, C. I., 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 College; 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
- McCLENNY, L. E., 1951
Affiliate in General Practice
B.S., 1943, Washington; B.M., 1947, M.D., 1948, Northwestern
- McCONNELL, Graham S., 1951
Affiliate in General Practice
A.B., 1936, Columbia; B.S., 1940, Washington State College; 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
- NORRIS, J. L., 1949
Affiliate in General Practice
M.D., 1910, Loyola University School of Medicine, Chicago College of Medicine and Surgery
- 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
- 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
- SCHAIBLE, Arthur J., 1949
Affiliate in General Practice
B.S., 1930, Valparaiso (Indiana); M.S., M.B., 1934, M.D., 1935, Northwestern
- 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
- SCHUSTER, Boris, 1952
Affiliate in General Practice
B.S., 1933, Wisconsin; M.D., 1937, Rush Medical College
- SLIND, Ole, 1953
Affiliate in General Practice
B.S., 1938, Washington State College; M.D., 1942, Washington University
- 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
- TUCKER, Frederick A., 1950
Affiliate in General Practice
B.S., 1927, Washington State College; M.D., 1931, Louisville
- TURNER, Mary K., 1949
Affiliate in General Practice
M.D., 1935, 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
- WOOD, Joseph G., 1953
Affiliate in General Practice
B.S., 1933, M.D., 1937, Oregon
- YOUNG, Alvia Gordon, 1949
Affiliate in General Practice
M.D., 1925, Oregon
- ZIMMERMAN, James E., 1947
Affiliate in General Practice
B.S., 1942, Washington State College; M.D., 1945, Oregon

MEDICINE

- AAGAARD, George N., 1954
Professor of Medicine
B.S., 1934, M.D., 1936, M.D., 1937, Minnesota
- AHERN, James, 1951 (1954)
Clinical Assistant Professor of Medicine
B.S., 1938, Washington; M.D., 1945, Chicago
- ALEXANIAN, Raymond, 1958
Assistant in Medicine
A.B. 1952, Dartmouth, M.D., 1955, Harvard
- ALTOSE, Alexander R., 1947
Clinical Instructor in Medicine
M.B., 1937, M.D., 1938, Northwestern
- ANDRUS, William W., 1955
Clinical Associate 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., 1947 (1958)
Clinical Associate Professor of Medicine
B.S., 1931, Washington; M.D., 1936, Northwestern
- ARST, Daniel B., 1955
Clinical Associate in Medicine
A.B., 1939, Municipal University of Wichita; M.D., 1944, Kansas
- BAILEY, Richard J., 1954
Clinical Affiliate in Medicine
M.S., 1926, M.D., 1927, Minnesota
- BAKKE, John L., 1951 (1956)
Assistant Professor of Medicine
B.S., 1943, Washington State College; M.D., 1945, Harvard
- BAKKEN, Elsie L., 1952
Clinical Assistant in Medicine
B.A., 1947, Santa Barbara College; M.S., 1951, Ohio
- BALLEW, Donald H., 1957
Assistant in Medicine
B.A., 1951, Washington; M.D., 1955, McGill
- BANNICK, Edwin G., 1947
Clinical Professor of Medicine
B.S., 1918, M.D., 1920, Iowa
- BARNES, Robert H., Jr., 1950 (1952)
Clinical Assistant Professor in 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
- BEALL, Gildon N., 1957
Assistant in Medicine
B.S., 1950, M.D., 1953, Washington
- BEEKEN, Warren C., 1957
Assistant in Medicine; Research Fellow
B.S., 1949, Haverford College; M.D., 1953, Temple
- BERGY, Gordon G., 1952 (1957)
Clinical Instructor in Medicine
A.B., 1946, West Virginia; M.D., 1949, Michigan
- BINGHAM, James B., 1947 (1952)
Clinical Assistant 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
- BOWERS, James M., 1947
Clinical Assistant Professor of Medicine
A.B., 1922, M.D., 1925, Michigan
- BRANDBORG, Lloyd L., 1956
Assistant in Medicine; Research Fellow
B.A., 1950, California; M.D., 1955, Chicago
- BRIDGES, William C., 1948
Clinical Instructor in Medicine
B.S., 1938, Washington; M.D., 1940, Yale
- BROWN, Harold W., 1957
Assistant in Medicine
B.S., 1951, College of Idaho; M.D., 1956, Washington
- BRUCE, Robert A., 1950 (1954)
Associate Professor of Medicine
B.S., 1938, Boston; M.S., 1940, M.D., 1943, Rochester
- BRUENNER, Bertram F., 1947 (1955)
Clinical Assistant Professor of Medicine
B.S., 1926, M.D., 1929, Minnesota
- BRYER, William B., 1953
Clinical Associate in Medicine
M.D., 1925, Budapest (Hungary)
- BURNEILL, James M., 1950 (1954)
Clinical Assistant Professor of Medicine
M.D., 1949, Stanford
- BURNETT, William H., Jr., 1954
Clinical Associate in Medicine
A.B., 1945, Kenyon College; M.D., 1947, Pittsburgh
- CAMPBELL, Alexander D., 1947 (1955)
Clinical Assistant Professor of Medicine
B.A., 1930, Whitman College; M.D., 1934, Johns Hopkins
- CAPACCIO, George D., 1947
Clinical Assistant Professor of Medicine
M.D., 1931, Virginia
- CARPENTER, Robert R., 1958
Assistant in Medicine
B.S., 1953, Pittsburgh; M.D., 1957, Rochester
- CASSERD, Fredrick, 1955
Clinical Associate in Medicine
B.S., 1947, Washington; M.D., 1950, Oregon
- CLARKE, Edmund R., Jr., 1950
Clinical Associate in Medicine
B.A., 1940, Denver; M.D., 1943, Colorado
- CLEMENTS, Randolph, 1957
Clinical Associate in Medicine
M.D., 1949, Texas
- CLEVELAND, Fred Edward, 1951 (1954)
Clinical Assistant Professor of Medicine; Lecturer in Nursing
B.S., 1937, M.D., 1941, Virginia
- COBB, Leonard A., 1957
Instructor in Medicine
B.S., 1949, M.D., 1952, Minnesota
- COBURN, Jack W., 1958
Assistant in Medicine
B.S., 1953, Redlands; M.D., 1957, California at Los Angeles
- COLEMAN, Daniel, 1950 (1953)
Clinical Assistant Professor of Medicine
M.D., 1945, Jefferson Medical College

- COLLINS, John D., 1947 (1956)
Clinical Assistant Professor of Medicine
B.S., 1933, Washington; M.D., 1937,
Northwestern
- COLWILL, Jack M., 1958
Assistant in Medicine
B.A., 1953, Oberlin College; M.D., 1957,
Rochester
- CRAMPTON, Joseph H., 1955 (1956)
Clinical Associate Professor of Medicine
B.S., 1938, Idaho; M.D., 1941, Vanderbilt
- CROCKETT, Wayne A., 1956
Assistant in Medicine and Research
Fellow
B.S., 1949, Indiana State Teachers
College; M.D., 1953, Indiana
- CROSBIE, James, 1952 (1954)
Clinical Assistant Professor of Medicine
M.D., 1945, Chicago
- DARVILL, Jr., Fred T., 1954 (1956)
Clinical Associate in Medicine
B.S., 1948, M.D., 1951, Washington
- DECKER, John L., 1958
Instructor in Medicine
B.A., 1942, Richmond; M.D., 1951,
Columbia
- DEMARSH, Quin, 1947 (1952)
Clinical Associate Professor of Medicine
B.S., 1935, Washington; M.S., 1937,
B.M., 1939, M.D., 1940, Northwestern
- DODGE, Harold T., 1957
Assistant Professor of Medicine
M.D., 1948, Harvard
- DONOHUE, Dennis M., 1952 (1958)
Clinical Assistant Professor of Medicine
M.D., 1951, Washington
- DUNNING, Marcelle F., 1952 (1955)
Clinical Assistant Professor of Medicine
B.A., 1935, Hunter College; M.A., 1936,
Columbia; M.D., 1940, New York
College of Medicine
- EATON, Norman R., 1957
Research Instructor in Medicine and
Microbiology
B.A., 1951, California; M.S., 1953, Ph.D.,
1955, Washington
- EFFORD, Robert J., 1957
Assistant in Medicine
B.A., 1948, British Columbia (Canada);
M.A., 1952, Ph. D., 1953, Stanford;
M.D., 1956, Washington
- EGGERS, Rolf van Kervel, 1947 (1954)
Clinical Assistant Professor of Medicine
B.A., B.S., 1930, North Dakota; M.D.,
1933, Chicago
- ELGEE, Neil J., 1952 (1957)
Clinical Associate in 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
- EVANS, Robert S., 1951
Associate Professor of Medicine
B.S., 1934, Washington; M.D., 1938,
Harvard
- EVANS, Thomas O., 1958
Assistant in Medicine
B.S., 1953, M.D., 1956, Washington
- EYER, Kenneth M., 1957
Assistant in Medicine
M.D., 1956, Washington
- FEIN, Sherwood B., 1954 (1958)
Clinical Instructor in Medicine
B.S., 1948, M.D., 1951, Western Reserve
- FELLER, David D., 1952 (1956)
Research Assistant Professor of Medicine
A.B., 1944, Ph.D., 1950, California
- FERGUS, Emily B., 1953 (1958)
Clinical Instructor in Medicine
A.B., 1946, Mount Holyoke; M.D., 1950,
Pittsburgh
- FEY, Louis D., 1947
Clinical Instructor in Medicine
B.S., 1934, Washington; M.B., 1938,
M.D., 1939, Northwestern
- FINCH, Clement A., 1949 (1955)
Professor of Medicine
B.S., 1936, Union College; M.D., 1941,
Rochester
- FINE, Melwyn B., 1958
Assistant in Medicine and Research Fellow
B.S., 1952, Amherst College; M.D., 1956,
Tufts
- FISHER, Peter, 1956 (1958)
Clinical Instructor in Medicine
M.D., 1948, Pennsylvania
- FLICK, Arnold L., 1957
Assistant in Medicine
B.S., 1950, California at Los Angeles
- FODOR, Oscar A., 1950
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., 1929, M.D., 1930, Northwestern
- FRANCIS, Byron F., 1947
Clinical Professor of Medicine
B.S., 1922, Washington; M.D., 1926,
Washington University
- FRANKLIN, Abby, 1955 (1956)
Clinical Instructor in Medicine
M.D., 1948, Ohio State
- FRAYSER, Lois, 1950
Clinical Instructor in Medicine
B.A., 1928, Richmond; M.S., 1935, M.D.,
1943, Michigan
- FULLER, Theodore J., 1956 (1957)
Clinical Associate in Medicine
B.S., 1950, Washington State College;
M.D., 1953, Washington University
- GABRIO, Beverly W., 1953 (1958)
Lecturer in Medicine
B.A., Lindenwood College (Missouri);
Ph.D., 1950, Rochester
- GARTLER, Stanley M., 1957
Research Assistant Professor of Medicine
and Pediatrics (Genetics)
B.S., 1948, California (Los Angeles);
Ph.D., 1952, California
- GIBLETT, Eloise R., 1952 (1958)
Clinical Assistant Professor of Medicine
B.S., 1942, M.S., 1947, M.D., 1951,
Washington
- GOLDSWORTHY, Patrick D., 1952 (1955)
Research Assistant Professor of Medicine;
Lecturer in Biochemistry
A.B., 1941, M.A., 1947, Ph.D., 1952,
California
- GREEN, Gareth M., 1958
Assistant in Medicine
A.B., 1953; M.D., 1957, Harvard
- GREENLEAF, Richard Cranch, 1950
Clinical Assistant Professor
B.S., 1939, Yale; M.D., 1942, Columbia
- GUNDERSEN, Kare, 1957
Assistant in Medicine and Research Fellow
B.A., 1948, Minnesota; M.D., 1952, Johns
Hopkins
- HACKEDORN, Howard M., 1953
Clinical Instructor in Medicine
B.S., 1935, Washington State College;
M.D., 1940, Harvard; M.S., 1951,
Oregon

- HAGEN, John M. V., 1952 (1958)
Clinical Assistant Professor of Medicine;
Lecturer in Nursing
B.A., 1942, Wyoming; M.D., 1950,
Rochester
- HALLETT, Wilbur Y., 1954
Research Instructor in Medicine and Research Fellow
M.D., 1953, Rochester
- HALSEY, Yadviga D., 1952 (1954)
Research Instructor in Medicine
B.S., 1948, Chicago; Ph.D., 1952, Yale
- HARRIS, Willard S., 1957
Assistant in Medicine
B.A., 1953, Cornell; M.D., 1957,
New York
- HAUKENESS, Stanley J., 1957
Assistant in Medicine
A.B., 1950, Augsburg College; M.D.,
1954, Minnesota
- HAVILAND, James W., 1947 (1956)
Clinical Professor of Medicine;
Lecturer in Nursing
A.B., 1932, Union College; M.D., 1936,
Johns Hopkins
- *HAY, Robert E., 1958
Assistant in Medicine
A.B., 1953, Wabash College; M.D., 1957,
Indiana
- *HEALEY, Louis A., 1958
Assistant in Medicine
B.S., 1950, Fordham; M.D., 1954,
Columbia
- HEIDEMAN, Jr., Lawrence, 1956
Assistant in Medicine and Research Fellow
A.B., 1946, Harvard; M.D., 1949,
Washington University
- HENLEY, Elaine D., 1956 (1958)
Clinical Instructor in Medicine
B.A., 1947, U.C.L.A.; M.D., 1951,
California
- HILDEBRAND, Alice Grace, 1947
Clinical Assistant Professor of Medicine;
Lecturer in Nursing
B.S., 1934, M.D., 1936, Nebraska; M.S.,
1940, Minnesota
- HOGNESS, John R., 1951 (1956)
Clinical Assistant Professor of Medicine
B.S., 1943, M.D., 1946, Chicago
- HOGUE, Philip Nichols, 1949
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
- HOYER, Paul V., 1957
Assistant in Medicine
B.A., 1950, Amherst; M.D., 1955,
Rochester
- HUDSON, Dean G., 1953, (1956)
Clinical Associate in Medicine
B.S., 1946, Washington; M.D., 1950,
Cornell
- HUFF, Rex L., 1951 (1956)
Associate Professor of Medicine
B.S., 1941, Purdue; M.D., 1944, Indiana
- JOB, Emil, 1947
Clinical Instructor in Medicine; Lecturer
in Nursing
B.S., 1941, M.D., 1942, Wayne
- JOFFE, Joy Ruth, 1952
Clinical Instructor in Medicine
M.D., 1945, Women's Medical College of
Pennsylvania
- JOHN, Gregory G., 1953 (1955)
Clinical Associate in Medicine
B.S., 1948, Washington; M.D., 1952,
Oregon
- JOHNSON, Allan F., 1957
Assistant in Medicine
B.S., 1950, M.D., 1954, Western Reserve
- JOHNSON, Arthur Dean, 1947 (1954)
Clinical Assistant Professor of Medicine
B.A., 1934, Iowa; M.D., 1939,
Northwestern
- JONES, Richard F., 1955
Clinical Instructor in Medicine
B.A., 1943, M.D., 1946, Oregon
- KATSMAN, Alvin, 1955
Clinical Instructor in Medicine
B.S., 1944, Washington; M.D., 1948,
Nebraska; M.S., 1950, Iowa
- KATSURA, Shigeaki, 1957
Assistant in Medicine
M.D., 1948, Tohoku (Japan)
- KELLY, William J., 1954 (1957)
Clinical Instructor in Medicine
B.S., 1941, Seattle; M.D., 1945, Temple
- KING, Robert L., 1947 (1954)
Clinical Associate Professor of Medicine;
Lecturer in Nursing
M.D., 1928, B.S., 1931, Virginia
- KIRBY, William M. M., 1949 (1955)
Professor of Medicine
B.S., 1936, Trinity College; M.D., 1940,
Cornell
- KLAIBER, Edward L., 1957
Assistant in Medicine
A.B., 1952, Syracuse; M.D., 1956, State
University of New York
- KOHLI, Daniel Robert, 1951 (1954)
Clinical Instructor in Medicine
B.A., 1938, Wisconsin; M.B., 1941, M.D.,
1942, Northwestern
- KOLER, John J., 1956
Clinical Associate 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
- KRAMER, Robert J., 1954 (1958)
Assistant in Medicine
B.S., 1949, Idaho; M.D., 1953,
Washington
- KRANTZ, Clement I., 1947
Clinical Assistant Professor of Medicine
A.B., 1920, M.D., 1924, Johns Hopkins
- KROUSE, Howard, 1956
Clinical Instructor in Medicine
(Neurology)
B.A., 1941, M.D., 1943, Iowa
- LANE, Fenton J., 1954 (1957)
Clinical Instructor in Medicine
M.D., 1945, Michigan
- LANE, James J., 1957
Assistant in Medicine
B.S., 1951, Northwestern; M.D., 1955,
Washington
- LARSON, Earl R., 1955
Assistant in Medicine
B.S., 1951, M.D., 1953, Minnesota;
M.I.H., 1955, Harvard
- LAWS, E. Harold, 1947 (1958)
Clinical Associate Professor of Medicine
B.S., 1938, M.D., 1940, Indiana
- LAYMAN, James D., 1953 (1958)
Clinical Instructor in Medicine
B.S., 1944, Seattle; M.D., 1947, St. Louis
- LEEDE, William Edward, 1947
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)
- LESTER, Charles N., 1947
Clinical Instructor in Medicine
B.A., 1928, M.D., 1934, Colorado
- LEVENSON, Robert M., 1955
Clinical Associate in Medicine
M.D., 1946, Louisville
- LINDAHL, Wallace W., 1947 (1952)
Clinical Assistant Professor of Medicine
(Neurology)
B.S., 1933, Washington State College;
M.D., 1938, Northwestern
- LINDBERG, John H., 1955 (1958)
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 (1957)
Clinical Assistant Professor of Medicine
B.S., 1940, Washington; M.D., 1943,
Harvard; M.S. in Medicine, 1951,
Minnesota
- MANCHESTER, Robert C., 1947
Clinical Instructor in Medicine
B.A., 1927, Ohio Wesleyan; M.S., 1930,
M.D., 1932, Rochester
- MARR, Thomas A., 1954
Assistant in Medicine
B.A., 1949, B.S., 1951, M.D., 1953,
Minnesota
- MARSHALL, Helen S., 1950 (1956)
Clinical Instructor in Medicine
B.S., 1939, M.D., 1942, Wisconsin
- MARTIN, Carroll J., 1952 (1957)
Clinical Assistant Professor of Medicine
B.S., M.D., 1940, Iowa
- MARTIN, John K., 1947
Clinical Assistant Professor of Medicine
B.S., 1926, M.D., 1928, Nebraska
- MARTIN, Richard H., 1958
Assistant in Medicine
M.D., 1957, Rochester
- McNAY, Jr., John L., 1958
Assistant in Medicine
B.A., 1953, Yale; M.D., 1957, Harvard
- 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 (1954)
Clinical Instructor in Medicine
B.S., 1943, Bowdoin College; M.D., 1946,
Columbia
- MILLER, Walter T., 1956
Clinical Associate in Medicine
M.B., 1944, Aberdeen (Scotland); M.D.,
1946, Cornell
- 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;
Lecturer in Nursing
B.A., 1938, DePauw; B.M., M.D., 1943,
Northwestern
- MORLEDGE, John H., 1957
Assistant in Medicine
A.B., 1948, Oklahoma; M.D., 1952,
Western Reserve
- MORTON, Robert J., 1948 (1954)
Clinical Assistant Professor of Medicine
A.B., 1939, M.D., 1943, Kansas
- MOTULSKY, Arno, 1953 (1958)
Associate Professor of Medicine
B.S., 1945, M.D., 1947, Illinois
- MULLER, H. Arnold, Jr., 1956
Assistant in Medicine
B.A., 1952, Dartmouth College;
M.D., 1955, Harvard
- MULLINS, John R., 1954 (1955)
Clinical Instructor in Medicine
(Neurology)
B.S., 1942, Gonzaga; M.D., 1945,
St. Louis
- MURRAY, John S., 1958
Assistant in Medicine
B.S., 1951, M.D., 1954, Indiana
- NARAHARA, Hiromichi T., 1953 (1956)
Research Instructor
B.A., 1943, M.D., 1947, Columbia
- NELSON, Averly M., 1947
Clinical Instructor in Medicine
B.S., 1937, Washington; M.D., 1941,
Oregon
- NIELSEN, Robert L., 1952 (1957)
Clinical Associate
M.D., 1951, Harvard
- NOLAN, Donald E., 1951
Clinical Assistant Professor of Medicine;
Administrative Assistant
M.D., 1936, Minnesota
- NOYES, Ward D., 1954
Assistant in Medicine
B.A., 1949, M.D., 1953, Rochester
- ODELL, William D., 1957
Assistant in Medicine
A.B., 1952, California; M.S., 1956, M.D.,
1956, Chicago
- ODLAND, George F., 1957
Clinical Instructor in Medicine
M.D., 1946, Harvard
- ORMOND, Louise, 1951 (1957)
Clinical Instructor in Medicine and
Lecturer in Nursing
B.A., 1942, Wellesley; M.D., 1947,
Rochester
- ORMSBY, John W., 1958
Assistant in Medicine
B.S., 1953, Davidson College; M.D.,
1957, Columbia
- ORTH, Rodney D., 1958
Assistant in Medicine and Research Fellow
B.A., Whitman College; M.D., 1955,
Washington
- PACE, William R., Jr., 1951 (1954)
Clinical Instructor in Medicine
B.S., 1943, M.D., 1945, Arkansas
- PAINE, Robert, 1951 (1954)
Clinical Instructor in Medicine; Lecturer
in Nursing
B.S., 1942, Bowdoin College; M.D., 1946,
Columbia
- PATON, Richard R., 1957
Assistant in Medicine
B.S., 1950, M.D., 1954, Washington
- PAXSON, Chauncey G., 1956 (1957)
Clinical Associate in Medicine
M.D., 1950, Jefferson Medical College
- PEARSALL, Herbert R., 1957
Clinical Instructor in Medicine
B.S., 1939, Roanoke College; M.D., 1943,
Medical College of Virginia
- PEARSON, Clarence C., 1948 (1954)
Clinical Assistant Professor; 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
- PERRY, David M., 1955
Assistant in Medicine
B.A., 1950, Washington; M.D., 1954,
McGill
- PELZEL, Robert B., 1956
Assistant in Medicine; Research Fellow
B.A., 1947, West Virginia; M.D.,
1954, Harvard
- PETERSON, Philip Leslie, 1947 (1956)
Clinical Assistant Professor of Medicine
A.B., 1926, St. Olaf College; M.D., 1931,
Rush Medical College
- PILLOW, Randolph, 1951 (1956)
Clinical Instructor in Medicine; Lecturer
in Nursing
B.A., 1941, M.D., 1944, Virginia
- PIRZIO-BIROLI, Giacomo, 1952 (1957)
Clinical Instructor in Medicine
M.D., 1951, Johns Hopkins
- PLUM, Fred, 1953
Associate Professor of Medicine
(Neurology)
A.B., 1944, Dartmouth; M.D., 1947,
Cornell
- POMMERENING, Robert A., 1948 (1958)
Clinical Associate Professor of Medicine;
Lecturer in Nursing
A.B., 1938, M.D., 1942, Michigan
- POTTER, Robert T., 1949 (1958)
Clinical Associate Professor of Medicine;
Lecturer in Nursing
B.S., 1937, M.B., 1939, M.D., 1940,
Minnesota; M.P.H., 1944, Johns
Hopkins
- RADKE, Ryle A., 1955 (1958)
Clinical Assistant Professor of Medicine
M.D., 1934, Northwestern; M.Sc., 1951,
Louisville
- RANKIN, Robert M., 1948 (1952)
Clinical Assistant Professor of Medicine
(Neurology)
B.S., 1937, Washington; M.D., 1942,
Johns Hopkins
- REEVES, Robert L., 1953 (1957)
Clinical Assistant Professor of Medicine;
Lecturer in Nursing
M.D., 1946, Virginia
- RUYS, Harvey C., 1951 (1955)
Clinical Instructor in Medicine
M.D., 1943, Oklahoma
- RUBIN, Cyrus E., 1954 (1956)
Assistant Professor of Medicine
A.B., 1943, Brooklyn College; M.D., 1945,
Harvard
- RUPRECHT, Archibald L., 1954
Clinical Associate in Medicine
A.B., 1943, Harvard; M.D., 1946,
Columbia
- SAMSON, Werner E., 1957
Assistant in Medicine
B.S., 1949; M.D., 1953, Washington
- SANDLER, Harold, 1956
Assistant in Medicine
B.S., 1951, M.D., 1955, Cincinnati
- SATA, William K., 1955 (1958)
Clinical Instructor in Medicine
(Neurology)
B.A., 1945, M.D., 1947, Utah
- SCHMIDT, Richard P., 1956
Assistant Professor of Surgery (Neuro-
surgery) and Medicine (Neurology)
B.S., 1942, Kent State; M.D., 1945,
Louisville
- SCHALLER, Gilbert K., 1953 (1956)
Clinical Associate in Medicine
B.S., 1948, M.D., 1952, Washington
- SCOTT, Michael J., 1952 (1955)
Clinical Instructor in Medicine
M.D., 1946, Creighton
- SCRIBNER, Belding H., 1951 (1954)
Associate Professor of Medicine
B.A., 1941, California; M.D., 1945,
Stanford; M.S., 1951, Minnesota
- SHAW, John M., 1955
Clinical Associate in Medicine
M.D., 1949, Michigan
- SHAW, Joseph W., 1947
Clinical Professor of Medicine
B.S., 1925, 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., 1947
Clinical Assistant Professor of Medicine;
Administrative Consultant
B.S., 1923, B.M., 1925, M.D., 1926,
Minnesota
- SHULL, Thomas E., 1957
Assistant in Medicine
B.S., 1950, Idaho; M.D., 1954,
Washington
- SIMPSON, Robert W., 1950 (1958)
Clinical Associate Professor of Medicine
A.B., 1936, M.D., 1942, Stanford
- SKUBI, Kazimer B., 1947 (1954)
Clinical Assistant Professor of Medicine
B.S., 1932, Washington; M.D., 1940,
Rush Medical College
- SMART, Thomas B., 1952 (1957)
Clinical Instructor in Medicine
B.S., 1947, M.D., 1951, Washington
- SODERSTROM, Kenneth M., 1947
Clinical Assistant Professor of Medicine
M.D., 1931, Nebraska; M.S. in P.H.,
1940, Johns Hopkins
- SPARKMAN, Donal Ross, 1947 (1956)
Clinical Associate Professor of Medicine;
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., 1944, Stanford
- STEENROD, William J., 1953 (1957)
Clinical Instructor in Medicine; Lecturer
in Nursing
B.S., 1943, Western Michigan College;
M.D., 1946, Michigan
- STEINER, Donald F., 1957
Assistant in Medicine
B.S., 1952, Cincinnati; M.S., M.D., 1956,
Chicago
- STEVENS, Alexander, 1951 (1957)
Clinical Assistant Professor of Medicine
B.A., 1943, Yale; M.D., 1946, Cornell
- STIMSON, William H., 1957
Clinical Instructor in Medicine
M.D., 1939, George Washington
- STROH, James E. S., 1947 (1957)
Clinical Associate Professor of Medicine
B.S., 1928, South Dakota; M.D., 1931,
Illinois
- SUVER, Philip J., 1957
Clinical Associate in Medicine
B.S., 1945, Washington; M.D., 1949,
Oregon
- SWANSON, August G., 1954 (1958)
Instructor in Medicine (Neurology) and
Pediatrics (Neurology)
A.B., 1951, Westminster College; M.D.,
1949, Harvard
- TANNER, Donald C., 1954 (1956)
Clinical Associate in Medicine
A.B., 1946, M.D., 1950, Stanford

- THOMPSON, Alvin J., 1955
Clinical Associate in Medicine
M.D., 1946, Howard
- TOMIZAWA, Henry H., 1952 (1957)
Research Assistant Professor of Medicine;
Lecturer in Biochemistry
B.S., 1949, Iowa State College; Ph.D.,
1952, Illinois
- TYBERGHEIN, Jean, 1954 (1957)
Research Instructor in Medicine
M.D., 1952, Louvain (Belgium)
- ULRICH, Delmont M., 1951 (1958)
Clinical Assistant Professor of Medicine
B.S., 1940, M.D., 1943, Minnesota
- UYENO, Ben T., 1951 (1956)
Clinical Associate in Medicine
B.S., 1943, Washington; M.D., 1949,
Rochester
- VAN ARSDEL, Paul P., 1953 (1958)
Assistant Professor of Medicine
B.S., 1948, Yale; M.D., 1951, Columbia
College of Physicians and Surgeons
- VANDERHEIDEN, Bernardo S., 1956
Research Associate in Medicine
B.S., 1947, M.S., 1949, Michigan State;
Ph.D., 1956, Washington
- VOEGTLIN, Walter L., 1947
Clinical Assistant Professor of Medicine
B.S., 1932, M.S., 1933, B.M., 1934, M.D.,
1935, Northwestern
- VOLWILER, Wade, 1949 (1954)
Associate Professor of Medicine
A.B., 1939, Oberlin College; M.D., 1943,
Harvard
- WATTS, William E., 1950 (1958)
Clinical Associate Professor of Medicine;
Lecturer in Nursing
B.S., 1938, Washington; M.D., 1942,
Harvard
- WEINSTEIN, Haskell, 1950 (1957)
Clinical Instructor in Medicine
B.S., 1949, M.D., 1953, Washington
- WEINSTEIN, Sydney, 1947 (1956)
Clinical Assistant Professor of Medicine
B.S., 1926, Washington; M.D., 1930,
Jefferson Medical College
- WESER, Elliot, 1958
Assistant in Medicine
A.B., 1953, M.D., 1957, Columbia
- WILLIAMS, Paul L., 1947
Clinical Instructor in Medicine
B.S., 1934, M.D., 1937, Oregon
- WILLIAMS, Robert Hardin, 1948
Professor of Medicine; Executive Officer
of the Department of Medicine
A.B., 1929, Washington and Lee; M.D.,
1934, Johns Hopkins
- WILLKENS, Robert F., 1955
Assistant in Medicine
B.S., 1950, Antioch College; M.D., 1954,
Rochester
- WOLFE, William A., 1951
Clinical Associate in Medicine
B.S., 1943, M.D., 1946, Northwestern;
M.S., 1950, Washington
- YAMAUCHI, Hiroshi, 1956
Assistant in Medicine
B.A., 1951, M.D., 1955, California
- ZIMMERMAN, Bruce M., 1947 (1958)
Clinical Associate Professor of Medicine
B.S., 1935, North Dakota; M.D., 1937,
Northwestern
- 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)
- BRATVOLD, Gloria Elizabeth, 1958
Research Associate in Obstetrics and
Gynecology
B.S., 1947, Washington
- BRUGGER, Donald J., 1957
Clinical Assistant in Obstetrics and
Gynecology
B.S., 1940, M.D., 1952, Ohio State
- CAMPBELL, Robert M., 1949 (1952)
Clinical Instructor in Obstetrics and
Gynecology
B.S., 1942, Washington; M.D., 1945,
M.S., 1949, Michigan
- CLANCY, John, 1948 (1957)
Clinical Assistant Professor in 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 (1951)
Clinical Instructor in Obstetrics and
Gynecology
B.S., 1939, Washington; M.D., 1942,
Oregon
- 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
- DONALDSON, L. Bruce, 1948 (1957)
Clinical Assistant Professor in Obstetrics
and Gynecology
B.S., 1935, Northwestern; M.D., 1939,
Michigan
- FIGGE, David C., 1953 (1957)
Assistant Professor in Obstetrics and
Gynecology
B.S., 1949; M.D., 1950, Northwestern
- FINE, Charles S., 1948
Clinical Instructor in Obstetrics and
Gynecology
M.D., 1937, Toronto (Canada)
- FIORINO, John Francis, 1948
Clinical Associate in Obstetrics and
Gynecology
B.S., 1924, M.D., 1926, St. Louis
- FULLINGTON, Warren Richard, 1958
Assistant in Obstetrics and Gynecology
B.A., 1953, M.D., 1956, Washington
- GABRIO, Wesley F., 1954 (1957)
Clinical Associate in Obstetrics and
Gynecology
A.B., 1940, Washington; M.S., 1941,
Michigan; M.D., 1950, Missouri
- GOMBERG, Bernard, 1954
Clinical Instructor in Obstetrics and
Gynecology
B.S., 1939, M.S., 1941, M.D., 1941,
Illinois
- GRIFFIN, Joe L., 1958
Clinical Associate in Obstetrics and
Gynecology
A.B., 1941, M.D., 1944, Illinois

OBSTETRICS AND GYNECOLOGY

- AFONSO, Jose Filipe de Sanches, 1954
(1957)
Instructor in Obstetrics and Gynecology
M.D., 1952, Oporto (Portugal)

- HARRISON, Harold E., 1951 (1957)
Clinical Assistant Professor in Obstetrics and Gynecology
B.S., 1931; M.D., 1933, Nebraska
- HELWIG, Carl M., 1948 (1955)
Clinical Associate in Obstetrics and Gynecology
M.D., 1926, Ohio State
- HILSCHER, Stewart, 1958
Clinical Assistant in Obstetrics and Gynecology
B.S., 1943, M.D., 1949, Long Island College
- KETTERING, Harry A., 1951 (1955)
Clinical Instructor in Obstetrics and Gynecology
B.A., 1942; M.D., 1945, Oregon
- KIMBALL, Charles Dunlap, 1948 (1957)
Clinical Associate Professor in Obstetrics and Gynecology
M.D., 1934, Buffalo
- KLOPFENSTEIN, Karl Henry, 1957
Clinical Associate in Obstetrics and Gynecology
B.S., 1943, Washington; M.D., 1947, George Washington
- KNUDSON, Wendell C., 1948 (1957)
Clinical Instructor in Obstetrics and Gynecology
B.S., 1933, Washington; M.D., 1938, Northwestern
- LAMKEE, Muriel, 1956 (1957)
Instructor in Obstetrics and Gynecology
B.A., 1949, Augustana College; B.S., 1951, South Dakota; M.D., 1953, Nebraska
- LAYTON, E. Gerald, 1950
Clinical Associate in Obstetrics and Gynecology
Ph.C., 1929, B.S., 1930, Washington; B.M., 1934; M.D., 1935, Northwestern
- LEE, Albert F., 1948 (1957)
Clinical Assistant Professor in 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; 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 in Obstetrics and Gynecology
B.S., 1939, Washington; M.D., 1943, Chicago
- NISCO, Frank S., (1958)
Assistant in Obstetrics and Gynecology
A.B., 1949, Rutgers; M.D., 1955, Washington
- NUCKOLS, Hugh Hunter, 1948 (1957)
Clinical Assistant Professor in Obstetrics and Gynecology
B.S., 1930, Washington; M.D., 1934, Pennsylvania
- PETERSON, Paul G., 1948 (1957)
Clinical Assistant Professor in Obstetrics and Gynecology
A.B., 1927, St. Olaf College; M.D., 1932, Rush Medical College
- REEKIE, Richard D., 1948 (1955)
Consultant in Obstetrics and Gynecology
Ph.C., 1925, B.S., 1927, Washington; M.D., 1933, Michigan
- ROLLINS, Paul R., 1948 (1957)
Clinical Associate Professor in 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 in 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. Philip, 1948 (1957)
Clinical Assistant Professor in Obstetrics and Gynecology
A.B., 1930, B.S., 1932, M.D., 1934, Kansas
- THORP, Donald J., 1948
Consultant in Obstetrics and Gynecology
A.B., 1921; B.S., 1923; M.D., 1927, Michigan
- WOLFE, Walter McIlhane, 1957
Clinical Instructor in Obstetrics and Gynecology
M.D., 1946, Maryland

PEDIATRICS

- ADKINS, George E. M., 1949 (1953)
Clinical Instructor in Pediatrics
B.S., 1941, Washington; M.D., 1944, Oregon
- ALDRICH, Robert A., 1956
Professor of Pediatrics; Executive Officer of the Department of Pediatrics
B.A., 1939, Amherst; M.D., 1943, M.D., 1944, Northwestern
- ANDERSON, O. Williams, 1950 (1951)
Clinical Instructor in Pediatrics
B.S., 1931, Idaho; B.M., 1935, M.D., 1936, Northwestern
- BAKER, Helen, 1956
Instructor in Pediatrics
B.S., 1947, Maryland; M.D., 1951, Johns Hopkins
- BILLINGTON, Sherod M., 1947 (1956)
Clinical Associate Professor of Pediatrics
A.B., 1932, M.D., 1935, Vanderbilt
- CHINQUE, Katherine M., 1949 (1951)
Senior Public Health Nurse in the Child Health Center (Pediatrics); Assistant Professor in the School of Nursing
R.N., 1931, Providence Hospital (Michigan); B.S., 1946, Wayne; M.P.H., 1951, Michigan
- CLEIN, Norman W., 1947 (1956)
Clinical Associate Professor of Pediatrics
B.S., 1922, M.D., 1924, Northwestern
- DATTA, Prasanta K., 1957
Research Associate in Pediatrics
B.S., 1949, M.S., 1951, Calcutta (India); Ph.D., 1956, Washington
- DEANE, Philip G., 1957
Research Associate 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
- DOCTER, Jack Merton, 1948 (1956)
Clinical Assistant Professor of Pediatrics
B.S., 1937, Washington; M.D., 1941, Columbia

- DOUGLASS, Frank H., 1950
Consultant in Pediatrics
Ph.G., 1919, Washington State College;
M.D., 1925, Oregon
- EMERSON, Bettina Meyerhoff, 1948 (1950)
Clinical Instructor in Pediatrics
M.D., 1943, Johns Hopkins
- GARTLER, Stanley, 1957
Research Assistant Professor of Pediatrics
B.S., 1948, California (Los Angeles);
Ph.D., 1952, California
- GRYTBAK, Margit H., 1948 (1950)
Clinical Instructor in Pediatrics
B.S., 1930; B.M., 1932, M.D., 1933,
Minnesota
- GUNTHEROTH, Warren G., 1958
Instructor in Pediatrics
B.S., 1948, M.D., 1952, Harvard
- 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
- HADDON, Joseph E., 1950
Clinical Associate in Pediatrics
B.S., 1929, Washington; M.D., 1933,
Oregon
- HARTMANN, John R., 1955 (1958)
Clinical Instructor in Pediatrics
M.D., 1947, Johns Hopkins
- HAYDEN, Ralph, 1957
Instructor in Pediatrics
B.A., 1949, Amherst College; M.D., 1953,
Rochester
- HAZELTINE, Frederick G., 1956
Clinical Associate in Pediatrics
B.S., 1948, M.D., 1951, Washington
- 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
- JENSEN, Gordon D., 1953 (1957)
Assistant Professor of Pediatrics
M.D., 1949, Yale
- JOHNSON, Walfred W., 1956
Clinical Instructor in Pediatrics
B.A., 1947, M.D., 1951, St. Louis
- 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)
- KELLEY, Vincent S., 1958
Professor of Pediatrics
B.A., 1934, M.S., 1935, North Dakota;
B.S., 1936, Ph.D., 1942, M.D., 1946,
Minnesota
- LABBE, Robert, 1957
Research Assistant Professor of Pediatrics
B.S., 1947, Portland; M.S., 1949, Ph.D.,
1951, Oregon State College
- LAGOZZINO, Daniel A., 1950 (1958)
Clinical Instructor in Pediatrics
B.S., 1940, Washington; M.D., 1943,
Oregon
- LAVECK, Gerald, 1957
Instructor in Pediatrics
B.S., 1948, M.D., 1951, Washington
- LEWIS, Donald, 1956
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
- McDERMOTT, John P., 1950
Clinical Associate in Pediatrics
B.S., M.D., 1935, Creighton
- McGRATH, James R., 1956
Clinical Associate in Pediatrics
A.B., 1943, M.D., 1945, Chicago
- MACKLER, Bruce, 1957
Associate Professor of Pediatrics
B.S., 1939, M.D., 1943, Temple
- MACKOFF, Leslie, 1956
Instructor in Pediatrics
A.B., 1948, California; M.D., 1953,
Washington
- MARTIN, Elda Jean, 1956
Research Associate in Pediatrics
B.S., 1949, Montana; M.S., 1951
Minnesota
- MYKUT, Margaret C., 1951 (1956)
*Assistant Professor of Graduate School of
Social Work at the Child Health Center,
and Clinical Instructor in Public Health
and Preventive Medicine*
B.S., 1938, Oregon; M.A., 1944,
Washington
- POLLEY, Robert F. L., 1953
Clinical Associate in Pediatrics
B.S., 1942, Gonzaga; M.D., 1945,
St. Louis
- SEELY, J. Rodman, 1958
Research Assistant Professor of Pediatrics
B.S., 1950, M.D., 1952, Utah
- SHEPARD, Thomas H., 1955 (1957)
Assistant Professor of Pediatrics
A.B., 1945, Amherst; M.D., 1948,
Rochester
- SKINNER, Alfred L., 1955 (1958)
Clinical Instructor in Pediatrics
A.B., 1947, M.D., 1951, Harvard
- SPICKARD, Vernon W., 1947 (1956)
Senior Consultant in Pediatrics
B.S., 1917, Drake; M.D., 1918,
Pennsylvania
- STAMM, Stanley J., 1956
Clinical Instructor in Pediatrics
B.S., 1940, Washington; M.D., 1952,
St. Louis
- STERNER, John A., 1950 (1951)
Clinical Instructor in Pediatrics
B.S., 1941, Washington; M.D., 1944,
Pennsylvania
- SUTHERLAND, Donald A., 1956
Clinical Instructor in Pediatrics
A.B., 1943, M.D., 1947, Rochester
- SWANSON, August G., 1958
*Instructor in Medicine (Neurology) and
Pediatrics (Neurology)*
A.B., 1951, Westminster; M.D., 1949,
Harvard
- TARICA, Samuel H., 1956 (1958)
Clinical Associate in Pediatrics
B.S., 1948, M.D., 1952, Washington
- 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

VANDEMAN, Philip R., 1950
Clinical Associate in Pediatrics
A.B., 1939, M.D., 1942, Ohio

PHYSICAL MEDICINE AND REHABILITATION

BOWING, Shirley M., 1958
Instructor in Occupational Therapy;
Head, Division of Occupational Therapy
B.S., 1943, Minnesota; 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

LEHMANN, Justus F., 1957
Professor of Physical Medicine and
Rehabilitation; Executive Officer of
Physical Medicine and Rehabilitation
M.D., 1945, Johann Wolfgang Goethe
Universitat

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)

PSYCHIATRY

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 Psychology
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

CARLSON, Gordon J., 1958
Associate in Clinical Psychology
B.S., 1950, Whitworth; B.S., 1952, M.S.,
1956, Washington

CASEY, James M., 1951
Clinical Instructor in Psychiatry
B.A., 1936, Seattle; M.D., 1944, Creighton

CHIVERS, Norman C., 1950 (1956)
Clinical Associate Professor of Psychiatry
B.A., 1938, Saskatchewan (Canada);
M.D., 1941, Manitoba (Canada)

COOK, William B., Jr., 1956 (1957)
Clinical Assistant in Psychiatry
M.D., 1955, Pennsylvania

CORBETT, James T., 1954
Clinical Instructor in Psychiatry
B.S., 1945, Seattle; M.D., 1947, St. Louis

COWLING, F. Virginia, 1956
Clinical Instructor in Psychiatry
(Social Work)
B.S., 1945, M.S.W., 1956, Washington

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

DIAMOND, Leon S., 1951
Clinical Affiliate in Psychiatry
B.S.M., 1937, M.D., 1938, Loyola

DORPAT, Theodore L., 1953 (1958)
Assistant Professor of Psychiatry
B.S., 1948, Whitworth; M.D., 1952,
Washington

DRAPER, Franklin M., 1958
Instructor in Psychiatry
B.A., 1950, Reed; M.D., 1954, Harvard

EGGERTSEN, Harold C., 1957
Clinical Assistant in Psychiatry
B.S., 1950, M.D., 1955, Utah

ETZEL, Barbara C., 1956
Instructor in Clinical Psychology
B.S., 1948, Denison; M.S., 1950, Miami;
Ph.D., 1953, Iowa State

FISK, Quentin G., 1957
Instructor in Psychiatry
B.S., 1942, South Dakota State College;
B.S., 1948, South Dakota; M.D., 1950,
Illinois

FORDYCE, Wilbert E., 1953 (1954)
Clinical Instructor in Clinical Psychology
B.S., 1948, M.S., 1951, Ph.D., 1953,
Washington

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 Clinical Psychology
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

- HOEDEMAKER, Edward D., 1947
Clinical Instructor in Psychiatry
B. S., 1927, M.D., 1929, Michigan
- HOEKSTRA, Clarice E., 1956
Clinical Instructor in Psychiatry (Social Work)
B.A., 1950, M.S.W., 1952, Minnesota
- HOLMES, Thomas H., III, 1949 (1958)
Professor of Psychiatry
A.B., 1939, North Carolina; M.D., 1943, Cornell
- HORTON, William D., 1950 (1958)
Clinical Assistant Professor of Psychiatry
B.A., 1939, M.D., 1942, Kansas
- HUMISTON, Karl E., 1956
Clinical Assistant in Psychiatry
A.B., 1951, Stanford; M.D., 1955, Harvard
- HUNTER, Harry D., 1954
Clinical Instructor in Psychiatry
M.D., 1945, Rochester
- HURLEY, Albert M., 1952 (1956)
Clinical Instructor in Psychiatry
B.S., 1942, St. Joseph College; M.D., 1946, Marquette
- IVERSON, Carroll K., 1956
Clinical Instructor in Psychiatry
B.S., 1951, Iowa State College; M.D., 1951, Yale
- JACKSON, Joan K., 1955 (1958)
Research Assistant Professor of Psychiatry
M.A., 1947, McGill (Canada); Ph.D., 1955, Washington
- 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
- JOHNSON, Merlin, 1955
Instructor in Psychiatry
B.A., 1944, M.D., 1947, Iowa
- JONES, Charles H., 1950
Clinical Affiliate in Psychiatry
B.S., 1940, Washington; M.D., 1943, Oregon
- 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
- KELLEHER, Daniel, 1958
Associate in Clinical Psychology
B.S., 1953, M.S., 1957, Washington
- KENNARD, Margaret A., 1956
Clinical Associate Professor of Psychiatry
B.A., 1922, Bryn Mawr; M.D., 1930, Cornell
- 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 Psychology
B.A., 1934, Wellesley; M.A., 1935, Ph.D., 1943, Columbia
- KOGAN, William S., 1952
Clinical Instructor in Clinical Psychology
A.B., 1936, New York; M.A., 1939, Columbia; Ph.D., 1949, Pittsburgh
- KROUSE, Howard, 1951 (1956)
Clinical Instructor in Psychiatry
Clinical Instructor in Medicine (Neurology)
B.A., 1941, M.D., 1943, Iowa
- LARSON, William R., 1958
Research Associate in Psychiatry
B.A., 1955, M.A., 1958, Washington
- LASATER, James H., 1948
Clinical Instructor in Psychiatry
B.S., 1934, Washington; M.D., 1939, George Washington
- LAWLER, Robert H., 1957
Clinical Instructor in Psychiatry
M.D., 1948, Manitoba
- LEFFMAN, Henry, 1953 (1956)
Clinical Assistant Professor of Psychiatry
Clinical Assistant Professor of Medicine (Neurology)
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
- MASUDA, Minoru, 1956
Research Instructor in Psychiatry
B.S., 1936, M.S., 1938, Ph.D., 1956, Washington
- MEADOWS, John W., 1956
Clinical Instructor in Psychiatry
B.S., 1940, Gonzaga; M.D., 1944, Western Reserve
- MURRAY, Arthur A., 1958
Clinical Assistant in Psychiatry
M.D., 1948, Southwestern Medical College
- 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
- 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 College; 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
- PIPE, Bernard J., 1956
Clinical Assistant in Psychiatry
M.D., 1938, St. Louis
- POSELL, Edward A., 1949 (1953)
Clinical Affiliate in Psychiatry
B.S., 1923, College of City of New York; M.D., 1927, Boston
- POST, Nancy R., 1956
Clinical Instructor in Psychiatry (Social Work)
B.A., 1940, M.S.W., 1953, Washington

- PRATUM, Leif K., 1951 (1952)
Clinical Instructor in Psychiatry
B.S., 1944, Washington; M.D., 1946,
Louisville
- PRESTON, Caroline E., 1949 (1953)
Instructor in Psychology
B.A., 1940, M.A., 1941, Colorado
- 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
- RIPLEY, Herbert S., 1949
*Professor of Psychiatry, Executive Officer
of the Department of Psychiatry*
A.B., 1929, Michigan; M.D., 1933,
Harvard
- ROWLETT, David B., 1957
Clinical Assistant 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
Clinical Assistant 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 (1956)
Instructor in Psychiatry
B.S., 1948, M.D., 1952, Washington
- STROTHER, Charles R., 1949
*Professor of Clinical Psychology in the
School of Medicine*
B.A., 1929, M.A., 1932, Washington;
Ph.D., 1935, Iowa
- STUEN, Marcus R., 1953 (1955)
Clinical Affiliate in Psychiatry
B.A., 1943, Pacific Lutheran College;
M.D., 1946, Marquette
- TATUM, Joseph C., 1955
Clinical Affiliate in Psychiatry
M.D., 1932, Tennessee
- TAYLOR, Benjamin M., 1954 (1955)
Clinical Instructor in Psychiatry
M.D., 1949, St. Louis
- TJOSSEM, Theodore D., 1951 (1953)
Instructor in Psychology
B.A., 1940, Drake; M.A., 1941, Iowa
- WELTI, Walter B., 1952 (1958)
*Clinical Instructor in Psychiatry
(Social Work)*
A.B., 1950, M.S.W., 1957, Washington
- WELTI, Walter B., 1952 (1954)
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
- WILLIAMS, Walter C., 1956 (1957)
Instructor in Clinical Psychology
B.S., 1938, Northwestern; M.S., 1952,
Ph.D., 1957, Washington

- WORTHINGTON, Robert L., 1949
Clinical Instructor in Psychiatry
M.D., C.M., 1933, McGill (Canada)

RADIOLOGY

- ADDINGTON, Ercell A., 1948
Clinical Assistant Professor of Radiology
B.A., 1928, Carleton College (Minnesota);
M.D., 1932, M.A., 1939, Minnesota
- BAIR, William J., 1957
Lecturer, Radiology
B.A., 1949, Ohio Wesleyan; Ph.D., 1954,
Rochester
- BALTZO, Ralph M., 1954 (1956)
*Associate in Radiology; Radiologic
Safety Officer*
B.A., 1950, Washington
- 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
- CANTRIL, Simeon T., 1948
Clinical Associate Professor of Radiology
A.B., 1929, Dartmouth; M.D., 1932,
Harvard
- CARLILE, Thomas Burham, Jr., 1948
Clinical Assistant Professor of Radiology
A.B., 1936, M.D., 1939, Michigan
- FIGLEY, Melvin M., 1958
Professor and Executive Officer Radiology
M.D., 1944, Harvard Medical School
- 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
Clinical Assistant Professor
B.S., 1947, M.D., 1951, Washington
- HARRIS, Milo Truman, 1950
Clinical Associate 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
Clinical Instructor in Radiology
B.A., 1933, M.D., 1938, Minnesota
- MYERS, Ira T., 1956
Lecturer, Radiology
B.S., 1948, M.S., 1952, Washington State
College
- NELSON, James F., 1953 (1955)
Clinical Assistant Professor in Radiology
M.D., 1946, Northwestern
- PARKER, Herbert M., 1948
Clinical Assistant Professor of Radiology
B.S., 1930, M.S., 1931, Manchester
(England)
- PARKER, Robert G., 1956 (1958)
Clinical Assistant Professor
B.S., 1945, M.D., 1948, Wisconsin
- ROBERTS, Edward W., 1948
Clinical Instructor in Radiology
B.S., 1929, B.M., 1931, M.D., 1932,
Minnesota
- ROESCH, William C., 1953
Clinical Instructor in 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
Clinical Instructor in Radiology
B.S., 1936, Washington; M.D., 1940,
Michigan

WARD, Byron H., 1951
Clinical Instructor in Radiology
B.S., 1935, Washington; M.D., 1939,
Oregon

WILDERMUTH, Orliiss
Clinical Associate Professor of Radiology
A.B., 1939, B.S., 1941, Medical School,
Missouri; M.D., 1943, College of
Medicine, Cincinnati

SURGERY

ADAMS, Alfred O., 1950
Consultant in Orthopedic Surgery
M.D., 1924, Washington University

ANDERSON, Kirk J., 1952
Clinical Associate 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

ANDERSON, Rupert F., Jr., 1955
Clinical Associate in Surgery
A.B., 1942, Kenyon College; M.D., 1946,
Columbia

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

BARRETT, Earl L., 1951
Clinical Associate in Ophthalmology
B.S., 1942, Northwestern; M.D., 1945,
Harvard

BELL, John W., 1957
Assistant Professor of Surgery
B.S., 1942, Washington; M.D., 1945,
Northwestern

BERENS, Sylvester N., 1953 (1956)
Consultant in Neurosurgery
B.S., 1924, M.D., 1928, Creighton

BERETTA, Francesco, 1956
Assistant in Surgery
M.D., 1946, Pavia, Italy; M.D., 1950,
Washington

BILL, Alexander H., Jr., 1948
Clinical Associate 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

BLUMBERG, Jack, 1958
Assistant in Surgery
B.A., 1952, Stanford, M.D., 1956

BOGARDUS, George M., 1951 (1955)
Clinical Instructor in Surgery
M.D., 1938, Duke

BONICA, John J., 1956
Consultant in Anesthesiology
B.S., 1939, New York; M.D., 1942,
Marquette

BOWLES, Albert J., 1948
Consultant in Surgery
A.B., 1919, M.D., 1923, Oregon

BRIDENBAUGH, L. Donald, 1956
Clinical Associate in Anesthesiology
M.D., 1947, Nebraska

BROWN, Walter S., 1952
Clinical Instructor in Surgery
A.B., 1927, Alabama; M.D., 1932, Illinois

BUCHMAN, Helen, 1956
Research Associate in Surgery
B.Sc.A., 1945, British Columbia; M.A.,
1948, California

BUCKNER, Hubbard T., 1948
Senior Consultant in Orthopedic Surgery
M.D., 1913, Jefferson

BURGESS, Ernest M., 1948
Clinical Instructor in Orthopedic Surgery
A.B., 1932, Utah; M.D., 1937, Columbia

BURKE, Donald R., Jr., 1954
Clinical Associate in Surgery
B.S., 1945, M.D., 1948, Creighton;
M.S., 1955, St. Louis

CAIN, Alvin L., 1958
Consultant in Otolaryngology
B.S., 1941, Betheny, B.S., 1943, West
Virginia, M.D., 1944, Virginia

CALLAHAN, John J., 1957
Clinical Associate in Orthopedic Surgery
B.S., 1938, Washington; M.D.C.M., 1942,
McGill

CAMMOCK, Earl E., 1956
Assistant in Surgery
B.A., 1949; B.S., 1950; M.D., 1950,
Minnesota

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

CHAPMAN, Niles D., 1958
Assistant in Surgery
B.S., 1952, Montana State College, M.D.,
1956, Washington

CHAPMAN, Warren H., 1957
Clinical Associate in Urology
B.S., 1956 Massachusetts Institute of
Technology; M.D., 1952, Chicago

CHISM, Carl E., 1952 (1958)
Clinical Instructor in Surgery
B.S., 1936, M.D., 1941, Nebraska

COE, Herbert E., 1947
Senior Consultant in Surgery
A.B., 1904, M.D., 1906, Michigan

COE, Robert C., 1956
Clinical Associate in Surgery
B.S., 1940, Washington; M.D., 1950,
Harvard

COMPTON, David W., 1949
Clinical Associate in Anesthesiology
B.S., 1937, Washington; M.D., 1941,
Pennsylvania

CRENSHAW, William B., 1955 (1958)
Clinical Instructor in Urology
B.A., 1944, M.D., 1948, Virginia

CRYSTAL, Dean K., 1947 (1952)
Clinical Instructor in Surgery
B.S., 1936, Washington; B.A., 1938,
Oxford; M.D., 1941, Johns Hopkins

DAY, Sherman W., Jr., 1955
Clinical Associate in Surgery
B.S., 1944, College of Puget Sound;
M.D., 1947, M.S., 1952, Northwestern

DEPREE, James F., 1952
Clinical Associate in Surgery
B.A., 1926, Hope College (Michigan);
M.D., 1931, Rush Medical College

- DEVITO, Robert V., 1956
Assistant in Surgery
B.A., 1949, British Columbia; M.D., 1953, Washington
- DILLARD, David H., 1953
Instructor in Surgery
A.B., 1946, Whitman College; M.D., 1950, Johns Hopkins
- DIRSTINE, Morris J., 1947
Clinical Associate in Surgery
Ph.G., 1926, Washington State College; B.S., 1932, Washington; M.D., 1937, Northwestern
- 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)
- EATHER, Kenneth F., 1956
Clinical Associate in Anesthesiology
M.D., 1945, Pennsylvania
- 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., 1948
Clinical Associate in Orthopedic Surgery
B.A., 1936, Willamette; M.D., 1940, Oregon
- EVOY, Matthew H., 1948
Clinical Associate in Surgery
M.D., 1941, St. Louis
- FAUSNAUGH, Cloyde L., 1957
Assistant in Surgery
A.B., 1947, Swarthmore, M.D., 1951, Pennsylvania
- FINLEY, John W., 1953 (1958)
Clinical Instructor in Surgery
- FLORER, Robert E., 1948 (1958)
B.S., 1940, Idaho; M.D., 1943, Harvard
- FLASHMAN, Forrest L., 1950
Clinical Associate in Orthopedic Surgery
M.D., 1941, Northwestern
- FLETCHER, T. Lloyd, 1951 (1955)
Research Associate Professor of Surgery
A.B., 1937, M.A., 1938, Clark (Massachusetts); Ph.D., 1949, Wisconsin
- FLOREER, Robert E., 1948 (1958)
Clinical Instructor in Surgery
B.S., 1938, Western Kentucky State Teachers College; M.D., 1941, Louisville
- FOLTZ, Eldon L., 1950 (1953)
Assistant Professor of Neurosurgery
B.S., 1941, Michigan State College; M.D., 1943, Michigan
- FORBES, Robert D., 1947 (1948)
Senior Consultant in Surgery
M.D., C.M., 1903, McGill (Canada)
- FOXWORTHY, Laurel R., 1949
Clinical Associate in Ophthalmology
M.S., 1937, M.D., 1939, Indiana
- FREDERICKSON, Evan L., 1956
Assistant Professor of Anesthesiology
B.S., 1947, M.D., 1950, Wisconsin; M.S., 1953, Iowa
- GARRETT, Wayne E., 1955
Instructor in Surgery
M.D., 1952, Pennsylvania
- GEARHART, James W., Jr., 1957
Assistant in Surgery
B.S., 1949, Rutgers; M.D., 1953, Columbia
- GLOYD, Park W., 1956
Clinical Associate in Orthopedics
B.S., 1945, Washington; M.D., 1948, Pennsylvania
- GOFF, Willard F., 1956
Clinical Instructor in Otolaryngology
B.S., 1931, Washington, M.D., 1935, Oregon
- GRAY, A. Bernard, 1951
Clinical Associate in Orthopedic Surgery
M.D., 1935, Manitoba (Canada)
- GRIFFITH, Charles A., 1952 (1955)
Clinical Instructor in Surgery
B.A., 1942, M.D., 1945, Harvard
- GUSTAFSON, Ivan J., 1952 (1955)
Clinical Associate in Surgery
B.S., 1942, Washington State College; M.D., 1950, Oregon
- HAFFLY, Gilbert N., 1948 (1949)
Clinical Associate in Ophthalmology
B.M., 1932, M.D., 1936, Northwestern
- HALL, Donald T., 1948
Clinical Instructor in Surgery
B.S., 1931, Washington; M.D., 1935, Harvard
- 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
- 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
- HAVERSTOCK, Richard T., 1948
Clinical Associate in Urology
B.S., 1933, M.D., 1936, Illinois
- HEARNE, Rodney B., 1948
Clinical Associate in Surgery
B.S., 1933, Washington; M.D., 1937, Harvard
- HEATH, Sherburne W., 1952
Clinical Instructor in Surgery
A.B., 1941, Whitman College; M.D., 1945, Marquette
- HENRY, Frank C., 1949 (1952)
Clinical Associate in Surgery
A.B., 1934, James Millikan (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
- HERRON, Paul W., 1956
Assistant in Surgery
B.S., 1950, Washington State; M.D., 1954, Washington University
- HILLMAN, Van K., 1952
Clinical Associate in Surgery
B.S., 1937, M.D., M.S., 1941, Northwestern
- HOUSEHOLDER, James R., 1955
Instructor in Anesthesiology
M.D., 1948, Iowa
- 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; Lecturer in Nursing
B.S., 1931, Washington; M.D., 1936, McGill (Canada)
- JARVIS, Fred J., 1948
Consultant in Surgery
B.A., 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
- JESSEPH, John E., 1955
Instructor in Surgery
A.B., 1949, Whitman College; M.D., 1953, Washington
- JOHNSON, Roger H., 1949
Clinical Associate in Ophthalmology
B.S., 1937, M.D., 1939, Wisconsin; M.S., 1944, Minnesota
- JONES, Thomas W., 1956
Assistant in Surgery
B.S., 1953, Washington State College; M.D., 1953, Washington
- KANAR, Edmund A., 1951 (1955)
Consultant in Surgery
B.A., 1943, M.D., 1945, Wayne
- KENNELLY, JoJhn M., 1956 (1958)
Assistant Professor in Urology
B.A., 1945, Willamette; M.D., 1948, George Washington
- KING, Brien T., 1947
Senior Consultant in Surgery
M.D., 1911, Vanderbilt
- KIRILUK, Lawrence B., 1949 (1954)
Clinical Instructor in Surgery
B.M., 1945, M.D., 1946, Minnesota
- KLEMPERER, Wolfgang W., 1948
Clinical Associate in Neurosurgery
M.D., 1936, Cornell
- KNOPP, Lawrence M., 1954 (1956)
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, Edward A., 1948
Consultant in Orthopedic Surgery
B.A., 1926, M.D., 1929, Oregon
- LECOCQ, John F., 1948
Senior Consultant and Acting Head of the Division of 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
Clinical Instructor in Surgery
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
- LOUGHLIN, Ivan K., 1948
Clinical Associate in Orthopedic Surgery
B.S., 1939, Washington; M.D., 1943, Oregon
- LUNDMARK, Vernon O., 1948
Clinical Associate in Surgery
M.D., 1936, Washington University
- LUNDY, LeRoy F., 1958
Clinical Associate in General Surgery
B.S., 1945, Washington; M.D., 1948, George Washington
- LYDA, Wood, 1954
Clinical Associate in Ophthalmology
B.S., 1940, Washington; M.D., 1943, Washington University
- 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
B.S., 1932, Washington; M.D., 1936, Harvard
- MAGUIRE, Richard X., 1952 (1953)
Clinical Associate in Surgery
B.S., 1947, M.D., 1951, Washington
- MARTIN, Kenneth L., 1956
Clinical Associate in Orthopedics
B.S., 1948, M.D., 1950, Oregon
- MARTINIS, Andrew J., 1957
Assistant in Surgery
B.S., 1951, M.D., 1954, Washington
- MASON, James T., 1950 (1953)
Clinical Instructor in Urology
M.D., 1940, Michigan
- MATHWIG, James E., 1948
Clinical Associate in Anesthesiology
B.S., 1933, Washington; M.D., 1937, Oregon
- McCONVILLE, Bernard E., 1948
Clinical Associate in Orthopedic Surgery
B.S., 1935, M.D., 1936, Nebraska
- McDONALD, Donald F., 1948 (1954)
Associate Professor of Surgery; Head of Division of Urology
M.D., 1942, Chicago
- McELMEEL, Eugene F., 1947 (1949)
Clinical Instructor in Otolaryngology
B.A., 1930, College of St. Thomas (Minnesota); B.S., 1933, M.D., 1936, Minnesota
- McLEMORE, Ira O., 1948 (1952)
Senior Consultant in Orthopedic Surgery
M.D., 1923, Georgia
- MERENDINO, K. Alvin, 1948 (1955)
Professor of Surgery
B.A., 1936, Ohio; M.D., 1940, Yale; Ph.D., 1946, Minnesota
- METHENY, David, 1948
Consultant in Surgery
A.B., 1920, Pennsylvania; M.D., 1923, Jefferson
- MILLER, Daniel S., 1953
Clinical Associate in Urology
B.A., 1941, M.D., 1944, Iowa
- MILLER, James W., 1948
Clinical Instructor in Orthopedic Surgery
A.B., 1936, M.D., 1939, Michigan
- MILLS, Waldo O., 1952
Clinical Associate in Surgery
B.A., 1937, Willamette; M.D., 1940, Oregon
- MOEN, Chester W., 1954
Clinical Associate in Surgery
B.S., 1939, Washington; M.D., 1943, Tennessee
- MOONEY, J. Garth, 1957
Clinical Associate in Orthopedics
B.S., 1943, Washington; M.D., 1945, Oregon
- MOORE, Daniel C., 1953 (1956)
Clinical Assistant Professor of Anesthesiology
M.D., 1944, Northwestern

- MORRIS, Lucien E., 1954
Professor of Surgery; Head of Division of Anesthesiology
A.B., 1936, Oberlin College; M.D., 1943, Western Reserve
- MOWERY, Charles, 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
- NORGORE, Martin, 1946 (1952)
Consultant in Surgery
B.S., 1921, Washington; M.D., 1926, Oregon
- NOWLIS, Gerald, 1957
Clinical Associate in Neurosurgery
M.D., 1948, Yale
- NYHUS, Lloyd M., 1952 (1956)
Assistant Professor of Surgery
B.A., 1945, Pacific Lutheran College; M.D., 1947, Medical College of Alabama
- OHMAN, Albert C., 1948 (1956)
Clinical Assistant Professor of Urology
M.D., 1932, Colorado
- OLSON, Clarence, 1952
Clinical Associate 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
- O'NEIL, Gordon B., 1948
Clinical Associate in Orthopedic Surgery
B.S., 1932, Washington; M.D., C.M., 1936, McGill (Canada)
- OSMUN, Paul M., 1949
Clinical Instructor in Otolaryngology
A.B., 1932, Brown; M.D., C.M., 1938, McGill (Canada)
- OTTO, James R., 1952
Clinical Associate in Surgery
B.A., 1936, B.S., 1937, North Dakota; M.D., 1939, Columbia
- OWEN, James G., 1953
Clinical Associate in Surgery
B.S., 1940, Monmouth College (Illinois); M.D., 1943, Washington University
- PALKEN, Morton, 1954
Clinical Associate in Urology
B.S., 1943, M.D., 1946, Tufts College
- 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
- PARKER, Dean, 1948
Clinical Instructor in Urology
B.S., 1933, M.D., 1939, Iowa
- PATTERSON, Lawrence M., 1956
Clinical Associate in Anesthesiology
M.D., 1947, St. Louis
- PAYNE, J. Thomas, 1951 (1955)
Consultant in Surgery
B.A., 1938, Westminster College; M.D., 1942, Vanderbilt
- PETER, Philip A., 1955
Clinical Associate in Ophthalmology
B.A., 1945, Whitman College; M.D., 1948, Baylor
- PHILLIPS, James W., 1949 (1953)
Clinical Instructor in Surgery; Acting Head of the Division of Otolaryngology
B.S., 1934, M.D., 1938, Stanford
- PHILLIPS, James Y., 1948
Clinical Associate in Neurosurgery
M.D., C.M., 1940, McGill (Canada)
- PILLING, Matthew A., 1952 (1958)
Clinical Instructor in Surgery
B.S., 1936, State Teachers' College (Nebraska); M.D., 1941, Nebraska
- PINKHAM, Roland D., 1948
Clinical Instructor in 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
- ROGGE, Edgar A., 1948
Clinical Associate in Orthopedic Surgery
B.S., 1931, Washington; M.D., 1935, George Washington
- ROSELLINI, Leo J., 1948
Clinical Associate in Surgery
Ph.G., 1931, California; B.S., 1932, San Francisco; M.D., 1937, Creighton
- ROSSO, Weymar A., 1956 (1958)
Clinical Instructor in Urology
B.S., 1939, College of Puget Sound; M.D., 1943, Louisville
- RUUSKA, Paul E., 1950
Clinical Associate in Orthopedic Surgery
M.D., 1940, Oregon
- SACHS, Allan E., 1952
Clinical Instructor in Surgery
B.S., 1934, Chicago; M.D., 1937, Rush Medical College
- SANDERSON, Eric R., 1947 (1948)
Clinical Associate in Surgery
B.S., 1923, Minnesota; M.D., 1937, Harvard
- SARRO, Louis J., 1949
Clinical Associate in Ophthalmology
B.S., 1937, Washington; M.B., 1941, M.D., 1942, Northwestern
- SAUNTRY, John P., 1956
Clinical Associate in General Surgery
B.S., 1948, M.D., 1951, Washington
- SCHEINMAN, Louis J., 1953 (1956)
Clinical Instructor in Urology
B.A., 1942, North Carolina; M.D., 1945, Long Island College
- SCHMIDT, Joan, 1955
Research Associate in Surgery
A.B., 1943, Regis College; M.S., 1950, Washington
- SCHMIDT, Richard P., 1953 (1956)
Assistant Professor of Neurosurgery
B.S., 1942, Kent State (Ohio); M.D., 1945, Louisville
- SHERIDAN, Alfred I., 1948 (1949)
Clinical Associate in Surgery
B.S., 1938, Washington; M.D., 1943, Northwestern
- SHIACH, John M., 1949
Clinical Associate in Ophthalmology
B.A., 1930, M.D., 1933, Oregon
- SHARE, Milton, 1956
Instructor in Anesthesiology
B.A., 1934, British Columbia (Canada); M.D., 1939, Alberta (Canada)

- SHIELDS, John R., 1956
Assistant in Urology
B.S., 1943, M.D., 1954, Washington
- SIMONS, Charles E., 1957
Clinical Associate in Urology
M.D., 1951, Washington
- SMITH, Franklin R., 1952
Clinical Associate in Surgery
B.S., 1936, Wisconsin; M.D., 1942, Marquette
- SPEIR, Edward B., 1948
Consultant in Surgery
B.A., 1929, M.D., 1933, Kansas
- SPRECHER, Edwin, 1951
Clinical Associate in Orthopedic Surgery
B.S., 1936, Walla Walla College; M.D., 1940, College of Medical Evangelists
- 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 Surgery (Ophthalmology)
A.B., 1927, M.D., 1934, M.S., 1940, Michigan
- STERN, Jack, 1957
Assistant in Neurosurgery
M.D., 1953, Texas
- STEVENSON, John K., 1954
Instructor in Surgery
M.D., 1949, Rochester
- STEWART, John E., 1951
Clinical Associate in Orthopedic Surgery
B.S., 1936, Washington; M.D., 1941, Harvard
- STONE, Caleb S., Jr., 1948
Consultant in Surgery
B.S., 1922, Washington; M.D., 1926, Washington University; M.S., 1934, Virginia
- TAYLOR, Murray E., 1952 (1955)
Research Instructor in Surgery
B.S., 1948, M.S., 1952, Washington
- THOMAS, George I., 1955
Instructor in Surgery
B.A., 1946, California; M.D., 1949, Johns Hopkins
- THOROGOOD, Alan, 1957
Instructor in Anesthesiology
M.R.C.S., L.R.C.P., 1951, Westminster Medical School, London; D.A., 1955, Westminster Hospital
- TOLAN, John F., 1949
Consultant in Otolaryngology
B.S., 1931, M.D., 1933, Michigan
- TOLSTEDT, Grandon E., 1957
Assistant in Surgery
B.S., 1948, South Dakota State College; M.D., 1953, Northwestern
- TUELL, Joseph I., 1948
Consultant in Orthopedic Surgery
B.S., 1929, M.D., 1932, Oregon
- TURNBULL, Lawrence F., 1956
Clinical Instructor in Anesthesiology
M.D., 1945, Northwestern
- TYVAND, Raymond E., 1948
Clinical Instructor in Urology
B.A., 1923, B.S., 1926, North Dakota; M.D., 1929, Rush Medical College
- VETTO, Roy R., 1957
Assistant in Surgery
B.S., 1947, Gonzaga; M.D., 1951, Jefferson
- VILLANEUVA, Manuel B., 1957
Assistant in Anesthesiology
M.D., 1952, Santo Tomas (Philippines)
- WAGNER, Clyde L., 1952
Clinical Associate in Surgery
B.S., 1935, Washington; M.D., 1939, Oregon
- WANAMAKER, Frank H., 1949
Consultant in Otolaryngology
D.D.S., 1922, M.D., 1929, Northwestern
- WANGEMAN, Clayton P., 1949 (1958)
Clinical Associate Professor of Anesthesiology
B.A., 1929, Ohio Wesleyan; M.D., 1933, Western Reserve
- WARD, Arthur A., Jr., 1948 (1955)
Professor of Surgery; Head of Division of Neurosurgery
B.A., 1938, M.D., 1942, Yale
- WATSON, Wilbur E., 1946 (1948)
Clinical Associate in Surgery
B.S., 1930, Washington; M.D., 1935, McGill (Canada)
- WEBER, Julius A., 1949 (1953)
Consultant in Otolaryngology
B.S., 1923, M.D., 1925, Nebraska
- WETZEL, William H., 1956-1957
Research Associate
B.S., 1957, Seattle; M.S., 1956, Washington State College
- WHITE, Lowell E., Jr., 1954
Instructor in Neurosurgery
B.S., 1951, M.D., 1953, Washington
- WHITE, Thomas T., 1953 (1955)
Clinical Instructor in Surgery
B.S., 1942, Harvard; M.D., 1945, New York
- WICKSTROM, Arthur B., 1954
Instructor in General Surgery
M.D., 1949, Iowa
- WINTERSCHIED, Loren C., 1957
Assistant in Surgery
B.A., 1948, Willamette; Ph.D., 1953, Pennsylvania; M.D., 1954, Pennsylvania
- WORGAN, David K., 1950 (1954)
Clinical Instructor in Urology
B.S., 1940, M.D., 1943, Maryland
- WYRENS, Rollin G., 1948
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, Raymond L., 1947 (1948)
Senior Consultant in Surgery
B.S., 1919, M.D., 1920, Northwestern
- ZECH, Ralph K., 1953 (1957)
Clinical Instructor in General Surgery
B.S., 1947, Seattle; M.D., 1949, Creighton

COMMITTEES

DIVISION OF HEALTH SCIENCES

BUILDING SPACE: J. W. Haviland, *Chairman*; D. R. de Mers, D. F. Hiscox, K. Hoffman, A. W. Moore, L. S. Rambeck.

COORDINATION OF PURCHASING: D. R. de Mers, *Chairman*; R. W. Bradley, J. M. Flett, J. W. Harding, C. J. Harsh, B. S. Henry, J. I. Ingle, R. L. Johnson, L. S. Rambeck.

INSTRUMENT SHOP: A. C. Young, *Chairman*; W. E. Quinton, *Secretary*; E. H. Fischer, G. S. Greenwald, R. F. Hain, L. B. Thomas, J. W. Woodbury. *Ex officio*: D. R. de Mers, J. W. Haviland.

LIBRARY: T. C. Ruch, *Chairman*; J. Ashford, *Secretary*; W. B. Dandliker, N. B. Everett, P. C. Griffith, J. R. Hartmann, R. Kittelsby, A. L. Ogilvie, F. Plum, E. K. Smith, A. A. Ward, Jr., R. S. Weiser.

MEDICAL ILLUSTRATION: R. F. Rushmer, *Chairman*; J. Phillips, *Secretary*; E. Burke, L. D. Ellerbrook, D. J. Hanahan, A. W. Moore, J. G. Skahen. *Ex officio*: D. R. de Mers, J. W. Haviland.

TELEVISION EVALUATION AND PLANNING: A. W. Moore, *Chairman*; B. F. Baldwin, B. M. Bennett, J. L. Boor, J. M. Dille, C. L. Freehe, D. F. Hiscox, R. E. Pearson, J. W. Phillips, S. M. Standish. P. VanderLeist, C. E. Vavra.

SCHOOL OF MEDICINE

ADMISSIONS: R. J. Blandau, *Chairman*; V. Gailey, *Secretary*; G. N. Aagaard, J. L. Bakke, C. W. Bodemer, J. W. Haviland, L. H. Jensen, J. M. Kennelly, Jr., H. S. Ripley, A. M. Scher, T. H. Shepard, C. R. Strother, P. P. Van Arsdel, Jr., T. C. West, J. W. Woodbury.

APPOINTMENTS AND PROMOTIONS: C. A. Evans, *Chairman*; W. E. Reynolds, A. A. Ward, Jr. *Alternates*: E. P. Benditt, H. N. Harkins.

CLINICAL INVESTIGATION: E. L. Frederickson, *Chairman*; T. A. Loomis, L. M. Nyhus, R. H. Reiff, C. E. Rubin.

CONJOINT CLINICAL CONFERENCE ADVISORY: R. J. Blandau, *Co-Chairman*; R. P. Schmidt, *Co-chairman*; V. Gailey, *Secretary*; L. D. Carlson (MEND), T. L. Dorpat, D. C. Figge, E. H. Fischer, R. F. Hain, W. M. M. Kirby, B. Mackler, D. F. Magee, D. F. McDonald, R. F. Rushmer.

CURRICULUM COMMITTEE: L. D. Carlson, *Chairman*; R. A. Aldrich, R. J. Blandau, F. Plum.

DEAN'S COMMITTEE ON COOPERATION WITH VETERANS ADMINISTRATION: G. N. Aagaard, *Chairman*; W. Y. Baker, R. R. de Alvarez, B. F. Francis, H. N. Harkins, M. J. Hickey, L. E. Morris, J. F. Ramsay, H. S. Ripley, J. W. Shaw, C. S. Stone, D. E. Nolan, C. E. Watts, R. H. Williams.

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.

EXECUTIVE COMMITTEE: G. N. Aagaard, *Chairman*; M. Adams, *Secretary*; R. A. Aldrich, E. P. Benditt, H. S. Bennett, R. J. Blandau, R. R. de Alvarez, J. M. Dille, C. A. Evans, M. M. Figley, H. N. Harkins, J. W. Haviland, 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. Hambeck, S. M. Standish.

FACULTY AWARDS COMMITTEE: R. A. Aldrich, *Chairman*; H. S. Bennett, R. R. de Alvarez, E. J. Ordal. Alternates: J. M. Dille, R. H. Williams.

GRANT COMMITTEE—CANCER INSTITUTIONAL: W. Volwiler, *Chairman*; E. P. Benditt, J. W. Haviland, F. M. Huennekens, D. F. McDonald, A. H. Whitely. Ex officio: H. A. Burd.

GRANT COMMITTEE—RESEARCH TRAINING: R. J. Blandau, *Chairman*; M. Adams, *Secretary*; R. A. Aldrich, G. N. Aagaard, W. M. M. Kirby, T. C. Ruch, T. C. West.

GRANT COMMITTEE—TEACHING METHODS AND PATIENT CARE (COMMONWEALTH FUND STUDY): G. N. Aagaard, *Chairman*; R. A. Aldrich, R. J. Blandau, C. A. Finch, R. F. Hain, L. E. Morris.

GRANT COMMITTEE—UNDERGRADUATE CARDIOVASCULAR TRAINING: R. A. Bruce, *Chairman*; W. G. Guntheroth, E. P. Benditt, K. A. Merendino, R. F. Rushmer, T. C. West.

HOSPITAL EXECUTIVE COMMITTEE: G. N. Aagaard, *Chairman*; M. Adams, *Secretary*; R. A. Aldrich, E. P. Benditt, R. R. de Alvarez, M. M. Figley, H. N. Harkins, J. W. Haviland, J. F. Lehmann, H. S. Ripley, M. Tschudin, R. H. Williams. Ex officio: L. S. Rambeck.

INTERNSHIP ADVISORY: J. W. Haviland, *Chairman*; S. Bird, *Secretary*; R. S. Evans, D. C. Figge, T. H. Holmes, G. D. LaVeck, D. F. McDonald, D. Robertson.

LABORATORY MATERIALS: E. J. Ordal, *Chairman*; T. W. Penfold, *Secretary*; H. C. Douglas, N. Eriksen, D. J. Hanahan, H. Narahara, A. Scher, E. K. Smith, A. A. Ward, Jr. Ex officio: D. R. de Mers, J. W. Haviland.

MEDICAL THESIS: J. M. Dille, *Chairman*; H. S. Bennett, F. Plum.

MICROSCOPE: B. S. Henry, *Chairman*; J. H. Luft, W. Thornburg.

OBJECTIVES OF MEDICAL EDUCATION: N. B. Groman, *Co-chairman*; L. E. Morris, *Co-chairman*; J. Milne, *Secretary*; G. N. Aagaard, R. J. Blandau, L. D. Carlson, W. B. Dandliker, R. W. Deisher, D. C. Figge, R. F. Hain, J. W. Haviland, T. H. Holmes, W. M. M. Kirby, E. G. Krebs, D. F. Magee, W. E. Reynolds, A. L. Towe.

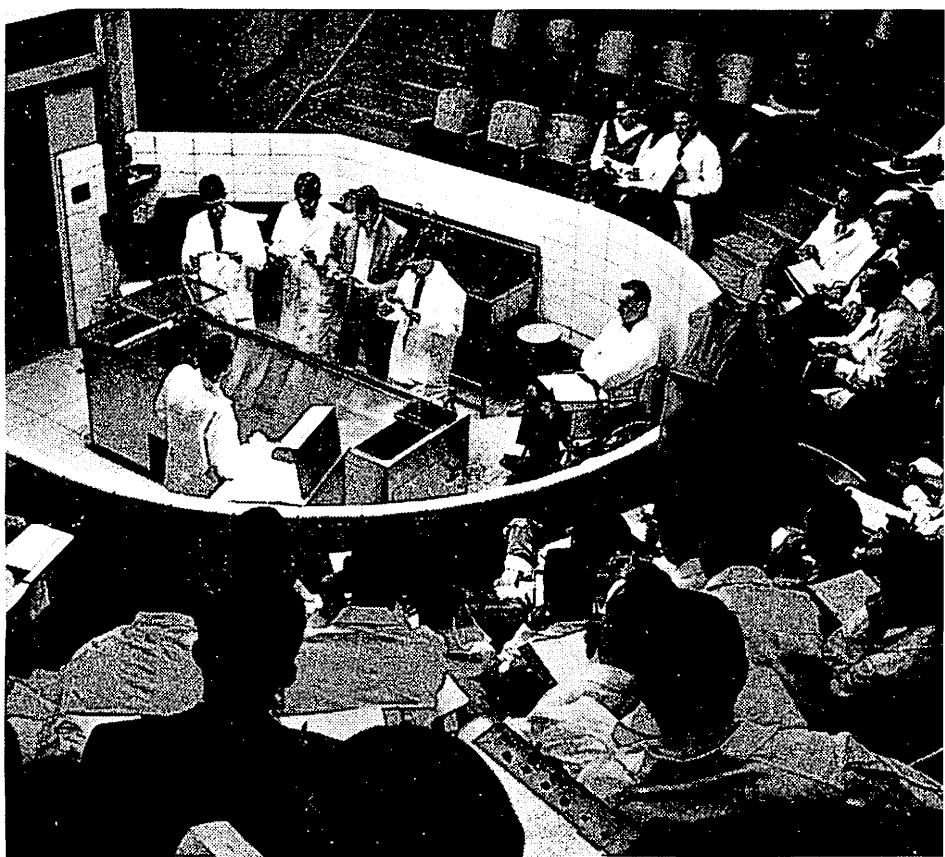
POSTGRADUATE MEDICAL EDUCATION: W. M. M. Kirby, *Chairman*; B. Schenk, *Secretary*; R. A. Bruce, R. R. de Alvarez, R. W. Deisher, E. L. Foltz, T. A. Loomis, K. A. Merendino, W. E. Reynolds, H. S. Ripley.

SCHEDULE—FIRST, SECOND, THIRD, AND FOURTH YEARS: R. J. Blandau, *Chairman*; M. Adams, *Secretary*. 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*; J. C. Hampton, J. W. Haviland, R. P. Schmidt, R. S. Weiser.

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.



THE DIVISION OF HEALTH SCIENCES

THE DIVISION OF HEALTH SCIENCES

THE 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 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 Medical Science 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, Physics, Psychology, and Zoology; the College of Engineering; the School of Fisheries; the School of Social Work; and the University 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 Science 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.

On June 30, 1952, ground was broken for the first unit of the University Hospital, which now houses hospital administration offices, clinical laboratory, and teaching areas for five clinical departments of the School of Medicine. The second unit of a 300-bed teaching hospital located at the east end of the Health Sciences Building is under construction. On June 12, 1956, ground was broken for the second unit which is carefully coordinated with the existing structure in design and function and which will house a major portion of the in-patient and out-patient facilities of the completed teaching and research hospital. Construction of the second unit should be completed February, 1959. 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.

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 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 in hospitals affiliated with the Division of Health Sciences. The clinical teaching program in medicine is centered at King County Hospital, which has a bed capacity of 480 to 555 in the Harborview Division and 240 in the Geriatrics Division. The executive officers of the clinical departments of the School of Medicine are the active heads of the clinical departments in King County Hospital. Temporary offices and classrooms at Harborview accommodate some of the activities of the clinical departments, and clinical research is being conducted in the Health Sciences Building. 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 is operating 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 pediatrics and orthopedics. 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's family housing project, 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 are planned for use in both undergraduate and graduate training programs. The School of Medicine is stressing the importance of a solid foundation in general medicine and is planning a program of affiliations with qualified hospitals throughout the state in the development of internships and residencies for those interested in general practice. When the teaching and research hospital is completed, training will center on the University campus but will be integrated with the state-wide affiliation program. The ultimate goal of the Division of Health Sciences is a continuous educational program for undergraduate and graduate training in all 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. 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 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.

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 45).

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

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 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.

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.

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

THE SCHOOL OF MEDICINE

THE 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; and courses for practicing physicians. The four-year curriculum for an M.D. degree includes studies in three main areas: Basic Sciences, Conjoint Courses, and Clinical Sciences. In the Basic Sciences, the Departments of Anatomy, Biochemistry, 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 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.

In general, the field of medicine offers diversified professional opportunities, perhaps unequalled by any of the other professions. The Medical School admits qualified persons whose ultimate goals may be the practice of medicine, teaching and research in the basic science areas and in the clinical departments of a medical school, industrial medicine, public health, sanitation, radiation biology, and hospital administration, to mention only a few.

The main purpose of the Medical School is to provide a solid foundation for the students' future development. The students must learn fundamental principles which are significant to the entire body of medical knowledge. They must, if they have not already done so, acquire habits of reasoning and critical judgment of evidence and experience in order that they may use the fundamental principles wisely in solving problems of health and disease. The educational program is also designed to inculcate on the students 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 students 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

Although four years of college training are recommended, the Committee on Admissions of the School of Medicine will consider as candidates for admission to the School individuals who have completed at least three years of premedical training (135 academic quarter credits or 90 semester credits) with a grade-point average of 2.50 or above. Before admission all applicants must complete these minimum premedical requirements:

	QUARTER CREDITS	SEMESTER CREDITS
English (Composition)	9	6
Biology	12	8
Chemistry (Inorganic)	12	8
Chemistry (Organic)	6	4
Physics	12	8
	<hr/> 51	<hr/> 34

The grade-point average for these courses also must be 2.50 or above. 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.

The premedical course serves the double purpose of providing both basic science training and a broad general background. The latter should be insured by selection of elective courses in the humanities (including such courses as literature, modern languages, music, art, etc.) and social sciences (including economics, history, philosophy, political science, psychology, sociology, etc.). Science subjects recommended as of value in strengthening the required basic science background are mathematics, physical chemistry, embryology, genetics, and anthropology. No course which counts toward a degree in medicine may be included in the credit requirement for admission.

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 may be found under the Department of Physical Medicine and Rehabilitation, page 73.

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 or the territory of Alaska. 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. One unmounted recent photograph (2 by 3 inches).
4. 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.)
5. 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.
6. Three copies of a short autobiography.
7. Whenever possible, the applicant is requested to forward to the Admissions Committee his score on the Selective Service Qualifications Test. It is also requested that the registrar of his college inform the Committee of his relative class standing for purposes of determining his status with Selective Service.

Primary consideration is given to applications from residents of Washington and Alaska 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.

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 sciences, i.e., anatomy, biochemistry, microbiology, pathology, pharmacology, 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. 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. 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 this 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. The first two years of the medical course are on the quarter system, three quarters in each academic year. The third year is divided into four terms of nine weeks each. The fourth year is divided into five terms of seven weeks each.

The University reserves the right to change any of its fees without notice. Principal fees are listed below.

Tuition

Resident students

Per quarter	\$100.00
Per term for third-year students	75.00
Per term for fourth-year students	60.00

A resident student is one who has been domiciled in Washington or Alaska for at least a year immediately prior to registration. Domicile connotes a present intention of permanent residence. Temporary residence in the state merely for the purpose of attending school, performing duties while in the military service, or for reasons of health or pleasure is not a basis for the establishment of legal domicile. The domicile of a minor is that of his parents.

Nonresident students

Per quarter	165.00
Per term for third-year students	123.75
Per term for fourth-year students	99.00

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

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 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

Resident students	
Per quarter	37.50
Per term for third-year students	28.15
Per term for fourth-year students	22.50
Nonresident students	
Per quarter	82.50
Per term for third-year students	61.90
Per term for fourth-year students	49.50

ASUW Fees

Membership	
Per quarter	8.50
Per term for third-year students	6.40
Per term for fourth-year students	5.10
Athletic admission ticket (optional for ASUW members)	3.00-5.00
Ticket for Autumn, Winter, and Spring Quarters, \$5.00; for Winter and Spring Quarters only, \$3.00; for Spring Quarter only, \$3.00.	

Electrolyte Kit Rental Fee 5.00

Paid by second-year students in Winter Quarter only.

Transcript Fee .50

One transcript is furnished without charge; the fee is charged, payable in advance, 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.

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) 3.00-5.00

Accident Insurance (optional) 3.60

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

Board and Room

Double room and meals in Men's Residence Halls	600.00
Room and meals in Women's Residence Halls	540.00-630.00
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 and Panhellenic Councils.

Personal Expenses 200.00

STUDENT ACHIEVEMENT AND PROMOTION

Student achievement in each course is reported by the Dean's Office to the Registrar as *P* (Pass) or *E* (Failure).

P signifies that the work is satisfactory and is the equivalent of A, B, C, and D in the University marking system. Students are not advised of grades as long as their work falls into the A, B, and C category.

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. The Dean's Office notifies students of *E* grades.

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 1958-59 schedules may be found on pages 49-52.

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 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 them 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, to examine patients, and to 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 Medical School. 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 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, 1958-59

Autumn Quarter

Hour	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8	Free	Anat. 405-Lab.	Psychiat. 400	Free	Anat. 404	Anat. 401-
9	Anat. 405-		Free			Anat. 401-Lab.
10	Free					
11	Biochem. 401	Biochem. 401	Biochem. 401	Biochem. 401	Biochem. 401	
12	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1	Anat. 401-	Electives	Anat. 401-	Electives	Anat. 401-	
2	Anat. 401-Lab.		Anat. 401-Lab.		Anat. 401-Lab.	
3						
4						

Winter Quarter

8	Biochem. 402	Psychiat. 400	Biochem. 402	Biochem. 402 Conf.	Anat. -402	Anat. -402
9	Anat. -402	Physiol. 401-	Anat. -402		Anat. -402 Lab.	Anat. -402 Lab.
10	Anat. -402	Physiol. 401- Conf.	Anat. -402			
11	Lab.		Lab.	Physiol. 401-		
12	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1	Biochem. 402	Electives	Biochem. 402 Conf.	Electives	Physiol. 401-	
2	Biochem. 402 Lab.		Biochem. 402 Lab.		Physiol. 401- Lab.	
3						
4						

Spring Quarter

8	Anat. -406	Conjoint 409	Psychiat. 400	Conjoint 409	Conjoint 409	Free	
9	Anat. -406 Lab.		Conjoint 409 Lab.		Free		Conjoint 409 Lab.
10		Physiol. -402			Conjoint 409 Lab.			Physiol. -402
11		Physiol. -402		Physiol. -402			
12	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	
1	Physiol. -402	Electives	Anat. -406	Electives	Physiol. -402		
2	Physiol. -402 Lab.		Anat. -406 Lab.		Physiol. -402 Lab.		
3							
4							

SECOND-YEAR SCHEDULE, 1958-59

Autumn Quarter

Hour	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8	Path. 441-	Pharmacol. 442-	Path. 441-	Pharmacol. 442-	Pharmacol. 442-	Micro. 441-
9	Path. 441-	Micro. 441-	Path. 441-	Micro. 441-	Public Health 426	Micro. 441- Lab.
10	Lab.	Micro. 441-	Lab.	Micro. 441-	Pharmacol. 442-	Psychiat. 430
11		Lab.		Lab.		
12	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1	Path. 441-	Electives	Pharmacol. 442-	Electives	Path. 441-	
2	Path. 441-		Lab.		Path. 441-Lab.	
3	Lab.					
4						

Winter Quarter

8	Conj. 426- (Surg.)		Pharmacol. -443	Conj. 446-	Conj. 426- (Med.)	Conj. 426- (Med.)		Path. -442- (1st half)
9	Conj. 426-	Conj. 426-	Micro. -442		Micro. -442	Conj. 426-	Conj. 426-	Micro. -442 (2nd half)
10	A-Med.	B-Surg.	Micro. -442	Conj. 446-	Micro. -442	A-Surg.	B-Med.	Micro. -442 Lab. (half)
11			Lab.	Lab.	Lab.			Path. -442- Lab. (half)
12	Lunch		Lunch	Lunch	Lunch	Lunch		Lunch
1	Pharmacol. -443		Electives	Path. -442-	Electives	Pharmacol. -443		
2	Path. -442-			Path. -442-		Pharmacol. -443		
3	Path. -442-			Lab.		Lab.		
4	Lab.							

Surgery Lecture—Friday, February 27, March 6, 13 at 4 p.m.

Spring Quarter

Spring Session										
8	Conj. -427 *		Conj. -427 (Peds.)		Conj. -427 (Obs.-Gyn.)		Conj. -427 (Surg.) **		Conj. -427 (Med.)	Path. -443
9	A-Med.	B-See below	A-See below	B-Med.	A-Med.	B-Free	A-Free	B-Med.	Conj. -447	Path. -443
10									Conj. -447	Lab.
11									Lab.	
12	Lunch		Lunch		Lunch		Lunch		Lunch	Lunch
1	Micro. 443, 444 ***		Electives		Micro. 443, 444		Electives		Pub. Health 425	
2	Micro. 443, 444				Path. -443				Micro. 443, 444	
3	Lab.				Lab. Path. -443					
4					Lab.				Micro. 443, 444 Lab.	

* Lectures: Psychiatry: Monday, March 30, April 6, 13; Medicine: April 20, 27, May 4; Ob.-Gyn.: May 11, 18, 25, June 1.

** Medicine: April 2, 9, 16

*** Medicine: 2 lectures. Date to be determined.

Group A—Tuesday has Psychiat. (KCH) March 31, April 7, 14; Peds. (COH)

April 21, 28, May 5; Ob.-Gyn. (KCH) May 12, 19, 26, June 2. No assignments on Thursday 9-12.

Group B—Monday has Psychiat. (KCH) March 30, April 6, 13; Free April 20, 27, May 4; Ob.-Gyn. (KCH) May 11, 18, 25, June 1. No assignments on Wednesday 9-12, except Peds. (COH) April 22, 29, May 6.

THIRD-YEAR CLERKSHIP SCHEDULE, 1958-59

	Term I			Term II			Term III			Term IV		
Sections	Sept. 23 - Nov. 20			Nov. 21 - Feb. 4			Feb. 5 - Apr. 7			Apr. 8 - June 6		
Section A ¼ of class	Medicine Clerkship			Surgery Clerkship			Obstetrics-Gynecology Clerkship		Pediatrics Clerkship	Psychiatry Clerkship	Neurology-Neurosurgery Clerkship	Obstetrics Externship
Section B ¼ of class	Surgery Clerkship			Obstetrics-Gynecology Clerkship		Pediatrics Clerkship	Psychiatry Clerkship	Neurology-Neurosurgery Clerkship	Obstetrics Externship	Medicine Clerkship		
Section C ¼ of class	Obstetrics-Gynecology Clerkship		Pediatrics Clerkship	Psychiatry Clerkship	Neurology-Neurosurgery Clerkship	Obstetrics Externship	Medicine Clerkship			Surgery Clerkship		
Section D ¼ of class	Psychiatry Clerkship	Neurology-Neurosurgery Clerkship	Obstetrics Externship	Medicine Clerkship			Surgery Clerkship			Obstetrics-Gynecology Clerkship		Pediatrics Clerkship

THIRD-YEAR LECTURE SCHEDULE, 1958-59

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 Conferences (30 lectures)		
12		Ob.-Gyn. (36 lectures) Surg. 465 (24 lectures) Ped. 465 (18 lectures) Psychiat. 465 (18 lectures)	Radiol. 465 (18 lectures) ¼ of class every other week			Radiol. 465 (18 lectures) ¼ of class every other week		
1								
2								
3								
4								

FOURTH-YEAR CLERKSHIP SCHEDULE, 1958-59

	Term I		Term II		Term III		Term IV		Term V	
Sections	Sept. 23 - Nov. 8		Nov. 10 - Jan. 10		Jan. 12 - Feb. 28		Mar. 2 - Apr. 18		Apr. 20 - June 12	
Section A 1/2 of class	Medicine Clerkship		Surgery Clerkship and one week of pulmonary disease		Obstetrics-Gynecology Clerkship	Pediatrics Clerkship	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives	
Section B 1/2 of class	Surgery Clerkship and one week of pulmonary disease		Obstetrics-Gynecology Clerkship	Pediatrics Clerkship	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives		Medicine Clerkship	
Section C 1/2 of class	Obstetrics-Gynecology Clerkship	Pediatrics Clerkship	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives		Medicine Clerkship		Surgery Clerkship and one week of pulmonary disease	
Section D 1/2 of class	A.M. Public Health and Preventive Medicine Clerkship P.M. Psychiatry Clerkship		Electives		Medicine Clerkship		Surgery Clerkship and one week of pulmonary disease		Obstetrics-Gynecology Clerkship	Pediatrics Clerkship
Section E 1/2 of class	Electives		Medicine Clerkship		Surgery Clerkship and one week of pulmonary disease		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, 1958-59

Hour	SATURDAY	
8	Medical Ethics and Economics	Sept. 27-Nov. 22 (9 lectures)
	Surgery 480	Dec. 6-June 6 (22 lectures)
9	Medicine 480	Sept. 27-Mar. 28 (24 lectures)
	Medical Ethics and Economics	Apr. 4-June 6 (7 lectures)
10-12	Conjoint Clinical Conference	Sept. 27-May 16 (30 conferences)

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.

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.

SCHOLARSHIP, FELLOWSHIP, AND LOAN FUNDS

WILLIAM B. BRADSHAW TRUST FUND. This fund was established in 1955 to provide an annual award for research in epilepsy or other disorders of the central nervous system. Application for this award should be made to the Dean by March 15.

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 for the use of women medical students. It is administered by the Dean.

JOHN BYRNE MEMORIAL SCHOLARSHIP. An annual award of tuition costs was established in 1949 by Mr. and Mrs. C. J. Byrne in memory of John Byrne. Eligibility is limited to medical students. Application for this award should be made to the Office of the Dean by March 15.

CHI OMEGA LOAN FUND. The Seattle Chi Omega Alumnae established a loan fund in 1956 to aid deserving medical students. It is administered by the Dean.

ANNA C. DUNLAP SCHOLARSHIP FUND. In order to provide financial assistance to medical students interested in the fields of cancer, diseases of the heart, children's diseases, and nervous diseases, the late Anna C. Dunlap bequeathed the bulk of her estate to the University of Washington, the income from which is to be used for scholarships for medical students. Recommendations for these scholarships are made by a Committee appointed by the President of the University with the Dean as an adviser. Recipients of the scholarships must have completed at least the first year in Medical School, have demonstrated personal and scholastic worthiness, be industrious, and give promise of useful citizenship. Special consideration will be given to students who have been self-supporting. Applications should be made to the Office of the Dean by March 15.

GROUP HEALTH COOPERATIVE SCHOLARSHIP. An annual award 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. Application should be made to the Dean by March 15.

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. Applications should be made to the Office of the Dean by March 15.

JULIA H. LANE FOUNDATION. In 1955, a living trust for medical students at the University of Washington was established to provide funds for summer research scholarships, student loans, counseling service for premedical students, and research in the various medical fields such as rehabilitation, diseases of the aging, etc. Information concerning the availability of funds for these purposes may be obtained

at the Dean's Office. Applications should be made to the Office of the Dean by March 15.

HELEN M. RUSSELL FUND. This fund for medical students was established in 1954 through a bequest of the estate of Helen M. Russell to be administered by the Dean.

SPOKANE EXCLUSIVE PRESCRIPTION PHARMACIES MEDICAL SCHOLARSHIP. An annual award 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. Application for this scholarship should be made to the Office of the Dean by March 15.

ALICE C. STOTLAR LOAN FUND. The fund was established in March, 1951, to aid deserving medical students in obtaining their education as determined and administered by the Dean.

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. It is administered by the Dean.

SUMMER RESEARCH FELLOWSHIPS. Each year a number of summer research fellowships carrying stipends of \$600 to \$800 are available to provide selected medical students with the opportunity to engage in investigative work during the summer recess.

Qualified students who have indicated an interest in this type of work are nominated by individual faculty members by March 15. Further information may be obtained from members of the faculty or from the Dean's Office.

POST-SOPHOMORE FELLOWSHIPS. The National Institutes of Health makes available fellowships for qualified students for a year of research between their second and third years of medicine. The stipend is \$3,200 and tuition with additional allotments for departments.

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.

The fellowships listed below were available to medical students for the summer of 1958.

INDIVIDUALS. Two Julia H. Lane Student Research Fellowships: field unrestricted; \$600. One William B. Bradshaw Research Fellowship: field restricted to epilepsy; \$600.

NATIONAL INSTITUTES OF HEALTH. Thirteen Anatomy Training Fellowships: field restricted to structural studies; \$900. Three Cardiovascular Training Fellowships: field restricted to cardiovascular investigation; \$900. One Clinical Neurological Training Fellowship: field restricted to neurological studies; \$900. Eight Medical Student Part-time Research Fellowships: field unrestricted; \$600. Six Psychiatry Trainees Mental Health Division: field restricted to psychiatry; \$600. Ten Research Training Stipends: field unrestricted; \$900.

FOUNDATIONS. One Allergy Foundation of America Fellowship: field restricted to allergy; applicants must have completed second year of medicine; \$500. Six National Foundation for Infantile Paralysis: Two restricted to public health, two restricted to biologic research, two restricted to rehabilitation; \$600. Ten National Science Foundation: field restricted to basic sciences; \$600. One Scottish Rite Committee: field restricted to psychiatry; \$500.

PHARMACEUTICAL HOUSES. Two Lederle Medical Student Research Fellowships: field restricted to basic sciences; \$600. Two Smith, Kline, and French: field restricted to psychiatry; \$500.

INDUSTRY. One Tobacco Industry Research Fellowship: field unrestricted; \$500.

AWARDS

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.

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.

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 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 relative to cerebral palsy.

RESEARCH GRANTS

Grants-in-aid for research and special investigative projects in the School of Medicine totaling approximately \$2,975,000 were received during the past fiscal year. About \$2,870,000 was received from federal government agencies and private sources, and some \$105,000 was received from the state of Washington under Initiative 171. Since the opening of the School in 1946, more than \$11,300,000 has been awarded to enable investigators to carry on their work in the School of Medicine.

The National Institutes of Health have made available an experimental training grant to provide to pre-medical and medical students, who may be potential educators and researchers, special opportunities for additional training in the sciences fundamental to modern research.

THE DEPARTMENTAL PROGRAMS

The School of Medicine through its departments and interdepartmental programs offers curricula leading to the degrees of Doctor of Medicine and Bachelor of Science in Physical 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 73).

BACHELOR OF SCIENCE IN FOOD TECHNOLOGY. The food technology program is designed to provide professional training for students who plan to become laboratory workers in the field of food production, researchers in home economics, or college teachers of food and nutrition. This program is offered through the College of Arts and Sciences and is sponsored by both the Department of Microbiology in the School of Medicine and the School of Home Economics in the College of Arts and Sciences. Microbiology and biochemistry courses taken in the last two years of the curriculum are described in this Bulletin, along with other courses offered by the Departments of Microbiology and Biochemistry. The curriculum is described in the *College of Arts and Sciences Bulletin*.

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 Medical School 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 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

The School of Medicine cooperates with the Washington State Medical Association and the Washington State Department of Health in planning courses to meet the needs for postgraduate medical education in the region. Intensive specialized courses are organized and conducted by several departments. The faculty of the School of Medicine also participates in general courses organized by the Washington State Medical Association.

Detailed information about postgraduate instruction is given in announcements describing the specific courses, the times they are scheduled, the number of students accepted, and the tuition fees.

SHORT COURSES

A series of short courses designed primarily for the physician in general practice is given at various times throughout the year by the faculty of the School. These courses provide doctors with an opportunity to review fundamental concepts and recent advances in diagnosis and treatment.

GYNECOLOGY. This course is devoted entirely to a presentation of gynecologic problems as they pertain to general practice, as well as to the specialized practice of gynecology. It embodies considerations of office gynecology, diagnostic methods and gynecologic endocrinology, as well as operative gynecology.

MEDICINE. The Department of Medicine sponsors several postgraduate courses concerned with recent advances in cardiology, gastroenterology, hematology, infectious diseases, neurology, metabolism, and allergy.

PRACTICAL PSYCHIATRY. The purpose of this course is to present some of the practical aspects of current concepts in psychiatry. Instruction is carried on by lecture, informal discussion, and the presentation of data pertaining to individual patients. Emphasis is placed on the development of psychoneurotic and psychosomatic illness, the means of prevention, and the treatment.

EMOTIONAL PROBLEMS OF CHILDREN. Problems of infancy through childhood, including mother-child relationships, effects of hospitalization, surgery, discipline, feeding and sleeping problems, psychosomatic disorders, and serious psychiatric entities are emphasized. The course consists of lectures, seminars, and case demonstrations at the Children's Orthopedic Hospital, the University Child Health Center, and the University of Washington Psychiatric Clinic for Children.

OBSTETRICS. This course is concerned with general office problems in obstetrics, as well as diagnostic methods, obstetric endocrinology considerations, and operative obstetrics. The course is intended primarily for general practitioners.

CONJOINT REFRESHER COURSE IN CANCER. This course is presented once yearly in cooperation with the American Cancer Society.

CONTINUOUS COURSES

The courses listed below are offered throughout the school year. Inquiries concerning them should be directed to the Department of Pathology.

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 using Scopicon projection. Fresh gross specimens are also demonstrated. This course may be taken one, two, or three sessions per week; it is limited to eight students.

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.

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 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, Hampton
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
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 Gross Anatomy (8-8)** 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 (3-5)** Bennett
Essentials of microscopic, submicroscopic, and chemical anatomy. Required for first-year medical students. Prerequisite for nonmedical students, permission.
- Conjoint 408 Conjoint Research Projects (2)** (See Conjoint Courses, page 70.)
- Conjoint 409 Basis of Neurology (3,5, or 8)** (See Conjoint Courses, page 70.)

- 497 Medical Students' Elective (*)** **Staff**
Work in any of the following fields: biological polarization microscopy, cytochemistry, biological X-ray structure analysis, prenatal anatomy, mammalian reproduction, biological tracer techniques, molecular and submicroscopic anatomy, cytology, tissue fine structure, embryology, endocrinology, neuroanatomy, gross anatomy, X-ray diffraction, hematology, brain dissection, histogenesis, and organogenesis. Prerequisite, permission.
- 498 Undergraduate Thesis (*)** **Staff**
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (*)** **Staff**
For medical students. Prerequisite, 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.
- 521 Seminar in Molecular and Submicroscopic Anatomy (2)** **Bennett, Luft, Hampton**
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.
- 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)** **Thornburg**
Quantitative studies of cell structure and function using light microscope, phase microscope, polarizing microscope and microspectrograph. Prerequisite, permission.
- Conjoint 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4)**
(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 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, home economics, medical technology, 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.
- 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 (4,7)** **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.
- Conjoint 408 Conjoint Research Projects (2) (See Conjoint Courses, page 70.)**
- 481, 482 Biochemistry (4,3)** **Staff**
Lectures and conferences in the first quarter cover the fundamentals of biochemistry. In the second quarter more advanced aspects of the subject are treated. Recommended for advanced undergraduate or graduate 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.
- 497 Medical Students' Elective (*)** **Staff**
Each student will carry out a research project under the guidance of a staff member, and will also participate in the Department's seminar program. By special arrangement, it may be possible for the student to assist in certain phases of instruction. For medical students. Prerequisite, permission.
For other electives open to qualified medical students, see Biochemistry 520, 521, 562, 563, 546, 565, 566, 567, 568, 569, 570.
- 498 Undergraduate Thesis (*)** **Staff**
For 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 1958-59.) Prerequisites, 482 and Chemistry 357 or permission.
- 563, 564 Proteins (2,2)** **Dandliker, 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. (Not offered 1958-59.) Prerequisites, 562 or permission for 563; 563 for 564.
- 565, 566, 567 Enzymes and Enzyme Action (2,2,2)** **Fischer, Huennkens, Krebs**
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 1958-59.) 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, 1959.) Prerequisite, 402 or 482 or permission.
- 569 Topics in Bio-organic Chemistry (2)** **Huennkens, Wilcox**
Application of organic chemistry to selected problems in biochemistry, illustrated by the determination of structure, total synthesis, and mechanism of action of such compounds as nucleotides and peptides. (Offered Winter Quarter, 1960.) Prerequisite, 482 or permission.

- 570 Biochemical Aspects of Disease (2)** **Krebs**
An advance treatment of topics related to normal and altered metabolism. Those diseases in which the biochemical approach has been particularly helpful in a study of etiology or in diagnosis and treatment will be considered. Topics will be presented and discussed by the participating students and the staff. Prerequisite, 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

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 and food technology 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 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)** **Zahler**
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)** **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, 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.
- 497 Medical Students' Elective (*)** **Staff**
Laboratory and/or library problems in the fields of general or medical bacteriology, mycology, virology, parasitology, or immunology. Prerequisite, permission.
- 498 Undergraduate Thesis (*)** **Staff**
For medical students. Prerequisite, 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, Zahler**
Fundamental physiological and metabolic processes of bacteria. (Offered alternate years; offered 1958-59.) Prerequisites, 300 and a course in biochemistry, and permission.
- 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, Caryophanaeae, and Borrelomycetales. (Offered alternate years; offered 1959-60.) Prerequisite, permission.
- 540 Filterable Viruses (*, maximum 4)** **Evans, Groman**
(Offered alternate years; offered 1959-60.) Prerequisites, 441-442 and permission; histology is recommended.
- 550 Advanced Immunology (*, maximum 4)** **Weiser**
(Offered alternate years; offered 1958-59.) Prerequisites, 441-442 and permission.
- 600 Research (*)** **Staff**
- 700 Thesis (*)** **Staff**

PATHOLOGY

Executive Officer: EARL P. BENDITT, D509 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 histology, anatomy, and physiology 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.
- 303-304 General and Clinical Pathology for Nurses (1-1)** **Staff**
Lectures and demonstrations covering the fundamental functional and structural mechanisms of diseases encountered in hospital nursing.

- 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 and medical technology; others by permission.
- 321, 322-323-424-425, 426 Medical Technology (5, 6-6-6-6, 16)** **Staff**
During this eighteen-month period, medical technology 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, urinalysis, hematology, serology, microbiology, and pathology. Practical experience is obtained in the laboratories of the School of Medicine and of one or more hospitals. For medical technology students. Prerequisites, completion of three-year prescribed curriculum in the College of Arts and Sciences and permission. Microbiology students may take 321 only; permission is required.
- 441-442-443 General and Special Pathology (5-5-5)** **Staff**
Lecture followed by tutorials in the laboratory. Pathogenesis, pathological physiology, experimental background, and laboratory tests where indicated, are stressed. Comprehensive lantern slide presentations, demonstrations of gross pathology to small groups, and Scopicon microprojections of pertinent material are used in the presentation of subject matter. Time is available for the study of the histopathology of diseases and discussion of problems with staff members. Participation by students at autopsies is included at scheduled intervals throughout the course. The technique of the dissection and protocol writing are demonstrated, as well as correlation of clinical and laboratory data with findings. At the completion of the course the student should be thoroughly familiar with the causes, processes, and effects of the major diseases. Required for second-year medical students; graduate students by permission.
- 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.
- 497 Medical Students' Elective (*)** **Staff**
Advanced course in autopsy technique. Gross and histologic study of post-mortem material. Surgical and clinical pathology. Attendance at and participation in clinical-pathological conferences and other hospital activities. King County and Veterans Administration Hospitals. Seven weeks; full time. Fourth-year medical students. Prerequisite, permission. Courses in oncology, selected topics in hematology and pathology will also be offered by arrangement.
- 498 Undergraduate Thesis (*)** **Staff**
Prerequisite, permission.

COURSES FOR GRADUATES ONLY

- 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

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, 303 General Pharmacology (3,3,3)** **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. 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.
- 497 Medical Students' Elective (*, maximum 15)** **Staff**
The fields of basic pharmacology. Mechanisms of drug action and rational therapeutic applications of drugs.
- 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.
- 508 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: 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 applying as candidates for M.S. and Ph.D. degrees are accepted with bachelor's degrees in zoology, psychology, chemistry, or physics, or with an M.D. degree.

COURSES

- 126 Human Physiology (6)** **Scher, Woodbury**
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. (First time offered, Autumn Quarter, 1959.)
- 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 408 Conjoint Research Projects (2)** (See Conjoint Courses, page 70.)
- Conjoint 409 Basis of Neurology (3,5 or 8)** (See Conjoint Courses, page 70.)
- 411 Introductory Biophysics (4)** **Carlson, 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)** **Woodbury, 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.
- 481 Pathological Physiology of Pain (*)** **Ruch, Towle**
Systematic seminar discussion of pain components of clinical syndromes based upon the experimental and clinical literature. Prerequisite for graduate students, permission.
- 483 Neurology of Emotional Behavior (*)** **Patton, Ruch**
Seminar survey of the experimental literature on the hypothalamus, orbitofrontal lobes, and rhinencephalon, with special reference to abnormal behavior. Prerequisite for graduate students, permission.
- 484 Endocrinological Reaction to Stress (*)** **Carlson, Patton**
Seminar survey of the literature concerned with the response of endocrine glands to physiological stresses and strains, such as exercise and extreme temperatures, in normal and diseased individuals. Prerequisite for graduate students, permission.
- 491 Medical Physics (2)** **Carlson, 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)** **Carlson, 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.
- 497 Medical Students' Elective (*)** **Staff**
Topics in physiology and biophysics chosen according to the interests of the group.
- 498 Undergraduate Thesis (*)** **Staff**
For medical students. Prerequisite, permission.
- 499 Undergraduate Research (*)** **Staff**
For medical students. Prerequisite, permission.

COURSES FOR GRADUATES ONLY

- 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. 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 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 (cinéfluorograph, electro- and stetho-cardiograph, oximeter, strain gauge manometers, etc.), and respiratory and metabolic activity (flow meters, minute volume integrator, infrared and paramagnetic gas analyzers, cardiometer, thermocouples, gradient calorimeter). Prerequisites, 532 and permission.
- 535 Operative Techniques in Neurophysiology (2-5)** **Patton, Ruch**
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.
- 600 Research (*)** **Staff**
Prerequisite, permission.
- 700 Thesis (*)** **Staff**

PUBLIC HEALTH AND PREVENTIVE MEDICINE

Executive Officer: **WILLIAM E. REYNOLDS, B506 Health Sciences Building**

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 that college's *Bulletin*).

COURSES

Conjoint 295, 296 Introduction to Normal Growth and Development (2,2)
(See Conjoint Courses, page 70.)

- 420 Principles of Public Health I (2)** **Reynolds**
The principles of epidemiology applied to the control of communicable diseases of man. For public health majors and students of nursing and dental hygiene; others by permission. Prerequisite, Microbiology 301.
- 421 Principles of Public Health II (3)** **Staff**
Introduction to public health; physical agents of disease; diseases of occupation; industrial hygiene; sanitary control of water supplies; sewage and refuse disposal; vector and rodent control. For public health majors; others by permission.
- 422 Principles of Public Health III (3)** **Staff**
Introduction to public health: nutrition and deficiency diseases; food and milk sanitation; maternal and child health services; chronic diseases; mental health. For public health majors and students of nursing and dental hygiene; others by permission.
- 423 Principles of Public Health IV (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.
- 425 Epidemiology of Communicable Diseases (1)** **Reynolds**
Basic theories of epidemic spread of diseases; epidemiology of principal communicable diseases of man, with emphasis on control. Required for second-year medical students.

- 426 Biostatistics (2)** **Reynolds**
Statistical methods used in compilations, interpretation, and presentation of medical data. Required for second-year medical students.
- 440 Environmental Health I (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, and schools. For nonmedical students. Prerequisite, 420 or permission.
- 441 Environmental Health II (3)** **Hatlen**
Advanced study of the sanitary control of water supplies, sewage, and refuse disposal. For nonmedical students. Prerequisite, 421 or permission.
- 442 Environmental Health III (3)** **Hatlen**
Advanced study of the sanitary control of food and milk. For nonmedical students. Prerequisite, 422 or permission.
- 450 Measurement and Control of Air Pollution (2)** **Kusian, Pate, Breyssse**
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, Pate, Breyssse**
Field and industrial laboratory testing procedures for chemical and physical hazards as employed by industrial health workers. For nonmedical students. 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. For nonmedical students. (Offered Summer Quarter only.) Prerequisite, permission.
- 461 School and Community Health Programs (5)** **Mills, Reeves, Vavra**
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. For nonmedical students. Prerequisite, junior standing.
- 463 Community Organization for Health Education (3)** **Vavra**
Trends and problems in community health education, including community organization. For nonmedical students. 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. For nonmedical students. Prerequisite, 423 or 461, or permission.
- 470 Introduction to Biometry (3)** **Reynolds**
Statistical methods used in the compilation, interpretation, and presentation of vital data. For nonmedical students. Prerequisite, 423 or permission.
- 472 Applied Statistics in Health Sciences (2-4)** **Bennett**
Application of statistical techniques to biological and medical research; design and interpretation of experiments. For nonmedical students. Prerequisite, permission.
- 475 Clerkships and Seminar (*)** **Staff**
A half term of supervised observation of the work of both voluntary and official public health organizations. The students are also required to complete two case studies emphasizing the management of complex health problems. Required for fourth-year medical students.
- 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. (Offered when demand is sufficient.) 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. For nonmedical students. (Offered when demand is sufficient.) Prerequisite, permission.
- 480 Public Health Problems (*, maximum 6)** **Staff**
Special assignments in the field of public health. For nonmedical students. 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. For nonmedical students. Prerequisite, permission.
- 483 Field Practice in Public Health (6)** **Staff**
An assignment to a local health department for practice in program planning. For nonmedical students. 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. For nonmedical students. 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. For nonmedical students. 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 university student. Prerequisite, permission.

Conjoint 496 Concept of the Child (3) (See Conjoint Courses below.)

- 497 Medical Students' Elective (*)** **Staff**
 Elective courses are offered in the following subjects: Communicable disease control, epidemiology in public health, advanced medical statistics, public health aspects of air pollution, and industrial hygiene and toxicology.
- 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)** **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 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

- 295 Introduction to Normal Growth and Development (2)** **Chinque, Staff**
 Study of the child from the standpoint of normal growth and development and nutritional and emotional needs. Offered by the Departments of Pediatrics and Public Health and Preventive Medicine. For nonmedical students. Prerequisite, permission.
- 296 Introduction to Normal Growth and Development (2)** **Chinque, Staff**
 This course is an introduction to normal growth and development of children from school age through adolescence. It is a continuation of 295. Offered by the Departments of Pediatrics and Public Health and Preventive Medicine. For nonmedical students. Prerequisite, 295.
- 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, Ruch**
 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)** **Ellerbrook, Scribner, 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 (*)** **Schmidt, 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 Sciences Depart-

ments and of 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)** **Doisher, 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.
- 497 Medical Students' Elective (*)** **Staff**
Elective courses are offered in a variety of subjects by combinations of departments for experience in depth in medical training.
- 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4)** **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 for nonmedical students, permission.

MEDICAL PRACTICE

COURSES

- 401 Introduction to Medicine (*)** **Haviland, Staff**
Survey of the objectives of medicine with an introduction to the historical background of medical ethics and economics. Medical historical material illustrates the reflection of social and economic readjustments in medical progress. 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

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

Conjoint 426-427 Clinical Medicine (*-*) (See Conjoint Courses, page 70.)

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 students.
- 480 Clinical Clerkships (*)** **Staff**
One fifth of the fourth-year class spends seven weeks as clinical clerks on the medical wards and in the outpatient clinics at the King County Hospital. Each week the students attend specialty conferences, six ward rounds, the General Medical Clinic, and two 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.
- 497 Medical Students' Elective (*)** **Staff**
Elective work in any of the following for first- and second-year students: samples of clinical medicine; the blood group systems, their application to transfusion reactions and hemolytic disease of the newborn; the pathologic physiology of common endocrine disorders; metabolic derangements in disease.
Elective work in any of the following for fourth-year students: endocrinology and metab-

olism; hematology (clinical and experimental), cardiology, clinical neurology and rehabilitation, clinical clerkships at the King County Hospital, and work in the following Outpatient Clinics: General Medicine, Allergy, Arthritis, Cardiology, Chest, Dermatology, Endocrinology, Gastroenterology, and Hematology.

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.

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, after its completion, 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.

497 Medical Students' Elective (*) **de Alvarez, Staff**
Elective work in any of the following: obstetric externship in one of the Army hospitals, office obstetrics and gynecology, vaginal cytology, endocrinology, Postoperative Gynecology Clinic, Gynecology Clinic, New Obstetrics Clinic, Prenatal Clinic, Postpartum Clinic, Tumor Clinic, gynecologic pathology, operative gynecology, planned parenthood, obstetric and gynecologic endocrinology, and obstetric and gynecologic endocrinology seminar. Prerequisite, permission.

498 Undergraduate Thesis (*) **de Alvarez, Staff**
For medical students. Prerequisite, permission.

PEDIATRICS

Executive Officer: ROBERT A. ALDRICH, C520 Health Sciences Building

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

Conjoint 295, 296 Introduction to Normal Growth and Development (2,2) Deisher and Staff
(See Conjoint Courses, page 70.)

404 Human Growth and Development (*) Deisher and 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 (*) 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 (*) 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.

Conjoint 496 Concept of the Child (3) (See Conjoint Courses, page 70.)

497 Medical Students' Elective (*) Deisher and Staff
Further experience at the University Child Health Center in the common problems met in clinical practice among well children from infancy through adolescence. Research in growth and development and short term projects under the guidance of the Child Health Center staff. Case studies of special behavioral problems in childhood. Open to fourth-year medical students.

498 Undergraduate Thesis (*) Aldrich and Staff
For medical students. Prerequisite, permission.

COURSES 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, BB228, University Hospital

Studies in physical medicine and rehabilitation include special diagnostic and evaluative procedures, physical therapy, occupational therapy, and a comprehensive approach to rehabilitation problems.

The Department of Physical Medicine and Rehabilitation offers courses for medical students and a curriculum leading to a Bachelor of Science degree in Physical Therapy in the School of Medicine (see page 74).

COURSES

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 physical therapy students, others by permission.

N306 Introduction (0) Lehmann, Brunner, Staff
Orientation; history, scope of physical medicine and rehabilitation; relationships of physical therapy, occupational therapy, nursing, vocational guidance, 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 (3-3) Staff of Departments of Medicine, Obstetrics & Gynecology, Physical Medicine and Rehabilitation, Surgery
Lectures in medical science fields related to: general surgery, gynecology and obstetrics, internal medicine, neurology, physical medicine, orthopedics, rheumatology, and roentgenology. Required for physical therapy students, others by permission.

332 Pathologic Physiology for Physical Therapists (3) Lehmann, Staff
Emphasis on normal and pathologic physiology of the circulatory, respiratory, central nervous and musculo-skeletal systems as basis for treatment in physical therapy. Required for physical therapy students, others by permission. Prerequisites, Anatomy 301, Zoology 208.

- 342 Advanced Kinesiology (3)** **Lehmann, Staff**
Study of joint motion and muscular functions in relation to both normal and abnormal functions as 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 and trunk, then lower extremity and trunk. Anatomy of peripheral, vascular, and nervous system. Required for physical therapy students, others by permission. Prerequisites, Anatomy 301, Zoology 208.
- 408 Tests and Measurements (3)** **Lehmann, Brunner, Staff**
Technique, preparation, recording of tests used in physical medicine and rehabilitation; blood pressure, electrical diagnostic studies, oscillometric studies, manual muscle testing, posture evaluation, and measurements of joint motion. 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 Physical Therapists (4)** **Lehmann, Brunner, Staff**
Intensive lectures and discussion of musculo-skeletal, peripheral, vascular, and nervous systems. Emphasis on the trunk, pelvic girdle, and lower extremities, including gross anatomy of other areas. Required for physical therapy students, others by permission.
- 461 Massage (3)** **Brunner, Staff**
History of massage, methods of application, indications and contraindication, with the physiological effects on various systems of the body. Laboratory. Required for physical therapy students, others by permission.
- 463-464 Modality Treatments (3-5)** **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, others by permission.
- 466 Advanced Biophysical and Physiological Effects of Modalities (2)** **Lehmann, Staff**
Biophysical principles of equipment employed in physical therapy, physiological effects produced. Required for physical therapy students, others by permission.
- 470-471-472 Therapeutic Exercise (3-3-3)** **Lehmann, Brunner, Staff**
Fundamentals, principles of therapeutic exercise as related to specific conditions. Laboratory demonstrations and practice of various techniques, exercises appropriate to age level and handicap. Required for physical therapy students, others by permission.
- 476 Physical Restoration, Ambulation, and Transfer Activities (3)** **Brunner, Staff**
Theory, technique, equipment used in the physically handicapped. Laboratory demonstration, practice, and supervised clinical practice; crutch walking, gait, wheelchairs, walkers, braces, stair climbing and techniques of self-handling. Required for physical therapy students, others by permission.
- 486 Special Techniques and Procedures (2)** **Brunner, Staff**
Special problems encountered in clinical affiliations, discussions and demonstration of special problems, tests and operating procedures. For physical therapy students, others by permission.
- 495 Clinical Affiliations (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.
- 497 Medical Students' Elective (*)** **Lehmann, Staff**
a) Clinical problems—advanced courses in physical, biophysical and physiological problems as applied to physical medicine and rehabilitation. Laboratory, biophysical and physiological effects of physical therapy modalities: hydrotherapy, radiant heat, short wave diathermy, microwaves, ultrasound. Diagnostic procedures. b) Clinical externships in Department of Physical Medicine and Rehabilitation, King County Hospital System. Prerequisite, permission.
- 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.

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 120	2
Microbiology 301	5
Physics 170, 170L	6
Psychology 100, 101	10
Psychiatry 267	2
Sociology 110	5
Speech 100	5
Zoology 208	5

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 100 General	4-3	Chem. 120 General and Organic	5	Engl. 103 Composition ..	3
Engl. 101 Composition ..	3	Engl. 102 Composition ..	3	Physics 170 & 170L	
Health Educ. 100 or 175 ..	2	Speech 100 Basic Speech Improvement	5	Introduction to Health Science Physics & Lab. ..	6
Math. 120 Introduction ..	2	Phys. Educ. Activity	1	Sociol. 110 Survey	5
Phys. Educ. Activity	1	Approved Electives	2	Phys. Educ. Activity	1
Approved Electives	4-5	ROTC	2-3	ROTC	2-3
ROTC	2-3				15-18
	15-20		16-19		

Second Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Health Educ. 292 First Aid & Safety	3	Micro. 301 General	5	Anat. 301 General	4
Psychol. 100 General	5	Psychiatry 267 Introduction to Mental Hygiene ..	2	Zool. 208 Physiology	5
Approved Electives	7	Psychol. 101 Adjustment ..	5	Approved Electives	7
ROTC	2-3	Approved Electives	2	ROTC	2-3
	15-18	ROTC	2-3		16-19
			16-19		

Third Year

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS
Phys. Med. & Rehab. 302 Terminology	1	Phys. Med. & Rehab. 320- Medical Science ..	3-	Phys. Med. & Rehab. N306 Introduction ..	0
Phys. Med. & Rehab. 350- Function of the Locomotor System	4-	Phys. Med. & Rehab. 351 Function of the Locomotor System	-4	Phys. Med. & Rehab. 321 Medical Science	-3
Nursing 315 Nursing for Physical Therapists	2	Anat. 331 Neuroanatomy ..	2	Phys. Med. & Rehab. 332 Pathologic Physiology for Physical Therapists ..	3
Phys. Educ. 322 Kinesiology	3	Nursing 316 Nursing for Physical Therapists	2	Phys. Med. & Rehab. 342 Advanced Kinesiology ..	3
Approved Electives	5-6	Approved Electives	5	Path. 310 General	2
	15-16		16	Approved Electives	3
					14

Fourth Year

FIRST QUARTER	CREDITS
Phys. Med. & Rehab. 408	
Tests & Measurements. 3	
Phys. Med. & Rehab. 466	
Advanced Biophysical & Physiological Effects of Modalities 2	
Phys. Med. & Rehab. 470- Therapeutic Exercise . . 3-	
Anat. 328 Gross Anatomy 6	
Approved Electives 1	
	<hr/> 15

SECOND QUARTER	CREDITS
Phys. Med. & Rehab. 451	
Anatomy Dissection for Physical Therapists . . 4	
Phys. Med. & Rehab. 461- Massage 3	
Phys. Med. & Rehab. 463- Modality Treatments . . 3-	
Phys. Med. & Rehab. 471- Therapeutic Exercise . . 3-	
Approved Electives 2	
	<hr/> 15

THIRD QUARTER	CREDITS
Phys. Med. & Rehab. 464	
Modality Treatments . . -5	
Phys. Med. & Rehab. 472- Therapeutic Exercise . . -3	
Phys. Med. & Rehab. 476	
Physical Restoration . . 3	
Phys. Med. & Rehab. 416	
Ethics & Administration 2	
Approved Electives 2	
	<hr/> 15

FOURTH QUARTER	CREDITS
Phys. Med. & Rehab. 495	
Clinical Affiliations . . 12	

APPLICATION PROCEDURE

Applications and all credentials should be sent to the Advisory and Evaluation Committee of Physical Therapy of the School of Medicine. For entrance to the Autumn Quarter each applicant must submit the following on or before March 1: 1. Formal application for admission on the form furnished by the Advisory and Evaluation Committee of Physical Therapy. 2. Two official transcripts from previous college (sent directly from the registrars of the institutions where preprofessional training was taken to the Advisory and Evaluation Committee) showing (a) the complete record with grades and credits; (b) subjects the applicant is taking or will take to complete his preprofessional training before entering the curriculum of physical therapy (an official report must be sent as soon as grades for this work are available), and (c) a satisfactory list of high school credits. 3. Two unmounted recent photographs (2 by 2 inches). 4. Name and address of at least three references, including one science instructor and one business or professional person.

PROCESSING OF APPLICATIONS

EVALUATION OF CREDENTIALS. The Advisory and Evaluation Committee of Physical Therapy examines the credentials and bases its decision on the objective evaluation of these factors: preprofessional training, evidences of scholarship, residence of the applicant, and personal evaluation of the student by members of the Advisory and Evaluation Committee of Physical Therapy.

PERSONAL INTERVIEW. If application material is complete and if credentials are satisfactory, the candidate may be requested to appear for a personal interview with members of the Advisory and Evaluation Committee of Physical Therapy.

NOTIFICATION OF ACCEPTANCE OR REJECTION. A candidate is given written notice of the acceptance or rejection of his application as soon as possible after the Advisory and Evaluation Committee of Physical Therapy has reached a decision.

ACCEPTANCE OF APPOINTMENT. When a candidate has been notified that he is accepted in the curriculum of physical therapy, he must give written acknowledgement of his acceptance within a reasonable length of time. Within two weeks after a candidate has been notified that he is accepted, the Comptroller of the University will request 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 pre-physical therapy 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 University grade-point system will be used in the curriculum of physical therapy. 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 Committee of Physical Therapy evaluates the accomplishment 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 curriculum. The Advisory and Evaluation Committee reserves 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.

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. The following is a table of charges per quarter for students in the curriculum of physical 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

EXEMPTIONS, SPECIAL FEES, AND REFUND OF FEES (Same as for medical students, see pages 44-46.)

CLASS SCHEDULES

The curriculum in physical therapy operates on the quarter system of the University. There are three eleven-week quarters in the junior year. There will be four quarters in the senior year to allow for clinical practice in the Summer Quarter.

PSYCHIATRY

Executive Officer: HERBERT S. RIPLEY, B516 Health Sciences Building

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.
- Conjoint -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.
- 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.
- 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.
- 497 Medical Students' Elective (*)** **Staff**
Advanced clerkships are offered at the King County Hospital, Veterans Administration Hospital, University Psychiatric Clinic for Children, and the Community Psychiatric Clinic for Adults to include inpatient and outpatient experience. Instruction is offered in the administration and interpretation of the Rorschach, Thematic Apperception, and Bellevue-Wechsler tests with patients in the psychiatric wards or in the Outpatient Clinic at King County Hospital. Seminars and projects can be arranged in: personality development; the physiology of emotions; and social factors in health and disease. 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 fourth-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.
- 557 Clinical Psychiatry (2)** **Schwartz**
Discussion of clinical psychiatry considering causation, prevention, treatment, and rehabilitation. Not open to students who have taken 457. Prerequisite, 267 or 451 or permission.
- 558 Seminar: Interviewing (2)** **Dorpat**
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.

RADIOLOGY

Executive Officer: MELVIN M. FIGLEY, AA304 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

- 410 Research Orientation in Radiobiology (2-4, maximum 8)** **Baltzo**
Observation and participation in research and clinical use of radiation emitters. Prerequisite, permission.

- 465 Diagnostic and Therapeutic Radiology (*)** **Figley, Staff**
Quiz-conferences covering the nature, hazards, and clinical use of X rays and gamma rays. Required for third-year medical students.
- 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.
- 497 Medical Students' Elective (*)** **Figley, Staff**
Observation and participation in clinical hospital radiology, both diagnostic and therapeutic. Prerequisite, 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 course is offered at Richland, Washington.

- R400 Radiobiology (3)** **Bair**
Prerequisite, permission. 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.

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. A residency in neurosurgery is also available. 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.
- 480 Clinical Clerkships (*)** **Staff**
King County Hospital: 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.

497 Medical Students' Elective (*)**Staff**

Clinical: externship in anesthesiology, King County Hospital. Surgical externship at Virginia Mason, U. S. Public Health, Swedish, and Doctors Hospitals. Ophthalmology and otolaryngology only at Madigan Army Hospital and Public Health Hospital. Orthopedics only at Children's Orthopedic Hospital.

Research: neurophysiological research; urology research; experimental animal surgery at Veterans Administration Hospital and medical school; orthopedics and anesthesiology research.

498 Undergraduate Thesis (*)**Staff****499 Undergraduate Research (*)****Staff****COURSES FOR GRADUATES ONLY****520 Seminar (5)****Harkins, Merendino, Nyhus, Stevenson**

Conferences, seminars, and round-table discussions of advanced surgical topics and recent literature in the field.

Conjoint 581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4)**(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 (*)**McDonald, 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, McDonald, Merendino, Morris, Ward,****Foltz, Nyhus, Stevenson, Staff****700 Thesis (*)****Staff**

ROSTER OF STUDENTS IN MEDICINE

CLASS OF 1958

- ALEXANDER, Heywood L., Plainfield, N.J.
B.S., Shaw University
Howard University
- ALKSNE, John F., Palo Alto, Calif.
B.S., University of Washington
- ANDERSON, Kenneth N., Seattle
B.S., University of Washington
- BEATY, Harry N., Tacoma
University of Washington
- BECKWITH, John B., Great Falls, Mont.
B.A., Whitman College
- BENSON, Robert L., Seattle
University of Washington
- CASSIDY, Patrick H., Bellingham
University of Washington
- CHRISTOPHERSON, Alvin, Seattle
B.A., University of Washington
- CONVERY, Frederick R., Chehalis
B.A., University of Washington
- DANFORTH, Howard B., Seattle
University of Washington
- DAVENPORT, Phillip M., Wenatchee
B.A., Washington State College
- DUNBAR, June H., Nome Alaska
University of Colorado
- DUNCAN, Elmore E., Mossyrock
B.A., Pacific Lutheran College
- EGGLIN, Johann G., Germany
M.D., University of Wurtzburg
- ELY, Neal E., Tacoma
B.S., Juilliard School of Music
M.S., Columbia University
College of Puget Sound
- ERIE, Norman A., Billings, Mont.
B.S., College of Great Falls
- FORD, William P., Seattle
B.S., University of Washington
- GLEESON, Francis G., Longview
B.A., University of Washington
- GOLLER, Vernon L., Seattle
B.A., University of Washington
- GRAHAM, Charles A., Valleyford
B.S., Washington State College
University of Washington
- GRAHAM, C. Benjamin, Richland
B.A., University of Illinois
- HARDING, George T., Olympia
University of Washington
- HARDY, Thomas C., Yakima
B.A., San Jose State College
Seattle University
- HART, John C., Seattle
University of Washington
- HELLE, Loretta S., Anchorage, Alaska
B.S., Washington State College
- HORTON, Richard, Seattle
University of Washington
- HUFFMAN, Philip G., Seattle
B.S., University of Washington
- JOHNSON, Dexter W., Bellingham
B.A., Western Wash. College of
Education
- JOHNSON, Ronald L., Tacoma
B.S., Seattle University
- KEITH, Donald M., Seattle
B.A., Pacific Lutheran College
- KLEINBERG, Henry, Seattle
B.A., University of Washington
- KNIGHT, Lawrence L.,
B.S., University of Idaho
- LAGERBERG, Eugene V., Seattle
B.S., University of Washington
- LANE, Katherine E., Bellingham
B.A., University of Denver
M.S., University of Chicago
- LARSON, Roger K., Tacoma
B.A., Pacific Lutheran College
- LARSON, Stuart M., Bremerton
B.S., University of Washington
- LEBENZON, Albert B., Portland, Ore.
B.S. (Optics) Pacific University
- LIUKANE, Juhan, Seattle
B.S., University of Washington
- McALEXANDER, Robert A., Pullman
B.S., Washington State College
- MEBUST, Winston K., Kalispell, Mont.
University of Washington
- MEYER, Melvin B., Seattle
B.A., Yale University
- MILLER, Fred W., Seattle
B.S., University of Washington
- MITCHELL, Robert G., Burley, Ida.
B.S., University of Idaho
- MONAHAN, James T., Mercer Island
University of Washington
- MOSS, Norman W., Pullman
B.S., Washington State College
- NEHRING, Charles H., Jr., Olympia
B.S., Washington State College
B.S., University of Washington
- NORMAN, Allen C., Bremerton
B.A., University of Washington
- NORTON, James J., Seattle
B.S., Oregon State College
- O'LANE, John M., Seattle
B.S., University of Washington
- O'LEARY, Jay F., Tacoma
A.B., Harvard College
- OSTLUND, James A., Seattle
B.S., Seattle University
- PARKER, Frank, Seattle
University of Washington
- PARKER, Richard H., Seattle
B.S., University of Washington
- PORTELANCE, Herbert J., Tahsis, B.C.
B.A., University of Washington
- REICHENBACH, Dennis D., Billings,
Montana
B.S., University of Washington
- RIEKE, William O., Cashmere
B.A., Pacific Lutheran College
- RILEY, Patrick J., Seattle
B.S., Gonzaga University
- ROBERTS, Richard W., Tacoma
B.S., Washington State College
- ROGERS, Donald R., Tacoma
B.S., College of Puget Sound
- ROLLMAN, Albert J., New York
B.S., Fordham University
Basel University
- ROTOUS, Helen A., Aberdeen
B.S., University of Washington
- SHAW, Spencer W., Seattle
B.S., University of Washington
- STAVNEY, Luthard S., Seattle
University of Washington
- STUART, Ronald R., Seattle
B.S., University of Washington
- THAL, Ben, Bellingham
B.A., University of Washington

THOMPSON, Douglas W., Centralia
B.S., Washington State College
TUCKER, Keith B., Seattle
University of Washington
VERHEY, Joseph W., Sunnyside
B.S., Seattle University
WEBB, Vivien E., Edmonds
B.S., University of Washington

CLASS OF 1959

ALKSNIS, Zaiga
B.S., University of Washington
ANDERBERG, Merlyn L., Spokane
B.A., Reed College
ANDERSON, Richard P., Seattle
B.S., University of Washington
BALDECK, Eugene M., Lewiston, Ida.
B.S., University of Idaho
BIGELOW, John C., Bremerton
University of Washington
B.A., Washington State College
BIRKELAND, Ivar W., Jr., Bellevue
B.A., University of Washington
BODEMAN, William H., Aberdeen, S.D.
Jamestown College
B.S., Northern State Teachers College
B.S., University of South Dakota
BOWEN, Dale A., Ellensburg
B.S., Washington State College
BOYETT, Harry L., San Francisco, Calif.
A.B., University of California
BURNETT, Leland L., Seattle
B.S., Washington State College
CHIPMAN, Dennis C., Seattle
University of Washington
COLFELT, Robert H., Seattle
A.B., University of Washington
DALE, Anna R., Pasco
University of Washington
DERBY, Alfred J., Walla Walla
B.A., University of Washington
EDDY, Roger C., Mercer Island
B.S., University of Washington
Reed College
ELLINGHAM, Hayden C., Yakima
B.A., Whitman College
ENGSTROM, Donald E., Seattle
B.S., University of Washington
FISHBACK, Malcolm E., Chehalis
University of Washington
B.S., Washington State College
D.V.M., Washington State College
FREDERICKS, Richard L., Helena, Mont.
Montana State University
University of California
B.S., Montana State College
FULLINGTON, Frank F., Bremerton
B.A., University of Washington
GAISER, Donald F., Vancouver
A.A., Clark College
University of Washington
GLUCKSMAN, Myron L., Vancouver, B.C.
University of British Columbia
GORAI, Arthur S., Pasadena, Calif.
University of California
B.S., University of Nebraska
M.S., Harvard University
GRAY, Gary M., Seattle
B.S., Seattle University
GUDBRANDSEN, Cato B. O., Skien,
Norway
B.A., Pacific Lutheran College
HART, James E., Malaga
Walla Walla College
B.A., University of Washington
WHITENACK, Donald C., Vancouver
B.S., University of Washington
WILSON, Wayne R., Jr., Ellensburg
B.S., University of Washington
WYNIA, Robert E., Poplar, Montana
B.A., University of Washington
HARVEY, Emerson C., Jr., Spokane
B.S., University of Oregon
HAYDEN, Daniel T., Zenith
B.S., University of Washington
Ph.D., University of Washington
HENRIE, Harold P., Seattle
Black Hills Teachers College
School of Medicine, University of South
Dakota
B.S., University of Idaho
HOFFMAN, Roger D., Snohomish
B.A., Whitman College
HOLLINGSWORTH, Kennan H., Bothell
B.S., University of Washington
JONES, Myles C., Seattle
University of Washington
KIRK, Richard A., Helena, Mont.
Hiram College
Montana State College
KJAER, George C., Seattle
B.A., University of Washington
LA FONT, Harold L., Anderson, Ind.
Pacific Bible College
University of Oregon
B.A., Whitman College
LEIDIG, Raymond, Seattle
Lafayette College
University of Washington
LING, Shun Mei, Tacoma
B.S., B.S., University of Washington
LONN, Lawrence I., Seattle
B.S., University of Washington
MACK, Robert M., Quincy, Illinois
University of Washington
A.B., Oberlin College
MADSEN, Arthur J., Spokane
B.A., University of Washington
McINTYRE, David J., Bellingham
University of Washington
MEDLICOTT, William J., Tacoma
Oregon State College
B.B.A., University of Washington
MOE, Roger E., Brainerd, Minnesota
B.S., University of Washington
MORNINGSTAR, Douglas A., Seattle
Yale University
MURPHY, Gerald P., Seattle
B.S., Seattle University
NELSON, James R., Kirkland
B.A., University of Washington
NOBLE, Richard F., Spokane
B.A., Gonzaga University
O'NEILL, Sally J., Seattle
University of Washington
PAULSEN, Suzanne M., Seattle
B.S., University of Washington
PETERSON, Wilbur R., Fall City
University of Washington
SCHENK, Eric A., Seattle
Hillyer College
B.S., University of Connecticut
M.S., University of Washington
SCHOPER, Glenn W., Montpelier, Idaho
San Diego State College
B.S., University of Washington

SCHWINDT, Walter D., Castle Rock
B.A., Pacific Lutheran College
SCOTT, Clifford R., Seattle
University of Washington
SIDELL, Sheldon, Seattle
B.S., University of Washington
SILBERMAN, Stanford J., Seattle
University of Washington
STARCEVICH, George T., Renton
B.S., Seattle University
STRIKER, Gary E., Seattle
University of Washington
STRUNK, Stanley W., Tacoma
B.A., University of Washington
STURMAN, Melvin J., Everett
B.S., University of Washington
SWANSON, William H., Seattle
B.S., University of Washington
TAYLOR, Ronald E., Everett
University of Washington

CLASS OF 1960

ALLEN, William C., Bothell, Wash.
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, Wash.
B.A., University of Washington
BELL, Eldon E., Snohomish
B.S., University of Washington
BELL, Jack W., Seattle
University of Washington
BENVENISTE, Edgar R., Los Angeles,
Calif.
Los Angeles City College
B.A., University of Southern California
Northwestern University
BORUCHOW, Irwin B., Brooklyn, N.Y.
B.S., University of Pennsylvania
Claremont Graduate School
Yale Law School
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, Robert Kendall, Spokane
B.A., University of Washington
CURRIN, Douglas Rose, Clarkston
B.A., Washington State College
DAUS, Joseph Keller, Seattle
Washington State College
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

TEMPLIN, David W., Helena, Mont.
B.S., Wheaton College
THORSON, Richard D., Bremerton
B.A., Whitman College
TINLING, David C., Seattle
University of Washington
TOOTHAKER, Joel H., Centralia
B.A., B.A., University of Washington
WELSH, Robert L., Bismarck, S.D.
B.A., University of Washington
B.S., University of North Dakota
WIGHTMAN, Bruce K., Seattle
B.S., University of Washington
WILSKE, Kenneth R., Nampa, Idaho
B.S., College of Idaho
WILSON, Wesley W., Sunnyside
B.A., University of Washington
WOLD, Sylvester M., Remmer, S.D.
B.S., University of South Dakota
FERGUSON, Donald E., Klamath Falls,
Oregon
B.S., Whitworth College
FORGAARD, Dean M., Seattle
University of Washington
B.S., Washington State College
FREEMAN, Melvin I., Seattle
B.S., University of Washington
GAUB, Margaret L., Seattle
B.S., University of Washington
GAUGER, Grant E., Seattle
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
HAYNES, James M., Seattle
B.A., University of Washington
HOLCENBERG, John S., Seattle
B.A., Harvard College
HUNT, Hal H., Denver Colorado
University of Washington
University of California
B.A., Whitman College
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
LOTTSELDT, Fredrik I., Kirkland
University of Wisconsin
University of Washington
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

- MANRING, Daniel A., Spokane
B.S., Washington State College
- MATHESON, David L., Seattle
B.A., Central Washington College of
Education
- MEZISTRANO, Joseph S., Seattle
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., 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
- RUDY, Lloyd W., Jr., Wenatchee
B.S., Washington State College
- SHERRARD, 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
- TENNYSON, Eugene H., Bremerton
B.A., Whitman College
- THOMPSON, Gale E., Libby, Mont.
Montana State College
B.A., Pacific Lutheran College
- 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
- WOODS, Edward M., Montrose, Colo.
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

CLASS OF 1961

- ADAMS, Charles D., Seattle
B.A., University of Arizona
- ALMQUIST, Edward E., Seattle
University of Washington
- AMBUR, Richard F., Seattle
B.S., Seattle University
- ANDERSON, Charles L., Seattle
B.A., University of Washington
- ANDERSON, Lennart L., Seattle
B.A., University of Washington
- BADER, Max C., Seattle
University of Washington
- BARNER, Bruce E., Bremerton
B.A., 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
- CARLSON, Shirley J., Tacoma
Pacific Lutheran College
- CASEY, Kenneth L., Olympia
B.A., Whitman College
- CHAMPION, William M., Maple Valley
B.S., University of Washington
- CLIFFORD, Joseph C.
Great Falls, Montana
B.S., College of Great Falls
- CONNER, Patrick L., Hoquiam
B.A., Whitman College
- CRILL, Wayne E., Nampa, Idaho
B.S., College of Idaho
- CRIM, Eleanor C., Fargo, N.D.
University of Washington
- CROSS, Carroll E., Seattle
B.A., Pomona College
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
- FOEGE, William H., Colville
B.A., Pacific Lutheran 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
- HEDGES, Gary R., Juneau, Alaska
B.A., Johns Hopkins University
- HENRY, Robert R., Ardmore, Okla.
Oklahoma Baptist University
University of Washington

- HERMEZ, Fred J., Iraq
B.A., Pacific Lutheran College
- HOLLINGSWORTH, Ralph R., Kelso
Lower Columbia Junior College
University of Washington
- HONDA, James I., Seattle
B.S., Seattle University
- HUNTINGTON, Howard W., Tacoma
B.A., St. Olaf College
- JACKLIN, Alexander J., Seattle
University of Washington
University of California
- 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, Ore.
University of Washington
- LILLIBRIDGE, Clinton B., Olympia
University of Washington
- LING, Shun C., Tacoma
B.A., University of Washington
- McALISTER, Robert, Seattle
Princeton University
- MELTON, Russell W., Veradale
B.A., Gonzaga University
- MILLET, 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, T.H.
B.S., Seattle Pacific College
- OWEN, Carlton M., Williamston, S.C.
University of South Carolina
University of Washington
Arizona State 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
- REEDY, Michael K., Seattle
University of Chicago
University of Washington
- SCHEGOLKOV, Lea V., Seattle
University of Washington
- SCHEYER, Stanley C., Seattle
University of Washington
Stanford University
University of Grenoble
- SHORT, Denis S., Grand Coulee
B.A., Central Washington College of Education
- STERN, Robert, Seattle
B.A., Harvard College
- SULLIVAN, Frank W., Kennewick
B.A., University of Washington
- THORSEN, Richard C., Chinook, Mont.
Northern Montana College
University of Washington
- VAN DERHOEF, Kenneth D., Seattle
Gonzaga University
- VAN derWEKEN, Duane W., Everett
Seattle Pacific College
Bob Jones University
- WOLF, John A., Jr., Seattle
B.S., University of Washington
- WONG, Guy Y., Seattle
B.A., University of Washington

THE CLASS OF 1957

Degrees of Doctor of Medicine conferred June 15, 1957

- ADAMS, Neil D., Jr., Seattle
University of Washington
Highland-Alameda County Hospital,
Oakland, Calif.
- AHLNESS, Paul L., Rhame, N.D.
B.A., Concordia College
University of North Dakota
Wayne County General Hospital,
Eloise, Mich.
- ALTIZER, Bentley B., Seattle
B.S., University of Washington
San Diego County General Hospital,
San Diego, Calif.
- ANDERSON, A. Kenneth, Wenatchee
University of Washington
King County Hospital System, Seattle
- ANDERSON, Robert A., Yakima
Willamette University
U. Colorado-Denver General Hospital,
Denver, Colo.
- ATKINSON, James R., Reno, Nev.
B.S., University of Nevada
North Carolina Memorial,
Chapel Hill, N.C.
- BAER, Duncan T., Seattle
University of Washington
George Washington University,
Washington, D.C.
- BAILEY, Richard J., Jr., Spokane
B.A., Princeton University
San Francisco Hospital-Cal. Service,
San Francisco, Calif.
- BAIRD, Robert A., Belle Fourche, S.D.
A.B., University of Colorado
University of South Dakota
Riverside County Hospital,
Arlington, Calif.
- BAIRD, Theodore W., Belle Fourche, S.D.
A.B., University of Colorado
B.S., University of South Dakota
Harbor General Hospital, Torrance, Calif.

- BARNER, Henrick B., Bremerton
University of Washington
Strong Memorial-Rochester Municipal,
Rochester, N.Y.
- BECKER, Rolfe A., Seattle
B.A., University of Washington
Minneapolis General Hospital,
Minneapolis, Minn.
- BENOIT, Fred L., III, Yakima
Seattle University
U.S. Navy-Oakland, Oakland, Calif.
- BIRK, Thomas C., Jr., Aberdeen
B.A., Whitman College
Milwaukee County Hospital,
Milwaukee, Wis.
- CARTER, Robert G., Alderson, W. Va.
B.S., Mount Union College
University of North Dakota
Akron City Hospital, Akron, Ohio
- CHIPMAN, Anna H., Seattle
B.S., University of Washington
King County Hospital System, Seattle
- COLE, Robert E., Bridgeport, Conn.
University of Washington
Pierce County Hospital, Tacoma
- DAHL, Allen W., Seattle
B.S., University of Washington
Ancker Hospital, St. Paul, Minn.
- DAVENPORT, Bruce N., Seattle
Seattle Pacific College
Harper Hospital, Detroit, Mich.
- DIVELBISS, Charles L., Seattle
B.A., University of Washington
King County Hospital System, Seattle
- DLUGATZ, George, New York
B.A., University of Pennsylvania
University of Basel
Bellevue Hospital, 2nd Med. Division,
New York, N.Y.
- DOUGLASS, J. Kirk, Seattle
Washington State College
Minneapolis General Hospital,
Minneapolis, Minn.
- DUBEAU, Ray A., Seattle
Seattle University
King County Hospital System, Seattle
- ELAM, Lloyd C., Seattle
B.S., Roosevelt (Chicago)
University of Washington
University of Illinois-Research Hospital,
Urbana, Ill.
- ERICKSON, Delbert L., Everson
University of Washington
Pierce County Hospital, Tacoma
- GRINOLS, Donald R., Seattle
University of Washington
Mary Imogene Basset, Cooperstown, N.Y.
- HAMES, Ted E., Seattle
University of Washington
Southern Pacific General,
San Francisco, Calif.
- HAMMAR, Sherrel L., Caldwell, Ida.
B.A., College of Idaho
Minneapolis General Hospital,
Minneapolis, Minn.
- HARMON, Stanley D., Seattle
B.S., University of Washington
University of Colorado-Denver General
Hospital, Denver, Colo.
- HARTWIG, James H., Seattle
B.S., University of Washington
Sacramento County Hospital,
Sacramento, Calif.
- HATHAWAY, Joseph C., Spokane
B.S., Northwestern University
Minneapolis General Hospital,
Minneapolis, Minn.
- HAYES, Jude R., Edmonds
B.A., Marquette
University of Washington
U.S. Navy-Great Lakes Hospital
Great Lakes, Ill.
- HENWOOD, Wesley C., Portland, Ore.
B.A., Reed College
University of Chicago Clinics,
Chicago, Ill.
- HERRINGTON, Robert T., Spokane
B.S., The Citadel
North Carolina Memorial,
Chapel Hill, N.C.
- HOLMES, Frederick F., Tacoma
College of Puget Sound
University of Kansas Medical Center,
Kansas City, Kansas
- HOLMES, Grace F., Colville
B.S., Pacific Lutheran College
University of Kansas Medical Center,
Kansas City, Kansas
- HOPFNER, Edward A., Edmonds
University of Washington
Orange County General Hospital,
Orange, Calif.
- HOUGLUM, O. Burton, Vancouver
University of Washington
U.S.A.F.-William Beaumont Hospital,
El Paso, Texas
- HOWRY, Cherie L. B., Olympia
B.S., University of Washington
King County Hospital System, Seattle
- HOY, William J., Seattle
University of Washington
U.S. Army, William Beaumont Hospital,
El Paso, Texas
- IRVING, Stanley D., Seattle
B.S., Washington State College
Pierce County Hospital, Tacoma
- JACK, M. Kim, Spokane
B.S., University of Washington
Highland-Alameda County Hospital,
Oakland, Calif.
- JOHNSON, Ted D., Seattle
University of Washington
U.S.P.H.S. Hospital, Seattle
- KAUTH, James H., Kennewick
B.A., Pacific Lutheran College
U.S.P.H.S. Hospital,
San Francisco, Calif.
- KRAFF, Manus C., Toppenish
B.A., University of Washington
Cook County Hospital, Chicago, Ill.
- LARSON, Duane R., Everett
University of Washington
Philadelphia General Hospital,
Philadelphia, Pa.
- LARSON, Willard A., Seattle
B.S., University of Washington
McGill University
U.S. Navy Hospital, San Diego, Calif.
- LAUDAN, John C. H., Seattle
B.S., University of Washington
Vancouver General Hospital,
Vancouver, B.C.
- LAVENSON, George S., Jr., Seattle
University of Washington
U.S. Army-Walter Reed Hospital,
Washington, D.C.
- LEE, John, Seattle
B.A., University of Washington
University of Washington, Physiology
Fellow, Seattle
- LLOYD, John H., Mitchell, S.D.
B.A., M.A., University of South Dakota
U.S.P.H.S. Hospital, Seattle
- LUNDH, Henrik A. B., Seattle
University of Washington
Good Samaritan Hospital, Portland, Ore.

- MAY, Karl J., Jr., Chewelah
B.A., University of Washington
King County Hospital System, Seattle
- McALLISTER, Clarence, Seattle
University of Washington
Philadelphia General Hospital,
Philadelphia, Pa.
- McGREAL, Robert D., Seattle
B.A., Oberlin College
M.S., Washington State College
Providence Hospital, Portland, Ore.
- McILROY, William, Port Townsend
Central Washington College of Education
U.S. Army-Brooke Hospital,
San Antonio, Texas
- MOSEBAR, Robert H., Yakima
University of Washington
U.S. Army-Brooke Hospital,
San Antonio, Texas
- RANNIGER, Dan E., Ellensburg
B.A., Central Washington College of
Education
King County Hospital System, Seattle
- RATCLIFFE, Arthur R., Seattle
B.S., University of Washington
Harbor General Hospital, Torrance, Calif.
- RICE, Orlin W., Bremerton
University of Washington
Cincinnati General Hospital,
Cincinnati, Ohio
- RICHARDS, Eugene W., Seattle
B.A., University of Washington
U.S.P.H.S. Hospital, Staten Island, N.Y.
- ROCKEY, Dean M., Olympia
University of Washington
U.S. Army-Tripler Hospital,
Honolulu, T.H.
- ROSER, Donald M., McCleary
B.S., Washington State College
University Hospitals of Cleveland, Ohio
- SCHEYER, William J., Seattle
B.B.A., University of Washington
U.S.P.H.S. Hospital, Seattle
- SCOTT, Clarence M., Jr., Seattle
B.A., University of Washington
Sacramento County Hospital,
Sacramento, Calif.
- SPADONI, Leon R., Gig Harbor
University of Washington
Minneapolis General Hospital,
Minneapolis, Minn.
- TOONE, C. Doyme, Seattle
B.A., University of Washington
Vanderbilt University Hospitals,
Nashville, Tenn.
- TREMBLAY, Richard E., Seattle
B.S., University of Washington
Johns Hopkins Hospital, Baltimore, Md.
- TRIER, Jerry S., Seattle
University of Washington
Strong Memorial-Rochester Municipal
Hospital, Rochester, N.Y.
- VOGEL, John H. K., Spokane
Gonzaga University,
Vanderbilt University Hospitals,
Nashville, Tenn.
- WADE, James B., Seattle
B.A., Reed College
U.S. Navy Hospital, San Diego, Calif.
- WOODS, Richard H., Seattle
B.S., Seattle University
Minneapolis General Hospital,
Minneapolis, Minn.

ROSTER OF STUDENTS IN MEDICAL TECHNOLOGY

CLASS OF 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
- SUNDEEN, Janet Lynn, Zenith
- WANAMAKER, Barbara Blanche, Oak
Harbor
- WHITE, Sarah Jane, Seattle

CLASS OF 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 1956

Degree of Bachelor of Science in Medical Technology conferred June 7, 1956

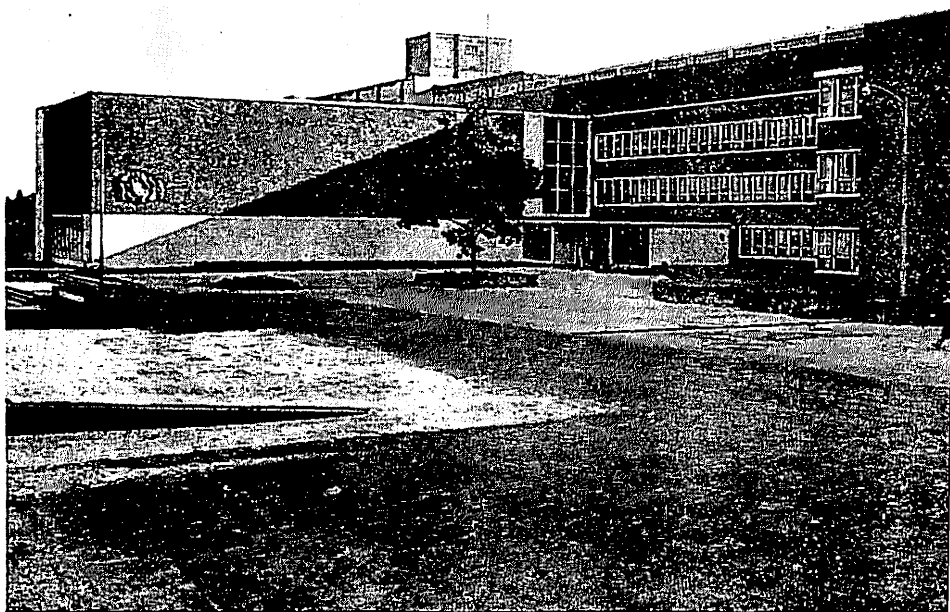
- BEAUDREAU, Olive Lee, Seattle
- KAYLOR, Grace Le Vesconte, Ellensburg
- LODEN, Betty Mae, Eatonville
- McGOWAN, Betty Woodward, Seattle
- McLENNAN, R. Marlene, Everett
- OTOSHI, Marianne S., Seattle
- SHERBINA, Marie Popoff
- ULBRIGHT, Anne Libby, Hoquiam
- UYEDA, Fuzako, Tacoma

CLASS OF 1957

Degree of Bachelor of Science in Medical Technology conferred June 15, 1957

- DEAN, Mary B., Seattle
- EATON, Janet L., Idaho Falls, Idaho
- FORTIN, Patricia, Seattle
- LOE, Mary E., Seattle
- MORGAN, Audrey C., Sedro Woolley
- NOLAN, Eve, Spokane
- PUGH, Joan, Everett
- RELLING, Pearl, Seattle
- THOMPSON, Shirley, Seattle
- TOSHI, Joyce Takako, Seattle
- WEIRMAC, Susan R., Seattle

BULLETIN • UNIVERSITY OF WASHINGTON



SCHOOL OF NURSING

1958-1960

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

BULLETIN
UNIVERSITY OF WASHINGTON
General Series No. 932
October, 1958

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CALENDAR

AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS
(Autumn Quarter, 1958, 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.

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

MAY 5-29	Advance Registration only for students in residence Spring 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.
SEPT. 11-30	In-Person Registration for former students not in residence Spring Quarter, 1958, and those attending Spring Quarter, 1958, 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 9. Deadline for applying for Registration Appointment or Permit is <i>September 19</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. 15-26	In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
SEPT. 15-30	In-Person Registration for new transfer students with at least full sophomore standing.
SEPT. 30	Last day to register for Autumn Quarter, 1958.
OCT. 2-7	Change of registration by appointment only.

ACADEMIC PERIOD

SEPT. 29—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing
SEPT. 29—MONDAY	Instruction begins for teaching units and clinical division
OCT. 1—WEDNESDAY	Instruction begins (8 a.m.) for other nursing students
OCT. 7—TUESDAY	Last day to add a course
NOV. 3—MONDAY	Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1959, due at Registrar's Office
NOV. 11—TUESDAY	State Admission Day holiday
NOV. 26—WEDNESDAY	Last day to submit applications for advanced credit examinations
NOV. 26-DEC. 1	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 13—SATURDAY	Advanced credit examinations
DEC. 14—SUNDAY	Instruction ends for clinical division
DEC. 19—FRIDAY	Instruction ends (6 p.m.) for other nursing students
DEC. 21—SUNDAY	Instruction ends for teaching units

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 or calling at the Registrar's Office <i>no later than December 12</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 24 and December 12. Deadline for applying for Registration Appointment or Permit is <i>December 12</i> .
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

DEC. 22—MONDAY	Instruction begins for teaching units
DEC. 29—MONDAY	Instruction begins for clinical divisions
JAN. 5—MONDAY	Instruction begins for other nursing students (8 a.m.)
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. 15—SUNDAY	Instruction ends for teaching units and clinical divisions
MAR. 20—FRIDAY	Instruction ends for other nursing students

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 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. 16—MONDAY

Instruction begins for teaching units

MAR. 23—MONDAY

Instruction begins for clinical divisions

MAR. 30—MONDAY

Instruction begins for other nursing students (8 a.m.)

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 7—SUNDAY

Instruction ends for teaching units and clinical divisions

JUNE 12—FRIDAY

Instruction ends for other nursing students

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.

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, 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 8—MONDAY	Instruction begins for teaching units
JUNE 15—MONDAY	Instruction begins for clinical divisions
JUNE 15—MONDAY	Public health nursing field practice begins
JUNE 22—MONDAY	Instruction begins for other nursing students
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. 28—FRIDAY	Public health nursing field practice ends
AUG. 30—SUNDAY	Instruction ends for teaching units and clinical divisions

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 Advanced 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 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
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 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.

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. 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.
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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. 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

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

ADMINISTRATION

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JOHN L. KING, <i>Vice-President</i>	Seattle
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MARY S. TSCHUDIN, R.N., M.S.	<i>Dean of the School of Nursing</i>

SCHOOL OF NURSING FACULTY

(As of May 1, 1958)

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.

- Anderson, Helen Cornelia, 1945 (1951), *Research Assistant Professor of Nursing*
Diploma, 1934, Bishop Johnson College of Nursing, California; C.P.T., 1934, Children's Hospital, California; B.S., 1945, C.P.H.N., 1947, M.N., 1955, Washington
- Batey, Marjorie Viola, 1956 (1958), *Assistant Professor of Psychiatric Nursing*
Diploma, 1947, Sacred Heart Hospital School of Nursing, Washington; B.S., 1953, Washington; M.S., 1956, Colorado
- Birkbeck, Lyndall Helen, 1954 (1955), *Clinical Assistant Professor of Nursing*
Diploma, 1942, Pennsylvania Hospital School of Nursing; B.S., 1946, Minnesota; M.A., 1954, Teachers College, Columbia
- Blackman, Helen Marie, 1945, *Instructor in Tuberculosis Nursing; Director of Nurses, Firland Sanatorium*
Diploma, 1929, St. Luke's School of Nursing, Iowa; B.S., 1942, C.N.S., 1942, Washington
- Brandt, Edna Mae, 1954 (1955), *Assistant Professor of Nursing Arts*
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 Operating Room Nursing*
Diploma, 1941, Evanston Hospital School of Nursing; B.S., 1952, Western Reserve
- Brown, Eleanor Aileen, 1955, *Clinical Instructor in Public Health 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
- Brown, Viola Joyce, 1953, *Instructor in Surgical Nursing*
B.S.N., 1950, M.N., 1958, Washington

- Bruno, Pauline, 1958, *Acting 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
- Burke, Dorothy I., 1957, *Instructor in Medical-Surgical Nursing*
Diploma, 1951, Massachusetts General Hospital School of Nursing; B.S., 1951, Hood College, Maryland; M.Ed., 1957, Minnesota
- Burroughs, Harriett N., 1958, *Acting Assistant Professor of Nursing*
B.S.N., 1949, Duke University; M.S., 1957, Boston University
- Chinque, Katherine, 1951, *Assistant Professor of Maternal-Child Nursing*
Diploma, 1931, Providence Hospital, 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 Nursing*
Diploma, 1921, Columbia Hospital, Wisconsin; B.S., 1925, Minnesota; C.P.H.N., 1938, M.N., 1940, Washington
- Dike, Barbara, 1953, *Instructor in Psychiatric Nursing*
Diploma, 1937, Port Angeles General Hospital School of Nursing; C.P.H.N., 1943, B.S., 1948, M.N., 1953, Washington
- Enos, Lucy DeReid, 1954 (1958), *Assistant Professor in Nursing Arts*
Diploma, 1942, Pennsylvania Hospital School of Nursing; B.S., 1946, M.A., 1954, Minnesota
- Erickson, Eva Helen, 1954, *Clinical Assistant Professor of Nursing; Administrator of Children's Orthopedic Hospital*
Diploma, 1933, Michael Reese Hospital School of Nursing; B.S., 1939, Teachers College, Columbia; M.S.H.A., 1947, Northwestern
- Frederickson, Shirley M., 1957, *Instructor in Nursing Arts*
B.S.N., 1953, Washington; M.Ed., 1957, Minnesota
- Gannon, Margaret Elizabeth, 1949, *Clinical Instructor in Nursing, Chief Dietitian*
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, Harborview-King County Hospital System*
B.A., 1926, Colorado School of Education; Diploma, 1932, Kahler Hospital School of Nursing
- Graves, Helen Hope, 1958, *Instructor in Psychiatric Nursing*
Diploma, 1936, Kahler School of Nursing, Minnesota; B.S., 1952, Washington
- Gray, Florence Irene, 1945 (1952), *Assistant Professor of Nursing, Educational Director of the Harborview Division*
B.S.N., 1945, M.S., 1950, Washington
- Hansen, Julia Anne, 1953 (1956), *Assistant Professor of Medical Nursing*
B.A., 1939, Redlands; Diploma, B.A., 1942, Stanford; M.N., 1955, Washington
- Hart, Betty Louise, 1958, *Research Instructor in Psychiatric Nursing*
Diploma, 1948, St. Luke's Hospital School of Nursing, Spokane; B.S., 1951, M.N., 1957, Washington
- Hay, Stella Ida Leader, 1955 (1958), *Assistant Professor of Nursing Arts*
Diploma, 1942, Eitel Hospital School of Nursing, Minneapolis; B.S., 1944, M.A. 1951, Minnesota
- Heinemann, Margot Edith, 1954 (1956), *Assistant Professor of Tuberculosis Nursing*
B.S.N., 1945, Seattle; M.N., 1954, Washington
- Hilde, Elaine Nadene, 1954, *Instructor in Psychiatric Nursing*
B.S.N., 1947, Washington

- Hoffman, Katherine Janet, 1942 (1956), *Professor of Nursing; Assistant Dean of the School of Nursing*
A.B., 1929, College of Puget Sound; Diploma, 1934, Tacoma General Hospital School of Nursing; M.N., 1941, Ph.D., 1956, Washington
- Kerby, Charity C., 1956 (1957), *Assistant Professor of Medical Nursing*
B.A., 1934, Seattle Pacific College; Diploma, 1946, Swedish Hospital School of Nursing; M.N., 1952, Washington
- Kintner, Nancy Jane, 1942, *Instructor in Psychiatric Nursing; Director of Nurses, Northern State Hospital*
B.S.N., 1940, Washington
- Laxson, Lois Elizabeth, 1955, *Clinical Instructor in Medical Nursing*
B.A.N., 1951, Iowa
- 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 Ingeborg, 1953, *Instructor in Operating Room Nursing*
B.S.N., 1950, Washington
- Little, Dolores Emma, 1951 (1958), *Assistant Professor in Surgical Nursing*
B.S.N., 1946, M.N., 1957, Washington
- Lucas, Pauline, 1953 (1954), *Assistant Professor of Psychiatric Nursing*
Diploma, 1937, Newark Beth Israel Hospital School of Nursing; B.S., 1952, M.N., 1954, Washington
- Mack, Virginia Ann, 1954 (1958), *Assistant Professor of Nursing Arts*
Diploma, 1943, St. Joseph's Hospital School of Nursing, Tacoma; B.S., 1945, Seattle; M.N., 1957, Washington
- McConnell, Nola K., 1957, *Acting Instructor in Obstetric Nursing*
B.S.N., 1956, Washington
- Mansfield, Louise, 1951 (1952), *Assistant Professor of Clinical Nursing*
Diploma, 1937, Samaritan Hospital School of Nursing, Idaho; B.S., 1947, Ohio State; M.A., 1951, Teachers College, Columbia
- Mansperger, Marguerite, 1952, *Clinical Assistant Professor of Nursing; Director of Nurses, Virginia Mason Hospital*
Diploma, 1932, Seattle General Hospital School of Nursing; B.S., 1939, Washington
- Midthun, Aline, 1957, *Instructor in Operating Room Nursing*
Diploma, 1932, Tennessee; B.S., 1956, Oregon
- Mitchell, Edith Laubscher, 1947, *Clinical Instructor in Public Health 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
- Murray, B. Louise, 1957, *Assistant Professor of Maternal-Child Health Nursing*
B.S., 1938, Portland; M.N., 1950, Washington
- Nash, Shirley Istas, 1952 (1957), *Assistant Professor of Nursing; Educational Director of Virginia Mason Hospital Division*
Diploma, 1941, Virginia Mason Hospital School of Nursing; B.S., C.N.S., 1949, M.N., 1956, Washington
- Normark, Priscilla Senter, 1953 (1956), *Assistant Professor of Surgical Nursing*
B.A., 1946, Connecticut College for Women; Diploma, M.N., 1949, Yale
- Northrop, Mary Watson, 1931, *Clinical Instructor in Nursing, Chief Dietitian and Housekeeper*
B.A., 1920, Vassar College; M.S., 1923, Teachers College, Columbia
- Olcott, Virginia, 1931 (1945), *Associate Professor of Nursing*
Diploma, 1926, Peter Bent Brigham Hospital School of Nursing, Massachusetts; B.S., 1927, M.S., 1931, C.P.H.N., 1949, Washington
- Osmond, Thelma Wood, 1952, *Instructor in Obstetric Nursing*
Diploma, 1949, Tacoma General Hospital School of Nursing; B.S., 1952, Washington
- Patrick, Maxine I., 1955 (1957), *Assistant Professor of Tuberculosis Nursing*
B.S.N., 1948, Colorado; M.N., 1953, Washington

- Pedersen, Roma Kittelsby, 1953 (1956), *Assistant Professor of Medical Nursing*
B.S.N., 1943, Minnesota; M.N., 1955, Washington
- Peters, Mary Ellen, 1958, *Acting Instructor in Pediatric Nursing*
B.S.N., 1954, Wagner College, New York; M.N., 1956, Washington
- Phillips, Lorraine W., 1955 (1957), *Research Instructor in Psychiatric Nursing*
Diploma, 1949, Hospital for Women of Maryland, Baltimore; B.S., 1953, Duke; M.N., 1955, Washington
- Pittman, Rosemary Jeanne, 1954, *Clinical Instructor in Public Health Nursing; Supervising Nurse of the Clark-Skamania District Health Department*
B.S.N., 1940, Iowa; M.S., 1947, Chicago
- Rohweder, Annabelle Willrich, 1954, *Research Assistant Professor of Nursing*
Diploma, 1948, Virginia Mason Hospital School of Nursing; B.S., 1950, M.N., 1954, Washington
- 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
- Smith, Harriet Holbrook, 1949, *Assistant Professor of Nursing Service Administration*
A.B., 1918, Mount Holyoke College; Diploma, 1920, Seattle General Hospital School of Nursing; M.N., 1957, 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 Pediatric 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 Division*
Diploma, 1928, Swedish Hospital School of Nursing; B.S., 1928, Washington
- Tjelta, Inga Tomine, 1954, *Instructor in Medical Nursing*
Diploma, 1946, Swedish Hospital School of Nursing, Minnesota; B.S., 1954, M.A., 1958, Washington
- 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, Washington
- Ullrich, Harriet E., 1957, *Instructor in Obstetric Nursing*
B.S.N., 1950, Syracuse, N.Y.
- Wittmer, Perquilla J., 1957, *Instructor in Psychiatric Nursing*
Diploma, Iowa Lutheran Hospital School of Nursing; B.S., 1956, M.N., 1957, Washington

MEDICAL LECTURERS IN THE SCHOOL OF NURSING

- Anderson, David, *Lecturer in Nursing*
B.A., 1946, California; M.D., 1949, Cincinnati
- Anderson, O. William, *Clinical Instructor in Pediatrics; Lecturer in Nursing*
B.S., 1931, Idaho; B.M., 1935, M.D., 1936, Northwestern
- Baker, Joel W., *Consultant in Surgery; Director of Medical Student Surgical Teaching, Virginia Mason Hospital; Lecturer in Nursing*
M.D., 1928, Virginia
- Banks, Albert Lawrence, *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*
A.B., 1940, M.D., 1943, Duke
- 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
- Brawand, Kurt, *Lecturer in Nursing*
M.D., 1953, Berne (Switzerland)
- Bridenbaugh, L. Donald, *Clinical Associate in Anesthesiology; Lecturer in Nursing*
M.D., 1947, Nebraska

- Brown, Robert Whitcomb, *Clinical Affiliate in Psychiatry; Lecturer in Nursing*
B.A., 1923, Wisconsin; M.D., 1928, Harvard; M.S., 1940, Minnesota
- Bruenner, Bertram F., *Clinical Instructor in Medicine; Lecturer in Nursing*
B.S., 1926, M.D., 1929, Minnesota
- Brugger, Donald James, *Clinical Assistant in Obstetrics and Gynecology; Lecturer in Nursing*
B.S., 1940, Mt. Union; M.D., 1952, Ohio State
- Burnell, James M., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
M.D., 1949, Stanford
- Campbell, Robert M., *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*
B.S., 1942, Washington; M.D., 1945, M.S., 1949, Michigan
- Cantril, Simeon T., *Clinical Associate Professor of Radiology; Lecturer in Nursing*
A.B., 1929, Dartmouth College; M.D., 1932, Harvard
- Carlile, Thomas Burham, Jr., *Clinical Assistant Professor of Radiology; Lecturer in Nursing*
A.B., 1936; M.D., 1939, Michigan
- Chism, Carl E., *Clinical Instructor in Surgery; Lecturer in Nursing*
B.S., 1936, M.D., 1941, Nebraska
- Clements, Randolph, *Clinical Associate in Medicine; Lecturer in Nursing*
M.D., 1949, Texas
- Cleveland, Fred Edward, *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.S., 1937, M.D., 1941, Virginia
- Coburn, Wallace A., *Lecturer in Nursing*
B.A., 1947, Harvard; M.D., 1951, Virginia
- 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
- Crenshaw, William B., *Clinical Associate in Surgery; Lecturer in Nursing*
B.A., 1944; M.D., 1948, Virginia
- Crystal, Dean K., *Clinical Instructor in Surgery; Lecturer in Nursing*
B.S., 1936, Washington; B.A., 1938, Oxford; M.D., 1941, Johns Hopkins
- Day Charles Ward, *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*
B.S., 1939, Washington; M.D., 1942, Oregon
- 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
- Dirstine, Morris J., *Clinical Associate in Surgery; Lecturer in Nursing*
Ph.G., 1926, Washington State College; B.S., 1932, Washington; M.D., 1937, Northwestern
- Docter, Jack Merton, *Clinical Assistant Professor of Pediatrics; Lecturer in Nursing*
B.S., 1937, Washington; M.D., 1941, Columbia
- Dunning, Marcelle F., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.A., 1935, Hunter College; M.A., 1936, Columbia; M.D., 1940, New York College of Medicine
- Edmunds, Louis H., *Consultant on Orthopedic Surgery; Lecturer in Nursing*
B.A., 1922, Hampden Sydney College, Virginia; M.D., 1928, Virginia
- Emmel, Harry E., *Clinical Associate in Orthopedic Surgery; Lecturer in Nursing*
B.S., 1936, Willamette; M.D., 1940, Oregon
- Figge, David C., *Assistant Professor of Obstetrics and Gynecology; Lecturer in Nursing*
B.S., 1949, M.D., 1950, Northwestern
- Fine, Charles S., *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*
M.D., 1937, Toronto (Canada)

- Flashman, Forrest L., *Clinical Associate in Orthopedic Surgery; Lecturer in Nursing*
M.D., 1941, Northwestern
- Gallagher, Agnes, *Lecturer in Nursing*
B.A., 1941, Seattle; M.S.S.W., 1951, St. Louis
- Geraghty, Thomas P., *Clinical Instructor in Medicine; Lecturer in Nursing*
B.S., 1934, Washington; M.D., 1939, Oregon
- Giedt, Walvin R., *Clinical Instructor in Public Health and Preventive Medicine; Lecturer in Nursing*
B.S., 1933, South Dakota; M.D., 1937, Rush Medical College; M.P.H., 1941, Johns Hopkins
- Griffin, Geraldine, *Lecturer in Nursing*
B.A., 1937, St. Benedict, Minnesota; Graduate Study, 1942, Minnesota (social work)
- Hagen, John M. V., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.A., 1942, Wyoming; M.D., 1950, Rochester
- Haven, Hale A., *Senior Consultant in Neurosurgery; Lecturer in Nursing*
B.S., 1927, M.D., 1928, M.S., 1930, Ph.D., 1933, Northwestern
- 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
- Hill, Lucius, *Lecturer in Nursing*
B.S., 1941, Virginia Military Institute; M.D., 1944, Virginia
- Hogness, John R., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.S., 1943, M.D., 1946, Chicago
- Hudson, Dean G., *Clinical Associate in Medicine; Lecturer in Nursing*
B.S., 1946, Washington; M.D., 1950, Cornell
- Hungerford, Louis N., *Lecturer in Nursing*
B.A., 1942; M.D., 1945, Iowa
- Hurley, Albert M., *Clinical Instructor in Psychiatry; Lecturer in Nursing*
B.S., 1942, St. Joseph College; M.D., 1946, Marquette
- Jarvis, Fred J., *Consultant in Surgery; Lecturer in Nursing*
B.A., 1928, M.D., 1932, Iowa
- Jobb, Emil, *Clinical Instructor 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
- Jones, Charles Herbert, *Clinical Affiliate in Psychiatry; Lecturer in Nursing*
B.S., 1940, Washington; M.D., 1943, Oregon
- Jones, Hugh Warren, *Clinical Assistant Professor of Pathology; Lecturer in Nursing*
B.S., 1936, M.D., 1938, Arkansas
- Jones, Robert H., *Lecturer in Nursing*
B.S., 1937, M.D., 1949, Wisconsin; M.S., 1944, Minnesota
- Kettering, Harry A., *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*
B.A., 1942, M.D., 1945, Oregon
- Kimball, Charles Dunlap, *Clinical Associate Professor of Obstetrics and Gynecology; Lecturer in Nursing*
M.D., 1934, Buffalo
- King, Robert L., *Clinical Associate Professor of Medicine; Lecturer in Nursing*
M.D., 1928, B.S., 1931, Virginia
- Kiriluk, Lawrence B., *Clinical Instructor in Surgery; Lecturer in Nursing*
B.M., 1945, M.D., 1946, Minnesota
- Koler, John J., *Clinical Associate in Medicine; Lecturer in Nursing*
B.S., 1950, M.D., 1953, Washington
- Kretz, Alexander Walter, *Lecturer in Nursing*
B.S., 1938, Washington; M.D., 1941, Oregon

- Lawrence, G. Hugh, *Lecturer in Nursing*
M.D., 1946, Harvard
- Leede, William Edward, *Clinical Instructor in Medicine; Lecturer in Nursing*
B.S., 1934, M.D., 1937, Oregon
- Linell, Michael Ambrose, *Clinical Instructor in Medicine; Lecturer in Nursing*
L.R.C.P., 1938, Westminster Hospital (England)
- Lobb, Allan W., *Clinical Instructor in Surgery; Director of Medical Student Teaching at Doctors Hospital; Lecturer in Nursing*
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
- Maguire, Richard X., *Clinical Associate in Surgery; Lecturer in Nursing*
B.S., 1947, M.D., 1951, Washington
- Marshall, Helen S., *Clinical Instructor in Medicine; Lecturer in Nursing*
B.S., 1939, M.D., 1942, Wisconsin
- Martin, Carroll J., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.S., 1936, M.D., 1940, Iowa
- Mason, James T., *Clinical Instructor in Urology; Lecturer in Nursing*
M.D., 1940, Michigan
- McDonald, Virginia Caroline Vail, *Lecturer in Nursing*
B.A., 1940, Wellesley College; M.D., 1944, Chicago
- McIntyre, Donald M., *Clinical Assistant Professor in Obstetrics and Gynecology; Lecturer in Nursing*
B.S., 1939, Washington; M.D., 1943, Chicago
- Merendino, K. Alvin, *Professor of Surgery; Lecturer in Nursing*
B.A., 1936, Ohio; M.D., 1940, Yale; Ph.D., 1946, Minnesota
- Michel, Jean C., *Clinical Instructor in Medicine; Lecturer in Nursing*
B.S., 1943, Bowdoin College; M.D., 1946, Columbia
- Millar, Thomas Palmer, *Lecturer in Nursing*
B.A., 1947, B.C., M.D., C.M., 1951, McGill
- Miller, James W., *Clinical Instructor in Orthopedic Surgery; Lecturer in Nursing*
A.B., 1936, M.D., 1939, Michigan
- Miller, Walter Taylor, *Lecturer in Nursing*
M.B.C.B., 1944, Aberdeen (Scotland)
- Moore, Daniel C., *Clinical Assistant Professor of Surgery (Anesthesiology); Lecturer in Nursing*
M.D., 1944, Northwestern
- Moore, Kenneth D., *Lecturer in Nursing*
B.A., 1944, Whitman; M.D., 1950, Oregon
- Morgan, Edward H., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.A., 1938, DePauw; B.M., M.D., 1943, Northwestern
- Mousel, Lloyd H., *Lecturer in Nursing*
B.S., 1928; M.D., 1930, Nebraska
- Muller, H. Arnold, Jr., *Assistant (Resident) in Medicine; Lecturer in Nursing*
B.A., 1942, Dartmouth College; M.D., 1955, Harvard
- Nowlis, Gerald R., *Clinical Associate in Surgery (Neurosurgery); Lecturer in Nursing*
M.D., 1948, Yale
- Ormond, Louise, *Clinical Instructor in Medicine; Lecturer in Nursing*
B.A., 1942, Wellesley; M.D., 1947, Rochester
- Palmer, Lester J., *Clinical Professor of Medicine; Lecturer in Nursing*
M.D., 1914, Northwestern
- Pearson, Clarence C., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.A., 1934, M.D., 1937, Texas; M.S., 1947, Minnesota
- Phillips, James W., *Clinical Instructor in Surgery (Otolaryngology); Lecturer in Nursing*
B.S., 1934, M.D., 1938, Stanford

- Pilling, Matthew A., *Clinical Associate in Surgery; Lecturer in Nursing*
B.S., 1936, State Teachers College, Nebraska; M.D., 1941, Nebraska
- Pillow, Randolph P., *Clinical Instructor in Medicine; Lecturer in Nursing*
B.A., 1941, M.D., 1944, Virginia
- Plum, Fred, *Assistant Professor of Medicine (Neurology); Lecturer in Nursing*
A.B., 1944, Dartmouth; M.D., 1947, Cornell
- Pommerening, Robert A., *Clinical Associate Professor of Medicine; Lecturer in Nursing*
A.B., 1938, M.D., 1942, Michigan
- 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
- Rankin, Robert M., *Clinical Assistant Professor of Medicine (Neurology); Lecturer in Nursing*
B.S., 1937, Washington; M.D., 1942, Johns Hopkins
- Reeves, Robert L., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
M.D., 1946, Virginia
- Rice, Glen, *Clinical Instructor in Obstetrics and Gynecology; Lecturer in Nursing*
A.B., 1938, Pacific; M.D., 1942, Oregon
- Rohrer, Pius Aloysius, *Lecturer in Nursing*
A.B., 1910, M.A., 1912, Gonzaga; M.D., 1914, St. Louis
- Ruprecht, Archibald Lowell, *Clinical Associate in Medicine; Lecturer in Nursing*
A.B., 1943, Harvard; M.D., 1946, Columbia
- 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
- Schwartzman, Alex Elie, *Lecturer in Nursing*
B.A., 1949, M.A., 1952, Ph.D., 1954, McGill
- Shaffrath, Louise E., *Lecturer in Nursing*
B.A., 1935, M.S.W., 1955, Washington; N.Y. School of Social Work, 1946
- Sheehy, Thomas F., Jr., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.S., 1942, Villanova; M.D., 1945, Temple
- Sheridan, Alfred I., *Clinical Associate in Surgery; Lecturer in Nursing*
B.S., 1938, Washington; M.D., 1943, Northwestern
- Sherwood, Kenneth K., *Clinical Assistant Professor of Medicine; Administrative Consultant w.o.t.; Lecturer in Nursing*
B.S., 1923, B.M., 1925, M.D., 1926, Minnesota
- Skinner, Alfred Loring, *Clinical Instructor in Pediatrics; Lecturer in Nursing*
A.B., 1947, Harvard; M.D., 1951, Harvard Medical School, Boston
- Sparkman, Donal Ross, *Clinical Associate Professor of Medicine; Lecturer in Nursing*
B.S., 1930, Washington; M.D., 1934, Pennsylvania
- Speir, Edward B., *Consultant in Surgery; Director of Medical Student Teaching at Swedish Hospital; Lecturer in Nursing*
B.A., 1929, M.D., 1933, Kansas
- Spickard, Warren B., *Clinical Associate Professor of Medicine; Lecturer in Nursing*
B.A., 1940, M.D., 1944, Stanford
- Stamm, Stanley J., *Clinical Instructor in Pediatrics; Lecturer in Nursing*
B.S., 1948, M.D., 1952, St. Louis
- Steenrod, William J., *Clinical Instructor in Medicine; Lecturer in Nursing*
B.S., 1943, Western Michigan College; M.D., 1946, Michigan

- Stevens, Alexander R., Jr., *Clinical Assistant Professor of Medicine; Lecturer in Nursing*
B.A., 1943, Yale; M.D., 1946, Cornell
- Stone, Caleb S., Jr., *Consultant in Surgery; Lecturer in Nursing*
B.S., 1922, Washington; M.D., 1926, Washington University; M.S., 1934, Virginia
- 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
- Thompson, Everett Frederick, *Lecturer in Nursing*
A.B., 1950, Lewis and Clark College; M.A., 1953, Denver
- Tolan, John F., *Consultant in Surgery (Otolaryngology); Lecturer in Nursing*
B.S., 1931, M.D., 1933, Michigan
- Van Aelstyn, Edward Leslie, *Lecturer in Nursing*
B.A., 1931, Utah; M.D., 1934, Louisville; C.P.H., 1937, California
- Wagner, Clyde L., *Clinical Associate in Surgery; Lecturer in Nursing*
B.S., 1935, Washington; M.D., 1939, Oregon
- Walker, John H., *Clinical Instructor in Radiology; Lecturer in Nursing*
B.S., 1936, Washington; M.D., 1940, Michigan
- Wanamaker, Frank Herman, *Consultant in Surgery (Otolaryngology); Lecturer in Nursing*
D.D.S., 1922, M.D., 1929, Northwestern
- Weinstein, Haskell, *Clinical Instructor in Medicine; Lecturer in Nursing*
B.S., 1949, M.D., 1953, Washington
- Welti, Walter B., *Clinical Assistant Professor of Psychiatry; Lecturer in Nursing*
B.A., 1943, M.D., 1946, Utah
- Wildermuth, Orlliss, *Clinical Associate Professor of Radiology; Lecturer in Nursing*
A.B., 1939, B.S., 1941, Missouri; M.D., 1943, Cincinnati
- Willkens, Robert F., *Assistant in Medicine (Resident); Lecturer in Nursing*
B.S., 1950, Antioch College; M.D., 1954, Rochester

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

GENERAL INFORMATION

THE SCHOOL OF NURSING at the University of Washington is an independent professional school within the Division of Health Sciences. Its program is an integral part of the University and meets all University standards and requirements.

The School had its origin during the first World War, and represented a pioneer effort in university nursing education. The President of the University, Henry Suzzallo, was interested in developing vocational fields for women and, recognizing the state's wartime need for nurses, appointed a faculty committee to develop a nursing curriculum. The first curriculum was designed to cover a period of five years, and a Bachelor of Science degree was granted after three years of study at the University and two years of work in a selected hospital. After the introduction of the basic nursing program, the University, with the cooperation of the Washington Tuberculosis Association, established a public health nursing course. It was with this course that Mrs. Elizabeth Sterling Soule, who was to be the first Dean of the School, became associated with nursing on the University campus.

Nursing was so successful as a University curriculum that, in 1921, the Department of Nursing Education was organized, offering both the basic five-year combined program and a public health nursing course. Realization of a continuously growing need for young women in both hospital and public health nursing led to the development of a degree program of study for graduate nurses which combined additional professional education with academic work.

In 1931, the four-year integrated degree program, in which the student was registered in the University throughout the entire nursing course, was developed and resulted in the creation of the Harborview Division of the School of Nursing. The Department of Nursing Education became a School of Nursing in the College of Arts and Sciences in 1934. That same year the Association of Collegiate Schools of Nursing was organized, and the University of Washington School was one of its charter members. In 1938, the School of Nursing instituted a master's degree program for nurses who wished to obtain additional academic and professional preparation. In 1945, the School became an autonomous professional school of nursing with its own administrative organization, dean, and faculty. When the Division of Health Sciences was created, cooperative and comprehensive planning

for the education of all students in nursing, medicine, dentistry, and pharmacy was made possible. In 1946, the Swedish Hospital Division was included in the School of Nursing on the same basis as the Harborview Division.

Since 1948, when the University of Washington School of Nursing became the fourth school in the country to receive joint accreditation by the National League of Nursing Education and the National Organization for Public Health Nursing, graduates of the basic curriculum have been prepared to take first-level positions in public health nursing.

In 1952, The Bachelor of Science program for graduate nurses was reorganized. Today, all students meeting requirements for the Bachelor of Science in Nursing degree have completed a program that prepares them professionally for both public health and hospital nursing. In 1952, the Virginia Mason Hospital School of Nursing became another division of the School. The five-year Research Program in Basic Nursing Education was offered through this division. In 1958, the basic nursing curriculum was reorganized.

PHILOSOPHY AND OBJECTIVES

The philosophy adopted by the faculty and students of the School of Nursing is as follows:

"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 various 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 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."

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 of each of the remaining three objectives 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."

FACILITIES

The Health Sciences Building, which houses the Schools of Nursing, Medicine, and Dentistry, is a modern, functional structure with well-equipped classrooms, laboratories, recreational facilities, administrative offices, and a library in which students in the basic and health sciences study and work together. The teaching and research hospital, presently under construction, adjoins this building. This will extend the facilities in which students will receive part of their experience.

The School of Nursing uses all resources of the University in planning for its various curricula. Courses outside the professional field are taken with students in other disciplines.

LIBRARIES

All University library facilities are available to students in the School of Nursing. The Health Sciences Library serves faculty and students in nursing, medicine, and dentistry, and is used in research work done in other sections of the University. It has about 57,000 volumes (with stack space for 40,000 more) and subscribes to more than 800 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.

There are libraries in each of the teaching units of the School of Nursing. Each division maintains a carefully selected library: Harborview, 1,327 volumes; Swedish Hospital, 1,458 volumes; and Virginia Mason Hospital, 975 volumes. Emphasis is placed on the clinical fields, and professional periodicals are on file. In addition, all teaching units maintain libraries in the specific clinical area of that unit. Ward libraries are kept on each clinical service in the hospital or public health agency.

TEACHING UNITS

To provide the best experience in all clinical fields, the School of Nursing utilizes a wide variety of hospitals and other health agencies. Students in all curricula, basic and graduate, and affiliates from other schools of nursing, receive experience in these agencies under the direction of the School. These agencies and their fields are:

ALL HOSPITAL CLINICAL FIELDS: King County Hospital System, Unit I (Harborview Division) capacity, 480 beds; Unit II, 230 beds; The Doctors Hospital, capacity, 187 beds; Swedish Hospital, capacity, 377 beds; Virginia Mason Hospital, capacity, 217 beds; and University Hospital, capacity, 300 beds.

PEDIATRIC NURSING: Harborview-King County Hospital System, Unit I, and Children's Orthopedic Hospital, capacity, 200 beds.

TUBERCULOSIS NURSING: Firland Sanatorium, capacity, 1,000 beds.

PSYCHIATRIC NURSING: Northern State Hospital, Sedro Woolley, capacity, 2,273 beds; Western State Hospital, Fort Steilacoom, capacity, 3,007 beds; and Pinel Foundation, Seattle, capacity, 32 beds.

PUBLIC HEALTH NURSING: Seattle-King County Health Department and Visiting Nurse Service; Tacoma-Pierce County Health Department and Public Health Nursing Association; Bremerton-Kitsap County Department of Public Health; and Clark-Skamania District Health Department.

Other community hospital and health agencies are used as necessary to accommodate students.

ADMISSION REQUIREMENTS EFFECTIVE AUTUMN QUARTER, 1961

The admission requirements for the School of Nursing, effective Autumn Quarter, 1961, will be as follows:

<i>Subject</i>	<i>Units</i>
English	3
One foreign language	2
Language arts or foreign language	*1
Social science	1
Elementary algebra	1
Plane geometry	1
Laboratory science	1
Advanced mathematics or laboratory science	1
<hr/>	
<i>Total number academic units</i>	11
Free electives	5
<hr/>	
<i>Total number units required</i>	16

*Any combination of two semesters work in English literature, English composition, drama, journalism, speech, or a third unit of the foreign language; or 2 units of a second foreign language.

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 Alaska and sons and daughters of University of Washington alumni. The School of Nursing 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 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 her 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 should be submitted by published deadlines. (For specific dates see Calendar, pages 4-12.) 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 her own state.

All entering freshmen are 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 her 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.

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; 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 32 for applicants who have had college work.

Legal Residents of the State of Washington and the Territory of Alaska 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; 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 and the Territory of Alaska

The University scholarship requirement for nonresidents* or students residing outside the state of Washington or the territory of Alaska, 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 or the territory of Alaska 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 REQUIREMENTS FOR ALL APPLICANTS

The minimum requirement of the University is 16 high school units¹ (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 School of Nursing must include 9 units in academic subjects as follows:

English	3 units	One laboratory science	1 unit
One foreign language	2 units	Social science	1 unit
Elementary algebra	1 unit	Electives	7 units
Plane geometry or second-year algebra	1 unit		

¹ 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.

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 School of Nursing, deficiencies in admission requirements may be removed after entrance.

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 School of Nursing 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 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 the School of Nursing until all entrance deficiencies have been removed, *nor can 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 Division of Adult Education and Extension Services (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 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

Applicants are admitted to the University and to the School of Nursing by transfer from accredited colleges, universities, and junior colleges under the following conditions:

1. The applicant must present an admission and scholastic record equivalent to that required of resident students of the University. In general, the University will not accept a student who is in scholastic difficulty at her former school.
2. *Applicants who are legal residents of the state of Washington or territory of Alaska 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 2.00 (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.

3. Complete transcripts and letters of honorable dismissal must be sent directly to the University Registrar by the registrar of the former school. Failure to supply complete college credentials will be considered a serious breach of honor and may result in permanent dismissal from the University.

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

^o Sons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska may apply for consideration if they meet the scholarship standing required of resident students, outlined 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 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 fourth-year 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 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. A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit.

6. 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.

7. 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.

8. 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 Division of Adult Education and Extension Services. 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.

9. 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.

10. 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.

11. 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 TO THE GRADUATE NURSE PROGRAM

Candidates for admission to the graduate nurse program must be graduates of an accredited high school and an approved school of nursing, and must be registered to practice nursing in a state or country. High school preparation should include: 3 units of English; either 1 unit of algebra and 1 of plane geometry or 2 units of algebra; and 1 unit each of a laboratory science and social science and 2 additional units from subjects listed. (See page 31.) All deficiencies should be made up prior to entrance. Effective Autumn Quarter, 1959, basic psychiatric preparation will be required before an application for a degree can be submitted.

Prospective students should request from the University Registrar an application for admission to advanced standing in the University. The form should be completed and returned to the Registrar, and the following should be sent directly to the Registrar 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, 2 Park Avenue, New York 16, N. Y. 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 field work in health agencies until all 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) and has removed all deficiencies. The background program must be completed before the clinical or field experience during the senior year.

A test for public health nursing will be required of all students in the final quarter of residence.

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 School of Nursing.

ADMISSION TO POST-BACHELOR'S AND MASTER'S DEGREE PROGRAMS

Candidates for admission to the post-bachelor's and master's degree programs 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. They must meet the admission requirements of the Graduate School as outlined in the *Graduate School Bulletin*.

Prospective students should request from the University Registrar an application for admission to the Graduate School. The form should be completed and returned to the Registrar, and the following should be sent directly to the Registrar from the principal or registrar of each institution: (1) two official transcripts from the college or university; (2) two official transcripts 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.

In addition to the application for admission to the Graduate School, a separate application for admission to the School of Nursing is required. This form should be obtained from and returned directly to the School of Nursing.

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. The official record of Canadian

students is the matriculation certificate or university admission certificate of their province. A student who has graduated from a school system that provides less than twelve years of instruction may be required to take additional high school work. Students who have been in university attendance must have official transcripts forwarded (see Current Admission Requirements, page 29).

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 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.

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 40).

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.*

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 4-12).

ADVISING

After notification of admission, and before registration, new students must report to the School of Nursing for assistance in planning their course programs. The School of Nursing maintains advisory offices in the Health Sciences Building.

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 their college or 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 college or school concerned 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 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 prior to the seventh week 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 from 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, and a cumulative average of 2.00 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. 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 number of 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 is 180 academic credits (including Health Education 110 or 175) and the required quarters of physical education activity.

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

SENIOR-YEAR RESIDENCE

Senior standing is attained when 135 credits and the required credits in 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.

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 school or college concerned. 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 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 Departments 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 also 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 \$25.00

A resident student is one who has been domiciled in Washington or Alaska 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

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

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 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) 15.00

Full-time nonresident students 82.50

Part-time nonresident students (registered for 6 credits or less) 50.00

ASUW Fees

Membership, per quarter 8.50

Optional for 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, \$3.00.

Breakage Ticket Deposit 3.00

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

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 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
Full-time nonresident student	498.00

<i>Athletic Admission Ticket (optional)</i>	3.00-5.00
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<i>Accident Insurance (optional)</i>	3.60
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Special Fees and Deposits

Breakage ticket	3.00
Microscope Rental Fee	3.50

<i>Books and Supplies</i>	75.00
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Board and Room

Room and meals in Residence Halls	540.00-630.00
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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 is obtained from the Inter-fraternity or Panhellenic Council)

In addition to the above yearly costs, students should be prepared to pay the cost of transportation between the University campus and the clinical units and in public health nursing. This amount will vary from quarter to quarter. Approximately \$100.00 will be needed for the purchase of uniforms.

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.

CLUBS, HONORARY AND FRATERNAL SOCIETIES

Students enrolled in nursing are eligible for all University activities, including scholastic honoraries, sororities, clubs, student government, sports, and recreational events.

The national professional nursing sorority, Alpha Tau Delta, is represented on the campus by Delta chapter. All nursing students are eligible for membership in the Nurses' Club and Caduceans.

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.

Scholarships and loans specifically for nursing students are listed below.

BASIC NURSING DEGREE PROGRAM. A limited number of scholarships are available to students enrolled in nursing. Awarded on the basis of University scholarship, need, and professional ability, these scholarships include: the University of Washington Nurses' Alumnae Award, the University of Washington Nurses' Memorial Scholarship, the Swedish Hospital Nurses' Alumnae Association Award, the Elizabeth Sterling Soule Scholarship, the Evelyn H. Hall Memorial Scholarship, the Mason Clinic Scholarship, the Jane Angove Scholarship, and the Kellogg Foundation Scholarship and Loan Fund. Additional scholarships are available from time to time.

GRADUATE NURSE DEGREE, POST-BACHELOR'S, AND MASTER'S DEGREE PROGRAMS. A limited number of scholarships and loans are available including: the Wealthy Ann Robinson Scholarship, awarded biennially to a student in public health nursing; the Evelyn H. Hall Memorial Award, granted to a graduate of the University of Washington School of Nursing, Harborview Division; the Swedish Hospital Board of Trustees Scholarship, granted to a graduate of the Swedish Hospital Division; the Grace Harter Nelson Scholarship Award, granted to a graduate of the Virginia Mason Hospital Division; the Mary S. Loomis Loan Fund; and the Washington State Nurses' Association Loan Fund, available in the amount of \$200 to graduate nurses who have satisfactorily completed one or more quarters of study at the University of Washington. A limited number of fellowships in teaching, research, and administration are available to students in master's degree programs.

An emergency loan fund available to all University students is administered by 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 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 personal counseling to students who need help with their educational and vocational planning. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical psychologists, works closely with other student services and supplements the academic advisory program.

HOUSING

Accommodations are available to women in the Women's Residence Halls. Interested students should write to Manager, Women's Residence Halls, University of Washington, Seattle 5, Washington. Housing is available to men in the Men's Residence Halls. For further information write to the Manager, Men's Residence Halls, 1201 Campus Parkway, Seattle 5, Washington. Information about sororities may be obtained from the Panhellenic Council, Student Union Building, University

of Washington, and about fraternities from the Interfraternity 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 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 SERVICES

The University maintains a health center and infirmary to 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.

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.

PART-TIME WORK

Hospitals in Seattle and adjacent communities offer opportunities for part-time employment for basic and graduate nurse students. Nursing assignments can be adjusted to the student's academic schedule. The student who plans to work part time as a graduate nurse during her University program must be registered currently in the state of Washington. She should write to the Professional Division, Department of Licenses, Olympia, Washington, for an application blank and a list of state requirements.

Part- and full-time work off campus may be obtained at the University Placement Office. Because job listings change rapidly, application should be made in person after residence in Seattle has been established. Placement in jobs on the campus is handled by the Personnel Office and the ASUW Personnel Office.



THE PROGRAMS IN NURSING

THE PROGRAMS IN NURSING

TWO 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. In addition, post-bachelor's and post-master's programs in selected clinical areas and public health nursing are offered to graduate students. Programs leading to the degree of Bachelor of Science in Nursing include preparation for beginning positions in public health nursing.

The School presents courses of general interest open to any University student, and courses in specific clinical fields available to undergraduate students in other schools of nursing.

Students in other colleges of the University who wish to receive simultaneously a degree from the School of Nursing 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'S DEGREE

Students working toward the degree of Bachelor of Science in Nursing must meet certain general requirements of the University and the School as well as the particular course requirements of the nursing curriculum. These general requirements include scholarship and minimum credits, physical education, course requirements, and senior-year residence.

Students should file application for the Bachelor of Science in Nursing degree during the first quarter of the senior year. A student may choose to graduate under the graduation requirements of the bulletin published most recently before the date of her entry into the school in which she is to graduate, provided that not more than ten years have elapsed since that date. As an alternative, she may choose to fulfill the graduation requirements as outlined in the school bulletin published most recently before the date of her graduation. All responsibility for fulfilling graduation requirements will rest with the student concerned. No student whose standing is provisional because she has not removed her entrance deficiencies can have an application for degree accepted until the deficiency is cleared.

BACHELOR OF SCIENCE IN NURSING

BASIC DEGREE

A shortened basic curriculum leading to the degree of Bachelor of Science in Nursing is now offered by the University of Washington School of Nursing. The new program evolved as a result of a five-year research project to find ways to shorten and improve the program in basic nursing education. The pattern is planned for four academic years plus one Summer Quarter in either the freshman or sophomore year, as determined by the School of Nursing.

All students will enroll in the following courses during the freshman year:

<i>Courses</i>	<i>Credits</i>
Humanities 101, 102, 103	15
English 101, 102, 103	9
Chemistry 100 or 110, 120	8 or 9
Health Education 110 or 175	2
Nursing 101, 102	4
Electives (Humanities, Social Sciences)	7 or 6
Physical Education activities (including 112, 114)	3

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 new curriculum will include courses in the humanities, social sciences, and natural sciences in addition to the major in nursing. A rich variety of nursing experiences 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.

GRADUATE NURSE

The University offers a Bachelor of Science in Nursing for graduate nurses who are seeking a broad background of general and professional education as preparation for further professional practice. Designed to extend the previous preparation of the nurse, the curriculum 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 supervision. Public health nursing preparation 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 other health agencies.

The graduate nurse candidate for a bachelor's degree is advised to select proportionately those scientific and cultural courses which will strengthen her major field of nursing and to establish 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 as follows: 9 credits each in English composition and required public health and social work courses; 15 credits in biological and physical science and 15 credits in social science; 90 credits in professional courses including credit from a school of nursing; and 42 credits in electives. The following is a suggested curriculum (for course titles and descriptions, see page 53):

FIRST QUARTER	CREDITS	SECOND QUARTER	CREDITS	THIRD QUARTER	CREDITS	FOURTH QUARTER	CREDITS
Nursing 365	2	Biological or physical science . . .	5	Nursing 417	3	Nursing 418	3
Biological or physical science . . .	5	English 102	3	English 103	3	Biological or physical science . . .	5
English 101	3	Sociology 310	5	Public Health 420 . .	2	Public Health 423 . .	3
Psychology 100 . . .	5	Electives	2	Public Health 423 . .	3	Social Work 300 . .	3
				Electives	4	Electives	5
	15		15		15		16

FIFTH QUARTER	CREDITS	SIXTH QUARTER	CREDITS	SEVENTH QUARTER	CREDITS	EIGHTH QUARTER	CREDITS
Social science		Nursing 361	2	Nursing 366	2	Nursing 405	3
elective	5	Electives	14	Nursing 419	3	Nursing 406	5
Electives	10			Electives	8	Nursing 459	2
	<u>15</u>		<u>16</u>		<u>13</u>		<u>10</u>

A total of 180 credits plus physical education activity is required. Sixty credits in this program must be in upper-division courses.

GRADUATE PROGRAMS

The School of Nursing offers post-bachelor's programs and two master's degree programs designed to assist the student in the development of superior competence in the major field. Students in these programs must meet graduate admission requirements as outlined in the *Graduate School Bulletin* (see also page 35). The choice of bulletin (see page 47) does not apply to advanced degrees.

The applicant for either the post-bachelor's program or master's degree programs is advised to study the available offerings in order to determine which program will meet her needs. Majors are offered in nursing education, nursing service administration, mental health and psychiatric nursing, public health nursing, medical-surgical nursing, and maternal-child 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.

POST-BACHELOR'S

Post-bachelor's programs of study are offered to graduate nurses who are seeking advanced preparation for supervision or teaching in an area of special interest or who wish to increase their skills in providing expert nursing care in a clinical area. Field or clinical courses are designed to meet individual student needs for guided experience. For the most part these programs are planned on a two-quarter basis. They emphasize increased professional competence, additional facility in leadership roles, and guided experience in administrative and instructional techniques and in use of community facilities. Selected courses from the post-bachelor's program may apply toward the master's degree. The student is advised to select from available offerings those courses which will best meet her professional objectives. A supplementary program in public health nursing is also offered. Suggested plans for specific programs will be sent upon request.

MASTER'S DEGREES

Curricula are offered leading to the following advanced degrees in nursing:

MASTER OF ARTS, an academic degree with a minor in the arts or social sciences.

MASTER OF NURSING, a professional degree with emphasis on advanced preparation in a nursing specialty. Supporting courses are elected rather than a minor, and there is no foreign language requirement.

These curricula provide for graduate study and advanced professional preparation and research in a selected clinical area, in teaching or administration in schools of nursing, or nursing services in hospitals, or public health agencies. They are designed to develop superior professional competence and prepare the graduate for positions of administrative, teaching, or advanced clinical responsibility and for assumption of leadership in nursing.

All students enrolled in these programs carry out original research in nursing and present written theses. The student has the opportunity to select from the total University offerings those courses which enrich personal life and professional practice. It is assumed that the student has prior understanding, either through experience or education, of the field of nursing in which she wishes to specialize.

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, 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 and are determined by the student's interest and departmental prerequisites.

POST-MASTER'S WORK

Students who hold the master's degree may enroll for an additional period of study. Individual programs may be planned to include advanced work: supporting sciences or related fields, advanced clinical field work, and independent research in nursing.

COURSES

Courses numbered 101 through 299 are lower-division courses for freshmen and sophomores; those numbered from 300 through 429 are upper-division courses, for juniors and seniors. Courses open to graduate students only are numbered 500 and above, although courses numbered 430 through 499 may carry graduate credit for graduate students.

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 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 |
| | Communication and observation skills basic to nursing. Role of nurse in meeting health needs. The health team. Lectures, discussions, field visits. Beginning nursing students and nonmajors. | |
| 102 | Introduction to Professional Nursing (2) | Nash |
| | Orientation to the profession. Emphasizing attitudes and abilities basic to nursing care. Lectures, discussions, observation, field visits for beginning nursing students and nonmajors. | |
| 220 | History of Nursing (3) | Leahy, Nash |
| | A study of nursing from earliest times, with emphasis on the place of nursing in world history and the present social order. | |
| 224 | Advanced Nursing Arts (4) | Frederickson |
| | Advanced principles and practice of nursing including medical treatments and surgical techniques. Two hours of lecture, two hours of group conference, three hours of laboratory, six hours of supervised clinical laboratory practice, and six hours of nursing activities. For students in the basic nursing research program. | |
| 254 | Introduction to Medical-Surgical Nursing (5) | Midthun, Kerby, D. Burke |
| | An introduction to the nursing care of patients with medical and surgical conditions of the cardiovascular and gastro-intestinal systems of the body. Lectures, nursing classes, demonstrations, and discussions. For students in the basic nursing research program. | |
| 255 | Medical-Surgical Nursing (6) | Midthun, Kerby, D. Burke |
| | The nursing care of patients with medical and surgical conditions of the eye, ear, nose, and throat, respiratory, endocrine, and musculoskeletal systems of the body. For students in the basic nursing research program. | |
| 256 | Introduction to Medical-Surgical Nursing Practice (5) | Midthun, Kerby, D. Burke |
| | Fifteen hours of selected supervised laboratory practice correlated with Nursing 254. Two hours of group conference and fifteen hours of nursing activities. For students in the basic nursing research program. | |
| 257 | Medical-Surgical Nursing Practice (5) | Midthun, Kerby, D. Burke |
| | Fifteen hours of selected supervised laboratory practice correlated with Nursing 255. Two hours of group conference and fifteen hours of ward nursing activities. For students in the basic nursing research program. | |

- 291 Principles and Practice of Elementary Nursing (5)** Brandt, Enos, Hay, Mack
Elementary nursing techniques; practice in elementary nursing. Two lectures, two two-hour laboratories, and four hours of supervised clinical practice weekly.
- 295 Advanced Nursing Procedures and Methods of Planning Individualized Nursing Care (3)** Brandt, Enos, Hay, Mack
Advanced general nursing procedures; clinical nursing care study; practice in planning nursing care with reference to physical, emotional, social, and economic needs of patients.
- 296 Principles of General Medicine, Surgery, Otolaryngology, and Nursing Care (5)** Hansen, Normark, Lilleoren, Pedersen
Diseases of the cardiovascular system; malignant neoplasms; diseases of the blood; diseases of the gastrointestinal system; diseases of the endocrine and integumentary system; medical conditions of the genitourinary tract; eye, ear, nose, and throat conditions. Survey of fields, with etiology, pathology, symptoms, complications, treatment, prevention, and specialized nursing care of each condition. Medical lectures, nursing demonstrations, and clinics; recording and nomenclature.
- 297 Practice in Elementary Nursing and Special Hospital Departments (2)** Brandt, Enos, Frederickson, Hay, Mack
Elementary medical-surgical nursing practice correlated with laboratory, X ray, pharmacy, and central service. One-hour conference and twelve hours of hospital practice weekly.
- 300 Principles of Medical and Surgical Specialties and Their Nursing Care (5)** Staff
Survey of the fields of ophthalmology; allergic conditions; orthopedics; neurology and neurosurgery; surgical urology; emergency and first-aid treatment. Etiology, pathology, symptoms, complications, treatment, prevention, and specialized nursing care of the various conditions. Medical lectures, nursing demonstrations, and clinics; recording and nomenclature.
- 301 Medical Nursing Practice (5)** Hansen, Pedersen
Application of principles of nursing care in medical diseases. One quarter of experience in general medical nursing, including geriatrics and dermatology. Experience in teaching class for diabetic patients. Case assignment and ward rounds. One-hour clinic, one-hour conference, and thirty hours of hospital practice weekly.
- 302 Principles of Preventive Medicine and Nursing Care in Communicable Disease (4)** Pedersen, Tjelta
Etiology, modes of transmission, symptomatology, complication, treatment, and methods of prevention and control of acute communicable and venereal diseases. Emphasis is on medical aseptic technique and specialized nursing care as it relates to community health and orientation to other community agencies concerned. Medical lectures, nursing demonstrations, and clinics.
- 303 Operating Room Practice (5)** Brockenridge, Lilleoren
One quarter of experience in operating-room nursing and emergency cases. Care of the anesthetized patient. One-hour conference, one-hour clinic, and thirty hours of hospital practice weekly.
- 305 Communicable Disease Nursing and Dietary Practice (5)** Gannon, Northrop, Pedersen, Tjelta
One quarter of experience, including six weeks of segregated communicable disease nursing; two weeks of food clinic or four weeks of diet therapy practice; four weeks in outpatient and special departments. One-hour clinic, one-hour conference, and thirty hours of hospital practice weekly.
- 306 Surgical Nursing Practice (5)** Normark, Brown
One quarter of experience in general surgical nursing, including orthopedics and physical therapy. Case and team assignment. Diet therapy practice is integrated. One-hour clinic, one-hour conference, and thirty hours of hospital practice weekly.
- 330 Principles of Obstetrics and Obstetric Nursing (5)** McConnell, Osmond, Ullrich
Anatomical, physiological, and psychological aspects of prenatal and postpartum periods; care during normal, operative, and complicated labor; nursing care of mother and baby in home and hospital; introduction to community agencies concerned with prenatal care. Gynecological nursing is included. Medical lectures and nursing demonstrations.
- 331 Obstetric Nursing Practice (5)** McConnell, Osmond, Ullrich, Bruno
One quarter of experience in obstetric and gynecological nursing. Nursing care of patients during prenatal, labor, and postpartum periods, including care of the newborn; experience in prenatal and postpartum clinics, formula room. Diet therapy practice is integrated. One-hour clinic, one-hour conference, and thirty hours of hospital practice weekly.
- 332 Principles of Pediatrics and Pediatric Nursing (5)** Stewart, Peters
Development of well children; principles of care; prevention of illness. Medical and nursing care of sick infants and children in home and hospital; introduction to community agencies concerned with child care. Medical lectures and nursing demonstrations.
- 333 Pediatric Nursing and Nursery School Practice (5)** Stewart, Peters
One quarter of experience in pediatric nursing with experience in related well-baby clinic. Diet therapy practice is integrated. Case assignments; one-hour clinic, one-hour conference, and thirty hours of hospital practice weekly.
- 339 Introduction to Health Teaching (2)** Christian
Orientation to teaching functions of the nurse in both hospital and community situations.
- 400 Principles of Psychiatry and Psychiatric Nursing (5)** Wittmor
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.
- 401 Psychiatric Nursing Practice (5)** **Wittmer**
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, and thirty hours of hospital practice weekly, with psychiatric staff conference and written projects.
- 402 Principles of Tuberculosis Nursing Care (2)** **Heinemann**
Use of special therapies; rehabilitation; prevention and control; public health and social aspects. Lectures and demonstrations.
- 403 Tuberculosis Nursing Practice (3)** **Heinemann**
Supervised experience in developing principles for solving selected problems in care of tuberculous patients. Six weeks of clinical practice in the medical and surgical treatment of tuberculosis, with planned rotation through the departments in a tuberculosis sanatorium, including use of community agencies and clinics. One-hour ward clinic, one-hour nursing conference, and thirty hours of hospital practice weekly, with nursing projects and staff conferences.
- 404 Nursing in Surgical Specialties (4)** **Brown, Little**
Six weeks of experience in urology, gynecology, eye, ear, nose and throat. Neurosurgery and emergency surgical nursing. Diet therapy practice is integrated. Case assignment, one-hour clinic, one-hour conference, and thirty hours of hospital practice weekly.
- 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.
- 406 Public Health Nursing Practice (5)** **Cobb, 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 conference.
- 407 Principles of Ward Management and Bedside Teaching (3)** **Nash**
Problems of ward administration. Emphasis is upon the supervisory and teaching functions of the charge nurse, with attention to the provision of patient teaching; human relations in the ward situation are stressed. To be taken concurrently with 408.
- 408 Senior Nursing Practice (5)** **Gray, Nash, Svelander, Staff**
One quarter of advanced nursing practice in one field of student's choice (if possible). Opportunity for advanced patient care; experience as team leader and as assistant head nurse; charge nurse on days, evenings, and nights; experience in arranging basic clinics and leading basic conferences. Individual projects, weekly conferences, and thirty hours of hospital practice weekly. To be taken concurrently with 407.
- 409 Professional Problems in Nursing (2)** **Svelander**
Responsibilities of the professional nurse to the community. Study of professional organizations, opportunities in various fields of nursing, legislation, accreditation, and professional literature.
- 410 Advanced Medical-Surgical Nursing (4)** **Midthun, Kerby, D. Burke**
Six weeks of classes devoted to the care of patients with medical and surgical conditions of the excretory, nervous, skin, and integumentary systems of the body. For students in the basic nursing research program.
- 411 Advanced Medical-Surgical Nursing Practice (3)** **Midthun, Kerby, D. Burke**
Six weeks of experience correlated with Nursing 410. Fifteen hours of selected supervised laboratory practice, two hours of group conference, and fifteen hours of ward nursing activities. For students in the basic nursing research program.
- 412 Scientific Principles in Nursing Care (2)** **Staff**
A study of selected problems in nursing care in terms of the principles from the social, physical, biological, and health sciences involved. Two hours of group conference. For students in the basic nursing research program.

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 students enrolled in other accredited schools of nursing. Students enrolled in these courses must meet the admission requirements of the University of Washington.

COURSES FOR ANY UNIVERSITY STUDENT

- 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.)

- 315 Nursing for Physical Therapists (2)** **Staff**
Selected nursing activities and techniques used for students in the physical therapy program.
- 316 Nursing for Physical Therapists (2)** **Staff**
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 BASIC NURSING AFFILIATE STUDENTS

- 250 Introduction to Psychiatry and Psychiatric Nursing (5)** **Hilde**
Elementary psychiatric nursing and mental health concepts used in the nursing care of mentally ill patients, including special therapies and rehabilitation programs. Lectures and demonstrations.
- 251 Selected Psychiatric Nursing Practice (5)** **Hilde**
Orientation to the nursing care of selected patients. One-quarter clinical practice with rotation through departments of the mental hospital; men's and women's active and continued treatment, patient services; special medical and rehabilitative therapies departments; one-hour ward clinic, one-hour nursing conference, and thirty hours of hospital practice weekly, with psychiatric staff conferences.
- 252 Introduction to Nursing Care and Treatment of Tuberculosis (2)** **Patrick**
Basic concepts of treatment, rehabilitation, prevention, and control. Lectures and demonstrations.
- 253 Selected Tuberculosis Nursing Practice (3)** **Patrick**
Elementary principles of care applied to treatment and management of selected patients with tuberculosis. Six weeks of clinical practice in medical and surgical nursing of tuberculosis, with planned rotation through the departments in a tuberculosis sanatorium, including use of community agencies and clinics. One-hour ward clinic, one-hour conference, and thirty hours of hospital practice weekly, with nursing care study and staff conferences.

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)** **Mansfield, Staff**
Two-hour weekly discussions and case conferences based on the contribution of special fields of nursing in the solution of specific patient care problems. Faculty members from the various specialty areas present cases for the discussions, which are coordinated by a public health faculty member in order to bring out the public health and mental health aspects. To be taken concurrently with 419.
- 406 Public Health Nursing Practice (5)** **E. Burke, Staff**
Experience in generalized public health nursing with 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 conference.
- 417 Principles of Teaching Nursing and Health (3)** **Mansfield**
Application of learning principles to effective teaching methods and nursing techniques.
- 418 Supervision in Nursing (3)** **Smith**
Principles of supervision as they apply to nursing and health services. Emphasis is placed upon an understanding of the importance of interpersonal relations, as well as the use of effective supervisory techniques.
- 419 Contemporary Nursing in the Hospital (3)** **Mansfield, Staff**
Two-hour weekly conferences or clinics and four-hour weekly clinical laboratory experience in nursing situations in the hospital. Conferences and experience are based on the needs of the individual student and emphasize fundamental and unique problems in nursing care. To be taken concurrently with 366.

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. She is responsible for providing her own uniforms and her own transportation 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.

During the time the student is in the public health agency, she averages not more than a forty-hour week, including classes, conferences, and field practice.

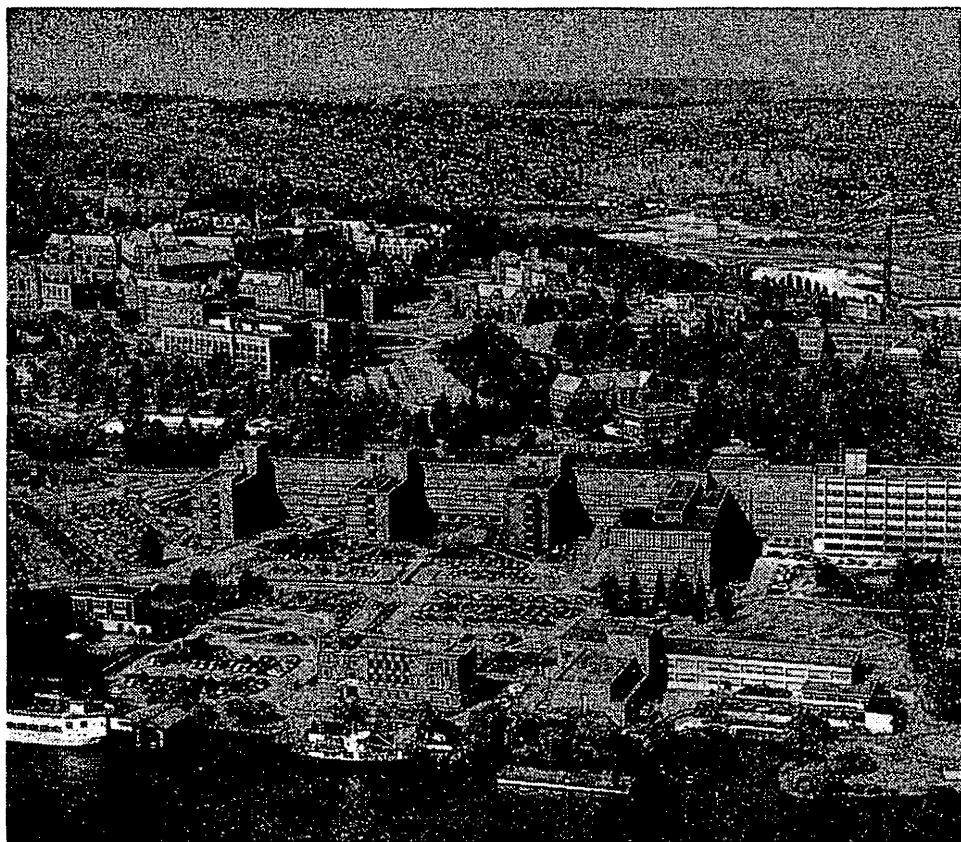
COURSES FOR POST-BACHELOR'S AND MASTER'S STUDENTS

- 430 Advanced Nursing Field Work (3)** **Staff**
Practical development of advanced principles of nursing with supervision in solving selected patient problems. Planned experience in nursing care of patients involved in active medical and rehabilitative treatment programs in medical-surgical, maternal-child, or psychiatric nursing areas.
- 431 Advanced Nursing Field Work (2)** **Staff**
Practical development of advanced principles of nursing care. Emphasis on development of nursing skills. Selected supervised experience in developing personal proficiency in team situations. Prerequisite, Nursing 430.
- 435 Practice Supervision in Nursing (3)** **Smith, Staff**
One quarter of experience in a selected clinical field. Opportunity for planned practice in administrative functions in nursing. Prerequisite, 454, experience in field, or permission.
- 436 Practice Teaching in Nursing (3)** **Mansfield**
One quarter of experience in a selected clinical field with opportunity for planned practice 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; control of facilities in the nursing situation and budgetary techniques. 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.
- 459 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.
- 462 Teaching in Schools of Nursing (3)** **Mansfield**
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 and Psychology 100, or permission.
- 463 Personnel Guidance Programs in Nursing (3)** **Lucas**
The development, aims, and objectives of personnel guidance programs. Major areas are developed to enable the nurse to apply principles in the organization, administration, and function of guidance in nursing. Prerequisite, Education 447 or permission.
- 464 The Role of the Nurse in Mental Hygiene (2-3)** *****
Lecture and discussion in prevention of emotional problems as they relate to the role of the nurse in her contacts with families and community agencies. Three credits are allowed if an approved clinical or field project is completed. 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.
- 485 School Health Problems (2)** **Leahy**
Analysis of and planning for school health programs based on developmental needs of the school-age child. For nonmedical students. Offered jointly with the School of Medicine. 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 Department of Public Health and Preventive Medicine. Open to any senior or graduate university student. Prerequisite, permission.
- 493 Public Health Nursing Aspects of Adult Hygiene (3)** *****
Community facilities and public health nursing care of the adult and aging population.
- 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, preparation and experience in public health nursing and permission.
- 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**
Discussion, analysis of situations in administration of schools of nursing. Prerequisite, 455 or equivalent.
- 505 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)** *****
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)** **Lucas**
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 Nursing and Psychosomatic Conditions (3)** *****
Seminar and selected weekly clinical experiences designed to develop greater understanding of interrelationships of physical and emotional aspects of illness, and to develop skills essential to implementation of psychosomatic approach in nursing. Prerequisite, basic course in psychiatric nursing or permission.
- 512 Advanced Fields in Psychiatric Nursing (3)** **Lucas**
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. 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**

* Faculty to be appointed.

BULLETIN • UNIVERSITY OF WASHINGTON



COLLEGE OF PHARMACY

1957-1959

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; and publications of the Division of Adult Education and Extension Services, the correspondence study and extension 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 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 ARTS AND SCIENCES
COLLEGE OF BUSINESS ADMINISTRATION
COLLEGE OF EDUCATION
COLLEGE OF ENGINEERING
COLLEGE OF FORESTRY
GRADUATE SCHOOL
SCHOOL OF LAW
SCHOOLS OF MEDICINE AND DENTISTRY
SCHOOL OF NURSING
COLLEGE OF PHARMACY

Other Bulletins

PRELIMINARY SUMMER ANNOUNCEMENT
SUMMER QUARTER ANNOUNCEMENT
CORRESPONDENCE STUDY
EXTENSION CLASSES

BULLETIN
UNIVERSITY OF WASHINGTON
General Series No. 908
February, 1957

Published monthly at Seattle, Washington, by the University of Washington from October to July, inclusive. No issues in August and September. Entered as second-class matter December 18, 1947, at the post office at Seattle, Washington, under the Act of August 24, 1912.

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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.

ADMINISTRATION

BOARD OF REGENTS

CHARLES M. HARRIS, <i>President</i>	Entiat
WINLOCK W. MILLER, <i>Vice-President</i>	Seattle
GRANT ARMSTRONG	Chehalis
THOMAS BALMER	Seattle
DONALD G. CORBETT	Spokane
CHARLES F. FRANKLAND	Seattle
MRS. J. HERBERT GARDNER	La Conner

Helen Hoagland, *Secretary*

OFFICERS OF ADMINISTRATION

HENRY SCHMITZ, Ph.D.	<i>President of the University</i>
HAROLD P. EVEREST, M.A.	<i>Vice-President of the University</i>
ETHELYN TONER, B. A.	<i>Registrar</i>
NELSON A. WAHLSTROM, B.B.A.	<i>Comptroller and 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>

COLLEGE OF PHARMACY FACULTY

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.

- 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 (1934), *Professor of Pharmacognosy; Acting Chairman of the Department 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, *Assistant 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
- PAYOT, PIERRE H., 1956, *Assistant Professor of Pharmacognosy*
M.D., 1947, Ph.D., 1953, Basel
- PLEIN, ELMER M., 1938 (1951), *Professor of Pharmacy*
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
- NAUMANN, WALTER, D.D.S., *Supervisor, Drug Plant Gardens*
- ROTH, WILLIAM, Ph.D., *Assistant State Chemist*

CALENDAR

All fees must be paid at the time of registration. Registration is by appointment only.

SUMMER QUARTER, 1957

REGISTRATION PERIOD

JUNE 5-JUNE 7
JUNE 17-JUNE 21

Registration for all students. (*Registration appointments for students in residence Spring Quarter, 1957, and for former students not in residence Spring Quarter, 1957, may be obtained from the Registrar's Office beginning April 22. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.*)

ACADEMIC PERIOD

JUNE 24-MONDAY
JUNE 25-TUESDAY
JUNE 28-FRIDAY
JULY 4-THURSDAY
JULY 24-WEDNESDAY
JULY 25-THURSDAY
JULY 26-FRIDAY
AUG. 23-FRIDAY

Instruction begins
Last day to add a course for the first term
Last day to add a course for the full quarter
Independence Day holiday
First term ends
Second term begins
Last day to add a course for the second term
Instruction ends

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

SEPT. 9-OCT. 1
SEPT. 13-OCT. 1
SEPT. 16-SEPT. 27
SEPT. 16-OCT. 1

Registration for students in residence Spring Quarter, 1957. (*Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 24, but no later than September 20.*)

Registration for former students not in residence Spring Quarter, 1957. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 24, but no later than September 20.*)

Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 12, for application deadlines. Registration appointments will be mailed with notification of admission.*)

Registration for new transfer students with at least full sophomore standing (*August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 12, for application deadlines. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

SEPT. 30—MONDAY	Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.
OCT. 2—WEDNESDAY	Instruction begins (8 a.m.) for all other students
OCT. 8—TUESDAY	Last day to add a course
NOV. 11—MONDAY	State Admission Day holiday
NOV. 27—DEC. 2	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 20—FRIDAY	Instruction ends (6 p.m.)

WINTER QUARTER, 1958

REGISTRATION PERIOD

NOV. 25—DEC. 13	Registration for students in residence Autumn Quarter, 1957. (<i>Registration appointments will be issued on presentation of ASUW cards beginning October 25.</i>)
JAN. 2—JAN. 3	Registration for former students not in residence Autumn Quarter, 1957. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 25.</i>)
JAN. 2—JAN. 3	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

JAN. 6—MONDAY	Instruction begins
JAN. 10—FRIDAY	Last day to add a course
FEB. 22—SATURDAY	Washington's Birthday and Founder's Day holiday
MAR. 21—FRIDAY	Instruction ends

SPRING QUARTER, 1958

REGISTRATION PERIOD

FEB. 26—MAR. 14	Registration for students in residence Winter Quarter, 1958. (<i>Registration appointments will be issued on presentation of ASUW cards beginning January 24.</i>)
MAR. 26—MAR. 28	Registration for former students not in residence Winter Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.</i>)
MAR. 26—MAR. 28	Registration for new students. (<i>New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

MAR. 31—MONDAY	Instruction begins
APR. 4—FRIDAY	Last day to add a course
MAY 23—FRIDAY	Governor's Day

MAY 30—FRIDAY	Memorial Day holiday
JUNE 8—SUNDAY	Baccalaureate Sunday
JUNE 13—FRIDAY	Instruction ends
JUNE 14—SATURDAY	Commencement

SUMMER QUARTER, 1958

REGISTRATION PERIOD

JUNE 4—JUNE 6	Registration for all students. (<i>Registration appointments former students not in residence Spring Quarter, 1958, for students in residence Spring Quarter, 1958, and for may be obtained from the Registrar's Office beginning April 21. New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Summer Quarter. Registration appointments for new students will be mailed with notification of admission.</i>)
JUNE 16—JUNE 20	

ACADEMIC PERIOD

JUNE 23—MONDAY	Instruction begins
JUNE 24—TUESDAY	Last day to add a course for the first term
JUNE 27—FRIDAY	Last day to add a course for the full quarter
JULY 4—FRIDAY	Independence Day holiday
JULY 23—WEDNESDAY	First term ends
JULY 24—THURSDAY	Second term begins
JULY 25—FRIDAY	Last day to add a course for the second term
AUG. 22—FRIDAY	Instruction ends

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

SEPT. 8—SEPT. 30	Registration for students in residence Spring Quarter, 1958. (<i>Registration appointments will be issued by the Registrar's Office on presentation of ASUW cards beginning May 23, but no later than September 19.</i>)
SEPT. 12—SEPT. 30	Registration for former students not in residence Spring Quarter, 1958. (<i>Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning May 23, but no later than September 19.</i>)
SEPT. 15—SEPT. 26	Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 12, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)
SEPT. 15—SEPT. 30	Registration for new transfer students with at least full sophomore standing. (<i>August 31 is the last day for new students to submit applications, with complete credentials, for admission in Autumn Quarter. See Admission, page 12, for application deadlines. Registration appointments will be mailed with notification of admission.</i>)

ACADEMIC PERIOD

SEPT. 29—MONDAY

Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

OCT. 1—WEDNESDAY

Instruction begins (8 a.m.) for all other students

OCT. 7—TUESDAY

Last day to add a course

NOV. 11—TUESDAY

State Admission Day holiday

NOV. 26—DEC. 1

Thanksgiving recess (6 p.m. to 8 a.m.)

DEC. 19—FRIDAY

Instruction ends (6 p.m.)

WINTER QUARTER, 1959

REGISTRATION PERIOD

NOV. 20—DEC. 12

Registration for students in residence Autumn Quarter, 1958. (*Registration appointments will be issued on presentation of ASUW cards beginning October 23.*)

DEC. 29—DEC. 31

Registration for former students not in residence Autumn Quarter, 1958. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning October 23.*)

DEC. 29—DEC. 31

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Winter Quarter. Registration appointments will be mailed with notification of admission.*)

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

MAR. 20—FRIDAY

Instruction ends

SPRING QUARTER, 1959

REGISTRATION PERIOD

FEB. 24—MAR. 13

Registration for students in residence Winter Quarter, 1959. (*Registration appointments will be issued on presentation of ASUW cards beginning January 23.*)

MAR. 25—MAR. 27

Registration for former students not in residence Winter Quarter, 1959. (*Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 23.*)

MAR. 25—MAR. 27

Registration for new students. (*New students should submit applications for admission, with complete credentials, at least thirty days before the beginning of Spring Quarter. Registration appointments will be mailed with notification of admission.*)

ACADEMIC PERIOD

MAR. 30—MONDAY

Instruction begins

APR. 3—FRIDAY

Last day to add a course

MAY 22—FRIDAY

Governor's Day

MAY 30—SATURDAY

Memorial Day holiday

JUNE 7—SUNDAY

Baccalaureate Sunday

JUNE 12—FRIDAY

Instruction ends

JUNE 13—SATURDAY

Commencement



GENERAL INFORMATION

GENERAL INFORMATION

IN 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 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 a member of the University Division of Health Sciences, which also includes the Schools of Dentistry, Medicine, and Nursing. The Division was established to coordinate the teaching and research of these four members and to strengthen and reinforce each of them. In the basic science areas, for which a joint staff is maintained, teaching and research are planned to meet the special needs of each group in the Division.

The College of Pharmacy is accredited by the American Council on Pharmaceutical Education as a Class A college. It is a member of the American Association of Colleges of Pharmacy.

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 model prescription pharmacy; a drug service department; and a stockroom.

DRUG PLANT GARDENS AND LABORATORY

The Drug Plant Gardens of the College comprise approximately four and a half acres of garden area, including a laboratory building that contains five greenhouses, three research laboratories, a classroom, drug grinders, 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 plant constituents.

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 most 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

The College of Pharmacy offers a five-year course consisting of one prepharmacy year and a four-year professional program. Candidates admitted with less than 45 college credits will be enrolled in the prepharmacy program; 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. All new students must have complete credentials of all previous secondary and college education forwarded by the principal or registrar of the last school attended direct to the Registrar of the University no later than July 15.
2. A grade-point average of 2.00 (C) is required of legal residents of the state of Washington and the territory of Alaska 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 or territory of Alaska, 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 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 training (45 academic quarter credits) with a minimum grade point average of 2.00. (Non-residents see page 15.)

Candidates must have completed the following minimum requirements or their equivalent:

CREDITS		CREDITS	
English 101, 102, 103 Composition.....	9	Mathematics 105 College Algebra.....	5
Chemistry 100 or 110, 150, 160 Gen.....	10-11	Physical Education 110 or 175 Health	
Chemistry 170 Qualitative Analysis.....	5	Education or Personal Health	2
Mathematics 104 Plane Trigonometry....	3	Approved Electives	12-13

Electives should be selected from the humanities and social sciences.

See College of Arts and Sciences Bulletin under Group Requirements for list of subjects.

ADMISSION PROCEDURE

Admission to the professional program of the College of Pharmacy is selective and 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 forms supplied by the Registrar's office.
2. Appear for a personal interview. Appointments for interviews are made with the Chairman of the Admissions Committee through the office of the College. All students must complete their interviews by May 31.
3. 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 ADMISSIONS 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 Alaska 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, pages 12-19.

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 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 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 15).

All entering freshmen are 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 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 17 for applicants who have had college work.

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

The University scholarship requirement is a high school grade point 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 Athletic 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, 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 and the Territory of Alaska

The University scholarship requirement for nonresidents^o or students residing outside the state of Washington or the territory of Alaska 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.

^oSons and daughters of University of Washington alumni residing outside the state of Washington or the territory of Alaska 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 units¹ (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 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 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

¹ 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.

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. *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 \$18.00 per course) and do not carry University credit.

ADMISSION BY EXAMINATION

A graduate of a *nonaccredited* 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 9896, 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 professional instruction.

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 or territory of Alaska 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. 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 or territory of Alaska, 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 or territory of Alaska 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 or the territory of Alaska 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 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. No credit will be allowed in the senior year.

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

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.

A veteran who has attended a recognized Armed Forces training school and has then attended a junior college may be granted credit for such service credit upon the terms and subject to the limitations set forth in the regulation governing acceptance of Armed Forces training schools credit, and, in addition, shall be allowed up to a maximum of 90 quarter credits from the junior college exclusive of physical education activity credits.

2. 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.

3. 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 members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination.

4. 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 Division of Adult Education and Extension Services. 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.

5. 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.

6. 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 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 15 and 17.

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 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 a foreign pharmacy school who wish to register as pharmacists in the state of Washington shall complete not less than two years of additional work and must have received the B.S. degree from an accredited College of Pharmacy. Canadian pharmacy school graduates shall complete one year of additional work and must have received 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 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 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 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.

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 22).

REQUIRED TESTS AND EXAMINATIONS**APTITUDE TESTS**

New students of freshman standing (including transfer students with less than 45 quarter hours of 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 50 (Elementary Composition) 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 three 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 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.

CHEST X RAY

An annual chest X ray is required of all students. Directions for complying with this requirement are given at the time of registration.

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, filing his class cards, and depositing his registration book at Sections, 101 Administration Building.

APPOINTMENTS

All students must have definite registration appointments each quarter. New students are given appointments when they are notified of admission and 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) may obtain registration appointments by writing or telephoning the Registrar's Office at the time specified in the Calendar (see page 5). Students in residence may obtain appointments at the time announced in the Calendar.

ADVISING

After notification of admission, and before registration, new students should visit or write to the College for help 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 its equivalent) or more than 16 credits (or its 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 its 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 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 prescribed 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

A resident student is one who has been domiciled in Washington or Alaska 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

Prospective students are classified as nonresidents when their credentials come from schools outside Washington and Alaska. If they believe they are residents, they may petition the Nonresident Tuition 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 non-resident 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), per year 3.00-5.00

Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters, \$3.00; Spring Quarter, \$3.00.

Military Uniform Deposit, per year 25.00

Paid by students in Army and Air Force ROTC; refundable when uniform is returned in good condition. Limitation on refund to Army ROTC students 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 is charged for each additional copy.	
Transcript Fee	.50
One transcript is furnished without charge; the fee is charged for each additional copy. Supplementary transcripts are 25 cents each.	
Graduation Fee	10.00

SPECIAL FEES

From \$2.00 to \$5.00 is charged for late registration; \$2.00 for each change of registration; \$5.00 for a late medical examination; and \$1.00 for a late X ray. The fee for a special examination is \$1.00; for an advanced-credit examination, \$2.00 per credit; and for removal of an Incomplete, \$2.00.

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.

PHYSICAL EDUCATION ACTIVITY FEES, per quarter are: Bowling, \$3.00. 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. Riding Fee is payable to riding academy and varies in amount.

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	183.00
Full-time nonresident student	408.00
Athletic Admission Ticket (optional)	3.00-5.00
Accident Insurance (optional)	4.35
Special Fees and Deposits	38.50

Military uniform deposit, breakage, ticket, and locker fee.

Books and Supplies	75.00
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Board and Room

Room and meals in Men's Residence Halls	600.00
Room and meals in Women's Residence Halls	540.00-630.00
Room and meals in student cooperative house	510.00
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 Council.

Personal Expenses	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-eight 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.

VISIT 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, Lambda Kappa Sigma Sorority, Linton Memorial, Merck-Sharp and Dohme, and the Bristol Laboratories. Other scholarships, fellowships and grants are:

L. D. BRACKEN SCHOLARSHIP FUND, amount varies. A \$10,000 gift to the College of Pharmacy was made in 1956 by Mrs. L. D. Bracken and Mr. Jim L. Bracken in memory of L. D. Bracken, prominent Seattle pharmacist. Income and/or principal are to be used for aiding students who have completed one year in the College of Pharmacy.

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.

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, \$100. Four 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, \$25-50. 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, \$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 \$150 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 \$1,500 a year is available upon approval of the Foundation to students in the upper 25 per cent of their class who are preparing for careers in pharmaceutical education or industry.

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 and is in a position to direct 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 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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical psychologists, works closely with other student services on campus 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. Housing is available to women in the Women's Residence Halls. For further information write to Manager, Women's Residence Halls, University of Washington, Seattle 5, Washington. The Students' Cooperative Association, 1114 East Forty-fifth Street, operated independently from the University, has low-cost accommodations for both men and women. 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, students' cooperatives, and church-sponsored living groups. Other types of living arrangements must be approved by the Office of the Dean of Students.

Married students 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 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. 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

THE PROGRAMS IN PHARMACY

THE 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 Army, the Navy, and other government departments. Teaching and research careers in colleges of pharmacy 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.

Further information about licensure requirements may be obtained from the State Board of Pharmacy, 1337 Fourth Avenue, Seattle.

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. All responsibility for fulfilling graduation requirements shall rest with the student concerned.

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 (that is, 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 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 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 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 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.

Exemptions from the activity requirement are granted to:

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 Department of Physical Education for Men or Women, whichever is appropriate. All other students who are reported by the University Health Officer as unfitted to join regular classes will be assigned by the Executive Officer of the Department of Physical 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 Physical 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 Physical Education 175. Veterans with six months 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 Physical Education 110, a course in health education, within the first three quarters of residence. This requirement may be satisfied by passing a health-knowledge examination given during the Autumn Quarter registration period for women entering the University for the first time. Successfully passing this test exempts the student from the requirement but does not grant credit for Physical Education 110.

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, plus the required quarters of ROTC and physical education, have been earned. In 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 extension or correspondence courses.

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.

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 School of Medicine.

Graduate students majoring in each Department of the College of Pharmacy 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 major professor.

MASTER OF SCIENCE. Candidates must have the degree of Bachelor of Science in Pharmacy 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 45 credits in course work and thesis must be presented with not less than 27 credits of course work exclusive of nonthesis research.

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.

A total of not less than 135 credits of course work and thesis must be presented with not less than 56 credits of course work exclusive of nonthesis research. This rule shall not apply to those graduate students enrolled before January 1, 1955. 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 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*.

CURRICULUM

The four-year curriculum leading to the degree of Bachelor of Science in Pharmacy is outlined below. Only those students who can graduate by the end of Spring Quarter, 1960 may enroll in this curriculum.

First Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Pharm. 101- Principles . . . 3-		Pharm. -102- Principles . . . 3-		Pharm. -103 Principles . . . 3	
Pharm. 104 Hist. Pharm. 2		Bot. 111 Elementary . . . 5		Chem. 160 General . . . 3	
Chem. 100 or 110 . . . 3-4		Chem. 150 General . . . 4		Chem. 170 Qual. Analysis . . 3	
General . . . 3-4		Engl. 102 Composition . . . 3		Engl. 103 Composition . . . 3	
Engl. 101 Composition . . . 3		Phys. Educ. activity . . . 1		Math. 101 Intermediate	
Phys. Educ. 110 or 175 . . . 2		ROTC 2		Algebra 5	
Health 2			16-18	Phys. Educ. activity . . . 1	
Phys. Educ. activity . . . 1				ROTC 2	
ROTC 2					18-20
	14-17				

Second Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Pharmacog. 212- Pharm-		Pharmacog. -213- Pharm-		Pharmacog. -214 Pharm-	
acognosy 3-		acognosy 3-		acognosy 3	
Pharm. 209- Prescriptions 3-		Pharm. -210- Prescrip-		Pharm. -211 Prescriptions-3	
Chem. 237 Organic		tions 3-		Chem. 239 Organic	
Pharmaceutical 5		Chem. 238 Organic		Pharmaceutical 5	
Physics 101 & 107 5		Pharmaceutical 5		Zool. 208 Physiol. 5	
General 5		Physics 102 & 108		ROTC 2	
ROTC 2		General 5			16-18
	16-18	ROTC 2			
			16-18		

Third Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Pharm. Chem. 325		Pharm. Chem. 326		Pharmacol. 303 General . . 3	
Quant. Pharm. Anal. . . 5		Quant. Pharm. Anal. . . 5		Phys. Educ. 292 First	
Pharmacog. 304 Pharm-		Pharmacog. 411 Hormones 3		Aid and Safety 3	
acog. Laboratory 3		Micro. 301 General Micro. 5		Approved electives 10	
Econ. 201 Principles . . . 5		Pharmacol. 302 General . . 3			16
Pharmacol. 301 General . . 3			16		
	16				

Fourth Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Pharm. Chem. 340- Or-		Pharm. Chem. -341- Or-		Pharm. Chem. -342 Or-	
ganic Med. Prod. . . . 3-		ganic Med. Prod. . . . -2-		ganic Med. Prod. . . . -2	
Pharm. Chem. 395 Pharm.		Pharm. Chem. 396 Pharm.		Pharm. Chem. 497 Pharm.	
Chem. 3		Chem. 3		Chem. 5	
Pharm. 313- Adv.		Pharm. -314- Professional-5-		Pharm. -315 Prof.	
Prescript. 5-		Pharm. 318 Pharm. Acctg. 5		Management -5	
Pharm. 382 Modern			15	Pharmacog. 412 Serums . . 2	
Pharmaceuticals 5				Approved electives 3	
	16				17

The following five-year curriculum will begin Autumn Quarter, 1957.

First Year (Prepharmacy)

See page (12)

Second Year

AUTUMN QUARTER	CREDITS	WINTER QUARTER	CREDITS	SPRING QUARTER	CREDITS
Bot. 111 Elementary . . . 5		Chem. 232 & 242 Organic 5		Pharm. 204 Orientation . . 2	
Chem. 231 & 241 Organic 5		Physics 102 & 108 or		Chem. 333 Intermed. . . . 3	
Physics 101 & 107 5		103 & 109 General 5		Organic 3	
General 5		Zool. 111 General 5		Micro. 301 General 5	
ROTC 2		ROTC 2		Zool. 112 General 5	
	15-17		15-17	ROTC 2	
					15-17

Third Year

AUTUMN QUARTER	CREDITS
Pharm. Chem. 325 Quant.	
Pharm. Anal.	5
Biochem. 481 Biochemistry	4
Physiol. & Biophys. 360	
Gen. Hum. Physiol.	5
Approved electives	2
	<hr/> 16

WINTER QUARTER	CREDITS
Pharm. Chem. 326 Quant.	
Pharm. Anal.	5
Pharmacol. 301 General	3
Pharm. 331- Preparations	5
Biochem. 482 Biochemistry	3
	<hr/> 16

SPRING QUARTER	CREDITS
Pharmacog. 312- General	4
Pharmacol. 302 General	5
Pharm. -332 Preparations	5
Approved electives	2
	<hr/> 16

Fourth Year

AUTUMN QUARTER	CREDITS
Pharm. Chem. 440 Org.	
Med. Prod.	3
Pharmacog. -313- General	4
Econ. 200 Introduction	5
Market. 381 Retailing	5
	<hr/> 17

WINTER QUARTER	CREDITS
Pharm. Chem. 441 Org.	
Med. Prod.	3
Pharmacog. -314 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. 412 Immun.	
Agents	3
Bus. Writing 310 Bus.	
Correspond.	5
Approved electives	2
	<hr/> 16

Fifth Year

AUTUMN QUARTER	CREDITS
Pharm. Chem. 395 Pharm.	
Chem.	3
Pharm. 407- Dispensing	5
Pharm. 450 Pharm. Laws	3
Approved electives	5
	<hr/> 16

WINTER QUARTER	CREDITS
Pharm. -408- Dispensing	5
Pharm. 451 Spec. Pharm.	
Pract.	3
Approved electives	8
	<hr/> 16

SPRING QUARTER	CREDITS
Pharm. Chem. 497	
Toxicology	3
Pharm. -409 Dispensing	5
Pharm. 452 Prof.	
Management	3
Approved electives	5
	<hr/> 16

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

- 301 Bibliography Technique (2)** McCarthy
Use of scientific literature, preparation of abstracts, and assignments in selected pharmaceutical topics.
- 325 Quantitative Pharmaceutical Analysis (5)** Krupski
Principles of volumetric analysis with special emphasis on medicinal compounds. Prerequisite, Chemistry 170.
- 326 Quantitative Pharmaceutical Analysis (5)** Krupski
Principles of gravimetric and colorimetric analysis applied to medicinal compounds. Prerequisite, 325.
- 340-341-342 Organic Medicinal Products (3-2-2)** Fischer
Nomenclature, classification, synthesis, properties, structure, and activity of medicinal products. Prerequisite, Chemistry 239 or 333. (Last time offered, Spring Quarter, 1960.)
- 395, 396 Pharmaceutical Chemistry (3,3)** Fischer
The chemistry of pharmaceuticals and their constituents with respect to the physical and chemical methods used in standardization. Prerequisite, 326.
- 430 Inorganic Medicinal Products (3)** Staff
Classification, nomenclature, physical and chemical properties of inorganic medicinal compounds; and a discussion of radioactive medicinal products. Prerequisite, Chemistry 170. (First time offered, Spring Quarter, 1961.)

- 440, 441, 442 Organic Medicinal Products (3,3,3)** **Fischer**
Nomenclature, classification, synthesis, properties, structure, and activity of medicinal products. (Formerly 340-341-342.) Prerequisite, Chemistry 333. (First time offered, Autumn Quarter, 1960.)
- 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 tissues. Prerequisites, 326 and Chemistry 239 or 333. (Last time offered, Spring Quarter, 1961.)
- 497 Toxicology (3)** **Fischer**
Separation and identification of poisons from animal tissues. Prerequisites, 326 and Chemistry 333. (First time offered, Spring Quarter, 1962.)
- 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 1958-59.)
- 520 Seminar (1, maximum 3)** **Staff**
Graduate students attend seminars every quarter while in residence, but a maximum of 1 credit per year is allowed.
- 521, 522, 523 Advanced Organic Medicinal Products (3,3,3)** **Huitric**
Synthesis, isolation, and relation between structure and physiological activity for the important classes of medicinal agents. (Offered every third year; offered 1957-58.)
- 526, 527, 528 Advanced Organic Medicinal Products Laboratory (2,2,2)** **Huitric**
Synthesis of important medicinal products and isolation of active principles from natural sources. (Offered every third year; offered 1957-58.)
- 531 Plant Chemistry (3)** **McCarthy**
Alkaloids, including methods of isolation, degradation studies, proof of structure, and synthesis of alkaloids, with emphasis on pharmaceutical compounds. (Offered every third year; offered 1959-60.)
- 532 Plant Chemistry (3)** **McCarthy**
Production, isolation, and chemistry of the volatile oils and of sterols, with emphasis on pharmaceutical compounds. (Offered every third year; offered 1959-60.)
- 533 Plant Chemistry (3)** **McCarthy**
Glycosides and related compounds, including methods of isolation, proof of structure, synthesis, and activity, with emphasis on pharmaceutical compounds. (Offered every third year; offered 1959-60.)
- 600 Research (*)** **Fischer, Huitric, Krupski, McCarthy, Orr**
Thesis (*) **Staff**

PHARMACOGNOSY

Acting Chairman: FOREST J. GOODRICH, 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 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)** **Goodrich**
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)** **Staff**
The application of microscopic and microchemical methods in the study of vegetable and animal drug principles. Prerequisites, -214 and Chemistry 239 or 333. (Last time offered, Autumn Quarter, 1960.)
- 312-313-314 General Pharmacognosy (4-4-4)** **Staff**
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, Chemistry 333. (First time offered, Spring Quarter, 1960.)
- 405 Advanced Pharmacognosy (3)** **Goodrich**
A laboratory course covering advanced techniques in pharmacognosy.
- 406 Medicinal Plants (2)** **Goodrich**
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, -214 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 Zoology 208 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, -313- and Microbiology 301. (First time offered, Spring Quarter, 1961.)
- 499 Undergraduate Research (1-5)** **Goodrich**
Research problems in pharmacognosy. Open to qualified juniors and seniors.

COURSES FOR GRADUATES ONLY

- 520 Seminar (1, maximum 3)** **Staff**
Graduate students attend seminars every quarter while in residence, but a maximum of 1 credit per year is allowed.
- 600 Research (*)** **Goodrich**
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

- 101-102-103 Fundamental Principles and Processes of Pharmacy (3-3-3)** **Hall**
Manufacture of U.S.P. and N.F. galenic preparations; development of laboratory technique. (Last time offered, Spring Quarter, 1958.)
- 104 History of Pharmacy (2)** **Orr**
Development of the science and profession of pharmacy and its literature. (Last time offered, Autumn Quarter, 1957.)
- 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)** **Or**
A study of the profession of pharmacy, its development and its literature. (Formerly 104). (First time offered, Spring Quarter, 1959.)
- 209-210-211 Prescriptions (3-3-3)** **Plein**
Fundamental principles of prescription compounding and dispensing, with emphasis on accuracy and technique. Pharmaceutical Latin and prescription reading are included. Prerequisites, -103 and Chemistry 170 or equivalent. (Last time offered, Spring Quarter, 1959.)
- 251 Elementary Pharmacy (2)** **Hall**
Fundamental theory of dispensing pharmacy and pharmacy arithmetic. For students in the school of Nursing.
- 261 Pharmacology and Therapeutics for Nurses (3)** **Hall**
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)** **Cannon**
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 Pharmaceutic Preparations (5-5)** **Hall**
A study of pharmaceutical dosage forms including processes, physical principles and metrology involved in their preparation. Prerequisites, Physics 102 and 108, Microbiology 301, and Chemistry 333. (First time offered, Winter Quarter, 1960.)
- 352 Pharmacy and Therapeutics for Dental Hygienists (3)** **Hall**
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, Chemistry 239 or equivalent, and senior standing. (Last time offered, Autumn Quarter, 1960.)
- 407-408-409 Dispensing Pharmacy (5-5-5)** **Plein**
Principles of prescription compounding and dispensing, including a study of some commercially-prepared modern pharmaceuticals. Prerequisite, 332. (First time offered, Autumn Quarter, 1961.)
- 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, 1961.)
- 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, 1962.)
- 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, 1962.)
- 473 Cosmetic Manufacturing (3)** **Rising**
Preparation of many types of cosmetics and study of their physical, chemical, and physiological properties. Prerequisite, Chemistry 239 or 333.
- 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 3)** **Staff**
Graduate students attend seminars every quarter while in residence, but a maximum of 1 credit per year is allowed.

- 540 Pharmaceutical Emulsions (2)** **Rising**
Problems in the preparation of emulsions in pharmaceutical manufacturing. Prerequisites, Chemistry 239 and either 351, 352, or equivalent.
- 550 Solvents and Solvent Extraction (2)** **Plain**
Theories of solvent extraction and the use of solvents applied to pharmaceutical manufacturing. Prerequisite, permission.
- 600 Research (*)** **Hall, Plain, Rising**
Thesis (*) **Staff**

OTHER COURSES FOR PHARMACY STUDENTS

BIOCHEMISTRY

- 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. Prerequisites, Chemistry 337 for 481; 481 or permission for 482; introductory physical chemistry is recommended.

BOTANY

- 111 Elementary Botany (5)** **Staff**
Structure, physiology, and reproduction of seed plants. Open for only 3 hours credit 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.)
- 231, 232 Organic Chemistry (3,3)** **Staff**
For students in premedicine and predentistry and others desiring two quarters of organic chemistry. Structure, nomenclature, reactions, and synthesis of the main types of organic compounds. Prerequisite, 150.
- 237, 238, 239 Organic Pharmaceutical Chemistry (5,5,5)** **Huitric**
The chemistry of the carbon compounds and their application to pharmacy. For pharmacy students only. Prerequisite, Chemistry 170.
- 241, 242 Organic Chemistry Laboratory (2,2)** **Staff**
241: preparation of representative compounds. Prerequisite, 231, which may be taken concurrently. 242: preparations and qualitative organic analysis. Prerequisite, 241 and 232, which may be taken concurrently.
- 333 Intermediate Organic Chemistry (3)** **Staff**
Electronic mechanism of organic reactions; less common compounds and reactions. Prerequisite, 232.

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.
- 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.

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 reregistered 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, 303 General Pharmacology (3,3,3)****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. (Last time offered, Spring Quarter, 1959.)

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. (First time offered, Winter Quarter, 1960.)

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 31.

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 31.

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; 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

50 General Physics (0)

Staff

Mechanics and sound; methods for handling problems in physics. For students concurrently registered in 101 with deficiencies. Prerequisite, concurrent registration in 101.

101, 102, 103 General Physics (4,4,4)

Staff

101: mechanics and sound. Concurrent registration in 107 required. Prerequisites, plane geometry, trigonometry, and one year of high school physics. A deficiency in any one or all of these prerequisites must be satisfied by concurrent registration in 50. 102: electricity and magnetism. No credit if 112 has been taken. Prerequisites, 101 and concurrent registration in 108. 103: heat, light, and modern physics. No credit if 113 has been taken. Prerequisites, 101 and concurrent registration in 109. No credit for 101, 102, 103 without credit in 107, 108, 109, respectively.

107, 108, 109 General Physics Laboratory (1,1,1)

Staff

107: mechanics and sound laboratory to be taken concurrently with 101. 108: electricity and magnetism laboratory to be taken concurrently with 102. 109: heat and light laboratory to be taken concurrently with 103.

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, Chemistry 242 and 333, Physics 102 and 108, Microbiology 301. (First time offered, Autumn Quarter, 1959.)

ZOOLOGY

111, 112 General Zoology (5,5)

Staff

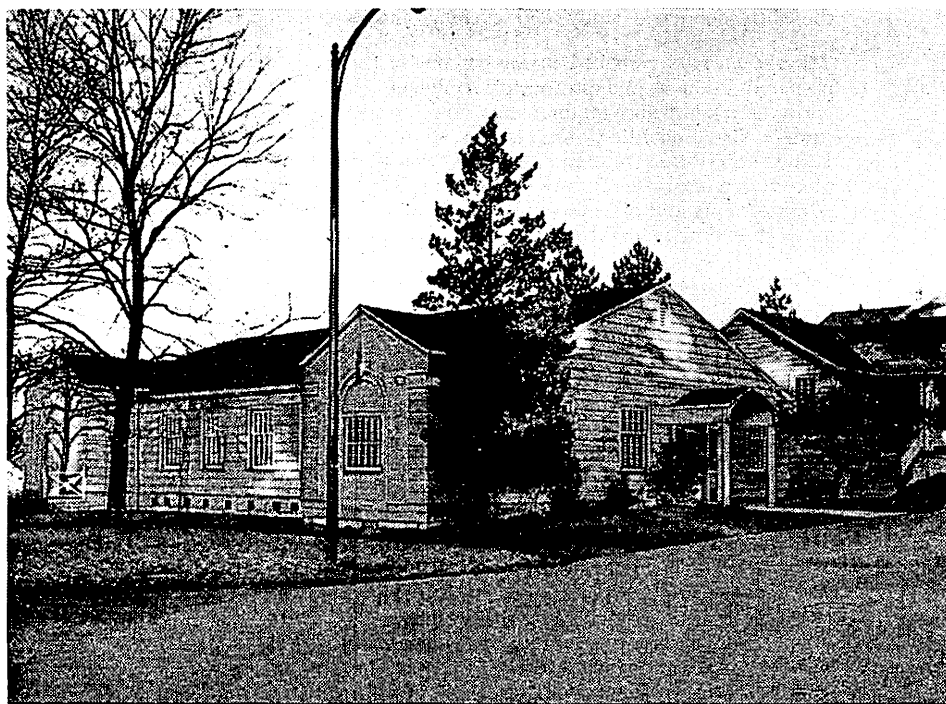
Physical basis of life, structure, function, development, inheritance, evolution, and ecology of animals. 111: invertebrate phyla through molluscs. 112: annelids through chordates. 111 prerequisite for 112.

203 Elementary Human Physiology (5)

Staff

Each organ system is described and its function illustrated in the laboratory. Prerequisite, freshman chemistry.

BULLETIN • UNIVERSITY OF WASHINGTON



SCHOOL OF SOCIAL WORK

1958-1960

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 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

BULLETIN
UNIVERSITY OF WASHINGTON
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CALENDAR

AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS (Autumn Quarter, 1958, through Autumn Quarter, 1960)

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

AUTUMN QUARTER, 1958

REGISTRATION PERIOD

MAY 5-29	Advance Registration only for students in residence Spring 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.
SEPT. 11-30	In-Person Registration for former students not in residence Spring Quarter, 1958, and those attending Spring Quarter, 1958, who failed to complete Advance Registration. Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 9. The deadline for applying for a Permit is <i>September 19</i> . Appointments for completing the registration process in the School of Social Work will be scheduled automatically by that School.
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials.
SEPT. 30	Last day to register for Autumn Quarter, 1958.
OCT. 2-7	Change of registration by appointment only.

ACADEMIC PERIOD

OCT. 1—WEDNESDAY	Instruction begins (8 a.m.)
OCT. 7—TUESDAY	Last day to add a course
NOV. 11—TUESDAY	State Admission Day holiday
NOV. 26-DEC. 1	Thanksgiving recess (6 p.m. to 8 a.m.)
DEC. 15-19	Final examinations
DEC. 19—FRIDAY	Instruction ends

WINTER QUARTER, 1959

REGISTRATION PERIOD

OCT. 27-Nov. 21	Advance Registration 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 Permit to register by writing to or calling at the Registrar's Office <i>no later than December 12</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 Permit to register between <i>November 24</i> and <i>December 12</i> . Deadline for applying for a Permit is

	<i>December 12.</i> Appointments for completing the registration process in the School of Social Work will be scheduled automatically by that School.
DEC. 5	Deadline for ALL new students to submit Applications for Admission with complete credentials.
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
MAR. 16-20	Final examinations
MAR. 20—FRIDAY	Instruction 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 Permit to register by writing to or calling at the Registrar's Office <i>no later than March 13</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 Permit to register between <i>February 24</i> and <i>March 13</i> . Deadline for applying for a Permit is <i>March 13</i> . Appointments for completing the registration process in the School of Social Work will be scheduled automatically by that School.
FEB. 27	Deadline for ALL new students to submit Applications for Admission with complete credentials.
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 22—FRIDAY	Governor's Day
MAY 30—SATURDAY	Memorial Day holiday
JUNE 7—SUNDAY	Baccalaureate Sunday
JUNE 8-12	Final examinations
JUNE 12—FRIDAY	Instruction ends
JUNE 13—SATURDAY	Commencement

SUMMER QUARTER, 1959

REGISTRATION PERIOD

General In-Person Registration for ALL new 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 Registration 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 a request for a Registration Permit, although no appointment date is necessary.

Registration Permits will be issued as follows:

Students in residence Spring Quarter, 1959

Registration Permits will be issued according to class, *only upon presentation of ASUW card in person*, at the Registrar's Office.

Seniors and Graduates.....Monday, April 20, 8 a.m. to 5 p.m.

JuniorsTuesday, April 21, 8 a.m. to 5 p.m.

Former students in residence Spring Quarter, 1959, may obtain Permits to register 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 an Appointment must be received before a fee card can be issued and registration materials 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 4—SATURDAY	Independence Day holiday
JULY 22—WEDNESDAY	Final examinations; first term ends
JULY 23—THURSDAY	Second term begins
JULY 24—FRIDAY	Last day to add a course for the second term
AUG. 21—FRIDAY	Final examinations; second term ends

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. Permits to register may be obtained by writing to or calling at the Registrar's Office, beginning *June 8*. The deadline for applying for a Permit is *September 15*. Appointments for completing the registration process in the School of Social Work will be scheduled automatically by the School.

AUG. 31

Deadline for ALL new students to submit Application for Admission with complete credentials.

SEPT. 29	Last day to register for Autumn Quarter, 1959.
OCT. 1-6	Change of registration by appointment only.

ACADEMIC PERIOD

SEPT. 30—WEDNESDAY	Instruction begins (8 a.m.)
OCT. 6—TUESDAY	Last day to add a course
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	Instruction 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 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 Permit to register between <i>November 23</i> and <i>December 11</i> . Deadline for applying for a Permit is <i>December 11</i> . Appointments for completing the registration process in the School of Social Work will be scheduled automatically by that School.
DEC. 4	Deadline for ALL new students to submit Applications for Admission with complete credentials.
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
MAR. 14-18	Final examinations
MAR. 18—FRIDAY	Instruction 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 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 Permit to register between *February 23* and *March 11*. Deadline for applying for a Permit is *March 11*. Appointments for completing the registration process in the School of Social Work will be scheduled automatically by that School.
- FEB. 26** Deadline for ALL new students to submit Applications for Admission with complete credentials.
- 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 20—FRIDAY | Governor's Day |
| MAY 30—MONDAY | Memorial Day holiday |
| JUNE 5—SUNDAY | Baccalaureate Sunday |
| JUNE 6-10 | Final examinations |
| JUNE 10—FRIDAY | Instruction 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 Registration 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 a request for a Registration Permit, although no appointment date is necessary.

Registration Permits will be issued as follows:

Students in residence Spring Quarter, 1960

Registration Permits will be issued according to class, *only upon presentation of ASUW cards in person*, at the Registrar's Office.

Seniors and Graduates Monday, April 18, 8 a.m. to 5 p.m.

Juniors Tuesday, April 19, 8 a.m. to 5 p.m.

Former students not in residence Spring Quarter, 1960, may obtain Permits to register 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 an Appointment must be received before a fee card can be issued and registration materials processed.

New (entering) students will be mailed their Official Notice of Admission.

ACADEMIC PERIOD

JUNE 20—MONDAY	Instruction begins
JUNE 21—TUESDAY	Last day to add a course for first term
JUNE 24—FRIDAY	Last day to add a course for the full quarter
JULY 4—MONDAY	Independence Day holiday
JULY 20—WEDNESDAY	Final examinations; first term ends
JULY 21—THURSDAY	Second term begins
JULY 22—FRIDAY	Last day to add a course for the second term
AUG. 19—FRIDAY	Final examinations; second term ends

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. Permits to register may be obtained by writing to or calling at the Registrar's Office, beginning June 6. The deadline for applying for a Permit is <i>September 13</i> . Appointments for completing the registration process in the School of Social Work will be scheduled automatically by the School.
AUG. 31	Deadline for ALL new students to submit Applications for Admission with complete credentials.
SEPT. 27	Last day to register for Autumn Quarter, 1960.
SEPT. 29-OCT. 4	Change of registration by appointment only.

ACADEMIC PERIOD

SEPT. 28—WEDNESDAY	Instruction begins (8 a.m.)
OCT. 4—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. 12-16	Final examinations
DEC. 16—FRIDAY	Instruction ends

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.

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
MRS. J. HERBERT GARDNER	La Conner
CHARLES M. HARRIS	Entiat
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>Assistant to the President</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>
VICTOR I. HOWERY, Ph.D.	<i>Dean of the School of Social Work</i>

FACULTY OF THE SCHOOL OF SOCIAL WORK

(As of September, 1958)

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, *Assistant Professor of Social Work*
B.A., 1924, Agustana College; M.A., 1947, Minnesota
- Casey, Michael B., 1956, *Acting Assistant Professor of Social Work*
B.A., 1948, Minnesota; M.A., 1951, Chicago
- Crookes, Spencer H., 1956, *Lecturer in Social Work*
B.A., 1934, Washington; M.S.S.A., 1941, Western Reserve
- Ferguson, Grace B., 1941 (1945), *Professor of Social Work*
B.A., 1917, Minnesota; M.A., 1930, Indiana
- Gronewold, David H., 1954 (1956), *Associate Professor of Social Work*
B.A., 1929, North Central College; M.A., 1952, Chicago
- 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 (1950), *Associate Professor of Social Work*
A.B., 1929, Brown; M.S., 1936, Western Reserve
- Lawrence, Richard Glenn, 1956, *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
- Mundt, LeNora B., 1957 (1958), *Acting Assistant Professor of Social Work*
B.S., 1944, Utah; M.S.W., 1950, Washington
- Mykut, Margaret C., 1951 (1956), *Assistant Professor of Social Work*
B.S., 1938, Oregon; M.S.W., 1944, 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 (1954), *Assistant Professor of Social Work*
B.A., 1932, Iowa; M.A., 1940, Minnesota

* On leave, 1958-1959

Smith, Edmund Arthur, 1957, *Lecturer in Social Work*

B.A., M.A., 1954, Washington; Ph.D., 1957, Harvard

Stutsman, Louise M., 1956, *Lecturer in 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

AFFILIATED FACULTY FROM OTHER UNIVERSITY DEPARTMENTS

Heilbrunn, Gert, *Clinical Associate Professor in 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

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

LIBRARY AND ADMINISTRATIVE STAFF

Humes, Guela G., *Library Supervisor*

Reinhard, Ethel O., *Administrative Secretary*

B.A., 1922, Montana

FIELD WORK INSTRUCTORS AND AFFILIATED AGENCIES

Adams, Roberta, *Washington Children's Home Society*

M.S.W., Washington

Allen, Alethia, *Florence Crittenton Home*

M.S.W., Boston

Allred, James, *Spastic Children's Clinic and Pre-School*

M.S.W., Washington

Benn, Marie, *Family Society of Seattle*

M.A., California

Broad, Audrey E., *Travelers Aid Society*

M.S., Columbia

Brown, Emily, *Jewish Family and Child Service*

M.S.W., Pennsylvania

Brown, Herma, *Washington Children's Home Society*

M.S.W., Washington

Buckland, Richard, *King County Juvenile Court*

M.S.W., Washington

Bundas, Lourene, *Community Psychiatric Clinic*

M.S.W., Washington

Dallas, Constance, *Catholic Children's Services, Tacoma*

M.S.W., Washington

Eby, Lenna, *Firland Sanatorium*

M.S.W., Washington

Farber, Arthur, *Galland (Carolyn Kline) Home for the Aged*

M.S., Columbia

Farley, Dorothy, *Ruth School for Girls*

M.S.W., California

Ford, Marjorie, *Washington Children's Home Society*

M.A., Chicago

Foster, Marjorie W., *King County Public Assistance (North End Branch)*

M.S.W., Southern California

Gallagher, Agnes, *Firland Sanatorium*

M.S.S.W., Saint Louis University

- Gardner, Dorothy, *Seattle Atlantic Center*
M.A., Atlanta
- Haggerty, Marie, *Ryther Child Center*
M.S.W., Washington
- Hannaman, Carl F., *Associated Lutheran Welfare*
M.A., Indiana
- Hardman, Edwin R., *Ryther Child Center*
M.S.W., Washington
- Heye, Ejja, *Tacoma Public Schools*
M.S.W., Washington
- Hershey, Beverly, *Veterans Administration (Social Service)*
M.S.W., Washington
- Hoekstra, Clarice E., *Psychiatric Clinic for Children (University of Washington)*
M.A., Minnesota
- Houghton, Lisbeth, *American Lake Veterans Administration Hospital*
M.S.W., Washington University
- Johnson, Bruce, *Monroe Reformatory*
M.S.W., Washington
- Johnson, Emily, *Rainier School*
M.S.W., British Columbia
- Jones, Eloise, *YWCA—East Madison Branch*
M.S.W., Boston
- Justice, Robert S., *Clinic for Child Study (University of Washington)*
M.S.W., Washington
- Kane, Lucille, *Washington Children's Home Society*
M.S.W., Pennsylvania
- Kazama, Donald, *Veterans Administration (Social Service)*
M.S.W., Washington
- La Forrest, Sylvia, *Seattle Public Schools*
M.S.W., Washington
- MacDonald, Helen M., *Catholic Children's Service, Seattle*
M.S.S.W., Saint Louis
- McLeod, Margaret, *Children's Orthopedic Hospital*
M.S.W., Washington
- Meyer, Alice, *Medina Children's Service*
M.S.W., Washington University
- Miller, Clementine M., *U.S. Veterans Hospital*
M.S.W., Washington
- Nelson, Robert D., *Veterans Administration (Mental Hygiene)*
M.S.W., Washington
- Palace, Arthur L., *Ryther Child Center*
M.S.W., Southern California
- Parrott, George, *Child Guidance Clinic, Tacoma*
M.S.W., Washington
- Peterson, Lorena, *Child Health Center*
M.S.W., Washington
- Post, Nancy, *Psychiatric Clinic for Children (University of Washington)*
M.S.W., Washington
- Pratt, Bettye, *Neighborhood House*
M.S.W., Atlanta
- Preston, Elaine L., *Ruth School for Girls*
M.A., Columbia
- Raftis, Mary, *Veterans Administration*
M.S.S.A., Western Reserve
- Rank, Betty, *Tallmadge Hamilton House*
M.A., California
- Richards, Lee, *Pinel Foundation*
M.S.S., Smith College

- Savery, Mary, *Family Society of Seattle*
M.S.W., Washington
- Schmidl, Fritz, *Veterans Administration*
M.S., Columbia
- Squires, Melvina, *Catholic Children's Service, Seattle*
M.S.W., Washington
- Starkey, Vesta, *Tacoma Indian Hospital*
M.S.W., Washington
- Stimpert, Warren E., *Veterans Administration (Social Service)*
M.S.W., State College of Washington
- Thoreson, Angela, *Family Society of Seattle*
M.S.W., Washington
- Tolmach, Morris, *Veterans Administration (Mental Hygiene)*
M.S.W., Washington
- Varo, Helen, *Tacoma Public Schools*
M.S.W., Washington
- von Lubken, Adele, *King County Public Assistance (South End Branch)*
M.S.W., Denver
- Warinner, Alice, *King County Public Assistance (Children's Division)*
M.A., Chicago
- Webber, Fred, *Parkland Children's Home*
M.S.W., British Columbia
- Weisman, Jane, *American Red Cross*
M.S.W., Washington
- Williams, Margaret, *Seattle Atlantic Street Center*
M.S.W., Pittsburgh
- Wilson, Frances, *Medina Children's Service*
M.S.W., California
- Wood, Vivian, *Tacoma Public Schools*
M.S.W., Washington



GENERAL INFORMATION

GENERAL INFORMATION

THE 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 is now recognized as an independent professional school. It is fully accredited by the Accreditation Commission of the Council on Social Work Education.

The School of Social Work provides educational preparation for positions of professional responsibility in public and private agencies through its accredited program in professional social work education. A preprofessional program is also offered through affiliation with the College of Arts and Sciences.

ADMISSION

Admission to the professional program (graduate) of the School of Social Work is by approved application. The student must meet requirements for graduate study at the University and must apply for admission to the Graduate School. Admission procedure includes the filing of applications to both the Graduate School and the School of Social Work, and a personal interview. Students living at some distance from the campus will be interviewed by a representative of the School of Social Work.

Properly 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 and thus to the School of Social Work in one of the following classifications:

FULL STANDING. The requirement for full standing is a grade-point average of 2.75 or better during the senior year, with the necessary prerequisites for work in the chosen graduate field.

PROVISIONAL STANDING. A grade-point average of less than 2.75, but above 2.50, during the Senior year will, if the student is admitted, result in provisional graduate standing. No student with a grade-point average of less than 2.50 for the Senior year may be admitted to the Graduate School except upon the written recommendation of the major department and the approval of the Dean of the Graduate School. Graduation from a nonaccredited college, or undergraduate deficiency in preparation for advanced work, will also result in provisional standing. 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 status.

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.

It is the student's responsibility to make sure that complete credentials covering all of his previous college education are submitted to the University. 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.

Application should be made as early as possible and before August 31 for admission in the Autumn Quarter. All inquiries and applications to the School of Social Work should be sent to the Dean, School of Social Work, University of Washington. Transcripts of previous collegiate work and applications to the Graduate School should be sent to the Registrar, University of Washington.

Registration as a full-time student occurs only at the opening of the academic year and it is assumed that the applicant intends to complete no less than three consecutive quarters of study.

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 21).

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 admission to the Graduate School and the School of Social Work; (2) his current schedule for credit is satisfactory to the Dean of the School of Social Work; (3) he has completed his registration, including payment of tuition and fees.

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 selective 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.

REGISTRATION 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 appoint-

ment 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 5 credits.

Only courses numbered 400, 500, and 600 can be taken for graduate credit in the major field. Courses numbered 300 are not applicable to credit toward advanced degrees except when applied by permission toward the graduate minor.

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 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 of both the instructor of the course from which withdrawal is sought and of the dean of the college in which the withdrawing students 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 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.

SCHOLARSHIP

Students are expected to make satisfactory progress toward degree requirements. 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. Each student is expected to maintain a record of B or better in each prescribed or elective course. If a grade of less than B is received,

the student is automatically placed upon academic probation. If work in the succeeding quarter is satisfactory, the student is automatically removed from probation. If a student is placed on probation in successive quarters, or his record includes more than an occasional grade of less than B, the student 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 Announcement*.

Each student enrolled in Social Work 515 or Social Work 535 (Field Work and Advanced Field Work) pays a laboratory fee (breakage ticket fee) of \$3.00 per quarter.

Tuition

Resident students, per quarter \$25.00

A resident student is one who has been domiciled in Washington or Alaska 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

Prospective students are classified as nonresidents when their credentials come from schools outside Washington and Alaska. 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) 15.00

Full-time nonresident students 82.50

Part-time nonresident students (registered for 6 credits or less) 50.00

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) 3.00-5.00

Autumn, Winter, and Spring Quarters, \$5.00; Winter and Spring Quarters only, \$3.00; Spring Quarter only, \$3.00.

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.

Language Examination Fee 1.00

This fee is charged for a foreign language reading examination.

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.	
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.	
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
Athletic Admission Ticket (optional)	3.00-5.00
Accident Insurance (optional)	3.60
Books and Supplies	75.00
Board and Room	
Room and meals in Men's Residence Halls	600.00
Room and meals in Women's Residence Halls	540.00-630.00
Personal Expenses	200.00

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 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. Some of the awards are administered by the University and the School of Social Work. Other awards are offered by foundations and agencies interested in social work education and social work practice. Awards run from approximately \$300 per academic year to \$2,400 per academic year.

Interest in applying for a scholarship award should be indicated on the Application for Admission to the School of Social Work. In turn, the interested student will receive a listing of available scholarships from the Chairman of the Faculty Scholarship Committee. Scholarship awards are made annually about the middle of May.

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.

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 personal counseling to students who need help in their adjustments to college living. The staff of the Center, which includes vocational counselors, psychiatric social workers, and clinical 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 obtaining 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.

WORK PLACEMENT

Information concerning 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 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.

Because of the critical shortage of professionally-prepared social workers, permanent employment is assured each graduate. Representatives of major agencies visit the campus each year to recruit graduating students. Position vacancies are maintained in a placement file within the School of Social Work.



THE SOCIAL WORK PROGRAMS

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THE SCHOOL OF SOCIAL WORK offers a program in pre-professional social welfare and a program in professional social work.

PRE-PROFESSIONAL PROGRAM IN SOCIAL WELFARE

Students planning to undertake graduate study in the professional social work curriculum, or students who are interested in appointment to social welfare positions which do not require professional education, may fulfill their interests in social welfare 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, economics, and English. Social welfare courses are available to students in the undergraduate social welfare curriculum. Student advising for career planning is available from social work faculty members.

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 work 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. Each student spends a portion of his time testing his developing knowledge and skill in a health, welfare, or group-work 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-work agencies (approximately \$15.00 per month), and the payment of a special laboratory fee for the field-work 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 work in six quarters, and completion of either an individual thesis or a group research project. The research requirement is more generally met by the completion of a three-quarter research course. Instruction includes material on the methods of social work research and field practice in social work research through group research projects. Field practice includes experience in research design, collection and analysis of data, and preparation of a report. The degree is awarded on the basis of the student's competence in theory and practice, as evidenced through satisfactory completion of all courses. The field work performance is a further test of competence. There is no foreign language requirement.

COURSES

- 300 Survey of Social Service Programs (3)** **Lawrence, Mundi**
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.
- 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. 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.
- 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. Prerequisite, 511.
- 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 knowl-

edge 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)** **Casey, 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. Prerequisite, second-year graduate standing.
- 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.
- Thesis (*)** **Staff**