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

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

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

<table>
<thead>
<tr>
<th>Nov. 25-Dec. 13</th>
<th>Registration for students in residence Autumn Quarter, 1957. (Registration appointments will be issued on presentation of ASUW cards beginning October 25.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 2-Jan. 3</td>
<td>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.)</td>
</tr>
<tr>
<td>Jan. 2-Jan. 3</td>
<td>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.)</td>
</tr>
</tbody>
</table>

### ACADEMIC PERIOD

<table>
<thead>
<tr>
<th>Jan. 6—Monday</th>
<th>Instruction begins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 10—Friday</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>Feb. 22—Saturday</td>
<td>Washington's Birthday and Founder's Day holiday</td>
</tr>
<tr>
<td>Feb. 28—Friday</td>
<td>Last day to submit applications for advanced credit examinations</td>
</tr>
<tr>
<td>Mar. 15—Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Mar. 17—Monday</td>
<td>Final examinations begin</td>
</tr>
<tr>
<td>Mar. 21—Friday</td>
<td>Final examinations and Quarter end</td>
</tr>
</tbody>
</table>

## SPRING QUARTER, 1958

### REGISTRATION PERIOD

<table>
<thead>
<tr>
<th>Feb. 28—Mar. 14</th>
<th>Registration for students in residence Winter Quarter, 1958. (Registration appointments will be issued on presentation of ASUW cards beginning January 24.)</th>
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<tbody>
<tr>
<td>Mar. 26—Mar. 28</td>
<td>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.)</td>
</tr>
<tr>
<td>Mar. 26—Mar. 28</td>
<td>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.)</td>
</tr>
</tbody>
</table>

### ACADEMIC PERIOD

<table>
<thead>
<tr>
<th>Mar. 31—Monday</th>
<th>Instruction begins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr. 4—Friday</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>May 9—Friday</td>
<td>Last day to submit applications for advanced credit examinations</td>
</tr>
<tr>
<td>May 23—Friday</td>
<td>Governor's Day</td>
</tr>
<tr>
<td>May 24—Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>May 30—Friday</td>
<td>Memorial Day holiday</td>
</tr>
<tr>
<td>June 8—Sunday</td>
<td>Baccalaureate Sunday</td>
</tr>
<tr>
<td>June 9—Monday</td>
<td>Final examinations begin</td>
</tr>
<tr>
<td>June 13—Friday</td>
<td>Final examinations and Quarter end</td>
</tr>
<tr>
<td>June 14—Saturday</td>
<td>Commencement</td>
</tr>
</tbody>
</table>
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  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.)

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
Seattle
Seattle
Spokane

HELEN E. HOAGLAND, Secretary

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HENRY SCHMITZ, Ph.D.
ETHELYN TONER, B.A.
NELSON A. WAHLSTROM, B.B.A.
ERNST 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
Steinbreuck, Victor, 1946 (1954), Associate Professor of Architecture
B.Arch., 1935, Washington
Stern, Richard Morris, 1955, Lecturer in Architecture
B.S. in C.E., 1935, North Dakota
Streissguth, Daniel Michener, 1955, Assistant Professor of Architecture
B.Arch., 1948, Washington; M.Arch., 1949, Massachusetts Institute of Technology
Timpe, Carl Louis, 1957, Lecturer in Architecture
Torrence, Gerard Rutgers, 1954, Assistant Professor of Architectural Engineering
B.S. in C.E., 1949, Washington; M.S. in S.E., 1950, Massachusetts Institute of Technology
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

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

COORDINATING COMMITTEE OF GRADUATE PROGRAM IN URBAN PLANNING
Horwood, Edgar M. Associate Professor, Civil Engineering
Schmid, Calvin F. Professor, Sociology
Sherman, John C. Associate Professor, Geography
Webster, Donald H. Professor, Political Science
Wheeler, Bayard O. Professor, Business Administration
Wolfe, Myer R. Associate Professor, Urban Planning

ADVISERS
Horwood, Edgar M., Thesis Adviser Associate Professor, Civil Engineering
Wolfe, Myer R., Registration Adviser Associate Professor, Urban Planning

LIBRARY and ADMINISTRATIVE STAFF
Betty L. Austin Librarian
Mary-Jane Worth Administrative Assistant to the Dean
Eliza M. Hayward Secretary
GENERAL INFORMATION
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-
GENERAL INFORMATION

Supplemental 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.

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 units\(^1\) (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 9\(^{1/2}\) units in academic subjects as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>One foreign language</td>
<td>2</td>
</tr>
<tr>
<td>Algebra</td>
<td>1(^{1/2})</td>
</tr>
<tr>
<td>Plane geometry</td>
<td>1</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>6(^{1/2})</td>
</tr>
</tbody>
</table>

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.

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\(^1\) 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 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.
GENERAL INFORMATION

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

<table>
<thead>
<tr>
<th>Status</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Full-time resident student</td>
<td>$183.00</td>
</tr>
<tr>
<td>Full-time nonresident student</td>
<td>408.00</td>
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Athletic Admission Ticket (optional)

<table>
<thead>
<tr>
<th>Amount</th>
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<tbody>
<tr>
<td>3.00-5.00</td>
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Accident Insurance (optional)

<table>
<thead>
<tr>
<th>Amount</th>
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<tbody>
<tr>
<td>3.75</td>
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Special Fees and Deposits

<table>
<thead>
<tr>
<th>Amount</th>
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<tbody>
<tr>
<td>38.50</td>
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Military uniform deposit, breakage ticket, and locker fees.

Books and Supplies

<table>
<thead>
<tr>
<th>Amount</th>
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<tr>
<td>75.00</td>
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Board and Room

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Room and meals in Men's Residence Halls</td>
<td>600.00</td>
</tr>
<tr>
<td>Room and meals in Women's Residence Halls</td>
<td>540.00-630.00</td>
</tr>
<tr>
<td>Room and meals in fraternity or sorority house</td>
<td>660.00-700.00</td>
</tr>
<tr>
<td>Initial cost of joining is not included; this information may be obtained from the Interfraternity or Panhellenic Council.</td>
<td></td>
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Personal Expenses

<table>
<thead>
<tr>
<th>Amount</th>
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<tbody>
<tr>
<td>200.00</td>
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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.

<table>
<thead>
<tr>
<th>PREPROFESSIONAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
</tr>
<tr>
<td><strong>AUTUMN QUARTER CREDITS</strong></td>
</tr>
<tr>
<td>Arch. 100 Appreciation... 2</td>
</tr>
<tr>
<td>English 101 Composition .. 3</td>
</tr>
<tr>
<td>Math. 104 Plane Trig .. 3</td>
</tr>
<tr>
<td>Approved Electives .... 5</td>
</tr>
<tr>
<td>Health Educ. 110 or 175</td>
</tr>
<tr>
<td>Health ........................ 2</td>
</tr>
<tr>
<td>Phys. Educ. activity ..... 1</td>
</tr>
<tr>
<td>ROTC .......................... 2-3</td>
</tr>
<tr>
<td><strong>WINTER QUARTER CREDITS</strong></td>
</tr>
<tr>
<td>Arch. 101 Appreciation... 2</td>
</tr>
<tr>
<td>English 102 Composition .. 3</td>
</tr>
<tr>
<td>Math. 105 College Algebra 5</td>
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<td>Approved Electives .... 5</td>
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<tr>
<td>Phys. Educ. activity ..... 1</td>
</tr>
<tr>
<td>ROTC .......................... 2-3</td>
</tr>
<tr>
<td><strong>SPRING QUARTER CREDITS</strong></td>
</tr>
<tr>
<td>Arch. 105 The House .... 2</td>
</tr>
<tr>
<td>English 103 Composition .. 3</td>
</tr>
<tr>
<td>Math. 106 College Algebra 5</td>
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<tr>
<td>Approved Electives .... 5</td>
</tr>
<tr>
<td>Phys. Educ. activity ..... 1</td>
</tr>
<tr>
<td>ROTC .......................... 2-3</td>
</tr>
</tbody>
</table>

| **Second Year**               |
| **AUTUMN QUARTER CREDITS**   |
| Arch. 124 Design Gr. I ... 6  |
| Physics 101 General ... 4    |
| Physics 107 General Lab. 1   |
| Approved Electives ... 4     |
| ROTC .......................... 2-3 |
| **WINTER QUARTER CREDITS**   |
| Arch. 125 Design Gr. I ... 6  |
| Art 258 Water Color ..... 3   |
| Physics 102 General ... 4    |
| Physics 108 General Lab. 1   |
| Approved Electives ... 2     |
| ROTC .......................... 2-3 |
| **SPRING QUARTER CREDITS**   |
| Arch. 126 Design Gr. I ... 6  |
| Art 259 Adv. Water Color 3   |
| Physics 103 General ... 4    |
| Physics 109 General Lab. 1   |
| ROTC .......................... 2-3 |

Electives should be approved by the adviser of the College.

<table>
<thead>
<tr>
<th>PROFESSIONAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Third Year</strong></td>
</tr>
<tr>
<td><strong>AUTUMN QUARTER CREDITS</strong></td>
</tr>
<tr>
<td>Arch. 200 History ... 3</td>
</tr>
<tr>
<td>Arch. 224 Design Gr. II ... 7</td>
</tr>
<tr>
<td>Arch. 235 Mech. Equip. ... 2</td>
</tr>
<tr>
<td>Arch. 276 Statics .... 3</td>
</tr>
<tr>
<td><strong>WINTER QUARTER CREDITS</strong></td>
</tr>
<tr>
<td>Arch. 201 History ... 3</td>
</tr>
<tr>
<td>Arch. 225 Design Gr. II ... 7</td>
</tr>
<tr>
<td>Arch. 236 Mech. Equip. ... 2</td>
</tr>
<tr>
<td>Arch. 277 Strength of Materials .. 3</td>
</tr>
<tr>
<td><strong>SPRING QUARTER CREDITS</strong></td>
</tr>
<tr>
<td>Arch. 202 History ... 3</td>
</tr>
<tr>
<td>Arch. 226 Design Gr. II ... 7</td>
</tr>
<tr>
<td>Arch. 237 Mech. Equip. ... 2</td>
</tr>
<tr>
<td>Arch. 278 Trusses .... 3</td>
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</table>
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

<table>
<thead>
<tr>
<th>AUTUMN QUARTER CREDITS</th>
<th>WINTER QUARTER CREDITS</th>
<th>SPRING QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch. 100 Appreciation</td>
<td>Arch. 101 Appreciation</td>
<td>Arch. 105 The House</td>
</tr>
<tr>
<td>English 101 Composition</td>
<td>English 102 Composition</td>
<td>English 103 Composition</td>
</tr>
<tr>
<td>Math. 104 Plane Trig.</td>
<td>Math. 105 College Algebra</td>
<td>Sociol. 110 Survey</td>
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<tr>
<td>Approved Electives</td>
<td>ROTC</td>
<td>ROTC</td>
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<tr>
<td>Phys. Educ. activity</td>
<td>2-3</td>
<td>16-19</td>
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<tr>
<td>ROTC</td>
<td>2-3</td>
<td>16-19</td>
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<td>16-19</td>
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Second Year

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<th>WINTER QUARTER CREDITS</th>
<th>SPRING QUARTER CREDITS</th>
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<tbody>
<tr>
<td>Arch. 124 Design Gr. I</td>
<td>Arch. 125 Design Gr. I</td>
<td>Arch. 126 Design Gr. I</td>
</tr>
<tr>
<td>Physics 101 General</td>
<td>Art 258 Water Color</td>
<td>Art 259 Adv. Water Color</td>
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<tr>
<td>Physics 107 General Lab</td>
<td>Physics 102 General</td>
<td>Physics 103 General</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>Physics 108 General Lab</td>
<td>Phys. Educ. activity</td>
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<tr>
<td>ROTC</td>
<td>ROTC</td>
<td>ROTC</td>
</tr>
<tr>
<td>2-3</td>
<td>2-3</td>
<td>14-17</td>
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<tr>
<td>15-18</td>
<td>16-19</td>
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Electives should be approved by the adviser of the College.

PROFESSIONAL REQUIREMENTS

Third Year

<table>
<thead>
<tr>
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<th>WINTER QUARTER CREDITS</th>
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<tbody>
<tr>
<td>Arch. 200 History</td>
<td>Arch. 201 History</td>
<td>Arch. 202 History</td>
</tr>
<tr>
<td>Arch. 224 Design Gr. II</td>
<td>Arch. 225 Design Gr. II</td>
<td>Arch. 226 Design Gr. II</td>
</tr>
<tr>
<td>Econ. 200 Introduction</td>
<td>Geog. 477 Urban Geog.</td>
<td>Urban Plan. 380 City</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Planning</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>16</td>
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</table>

Fourth Year

<table>
<thead>
<tr>
<th>AUTUMN QUARTER CREDITS</th>
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<th>SPRING QUARTER CREDITS</th>
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<tbody>
<tr>
<td>Arch. 324 Design Gr. III</td>
<td>Arch. 325 Design Gr. III</td>
<td>Arch. 326 Design Gr. III</td>
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<tr>
<td>Econ. 350 Pub. Finance &amp; Taxation</td>
<td>Practice</td>
<td>Plan. Design</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
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</tbody>
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Electives should be approved by the adviser of the College.
<table>
<thead>
<tr>
<th>AUTUMN QUARTER CREDITS</th>
<th>WINTER QUARTER CREDITS</th>
<th>SPRING QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Plan. 491 City</td>
<td>Urban Plan. 492 City</td>
<td>Urban Plan. 493 City</td>
</tr>
<tr>
<td>Plan. Design</td>
<td>Plan. Design</td>
<td></td>
</tr>
<tr>
<td>Civil Engr. 403 Urban</td>
<td>Pol. Sci. 475 Mun. Govt.</td>
<td>Approved Electives</td>
</tr>
<tr>
<td>Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pol. Sci. 376 State &amp;</td>
<td>Approved Electives</td>
<td></td>
</tr>
<tr>
<td>Local Govt.</td>
<td>(usually Pol. Sci. 381)</td>
<td></td>
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<tr>
<td></td>
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</tbody>
</table>

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

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. Use of arches and rigid frames in building construction. Earthquake resistance in design. Prerequisite, 278.

377, 378 Structural Design: Reinforced Concrete (4,4) Radcliffe, Torrence

424, 425, 426 Architectural Design, Grade IV (7,7,7) Staff
Prerequisite, 326.
THE COLLEGE PROGRAMS

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) Larson, 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) Larson, 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.
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
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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**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 9-Oct. 1</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 13-Oct. 1</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 16-Sept. 27</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 16-Oct. 1</td>
<td>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.)</td>
</tr>
</tbody>
</table>

**ACADEMIC PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 30—Monday</td>
<td>Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.</td>
</tr>
<tr>
<td>Oct. 2—Wednesday</td>
<td>Instruction begins (8 a.m.) for all other students</td>
</tr>
<tr>
<td>Oct. 8—Tuesday</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>Nov. 11—Monday</td>
<td>State Admission Day holiday</td>
</tr>
<tr>
<td>Nov. 27—Wednesday</td>
<td>Last day to submit applications for advanced credit examinations</td>
</tr>
<tr>
<td>Nov. 27-Dec. 2</td>
<td>Thanksgiving recess (6 p.m. to 8 a.m.)</td>
</tr>
<tr>
<td>Dec. 14—Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Dec. 16—Monday</td>
<td>Final examinations begin</td>
</tr>
<tr>
<td>Dec. 20—Friday</td>
<td>Final examinations and Quarter end</td>
</tr>
</tbody>
</table>

**WINTER QUARTER, 1958**

**REGISTRATION PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov. 25-Dec. 13</td>
<td>Registration for students in residence Autumn Quarter, 1957. (Registration appointments will be issued on presentation of ASUW cards beginning October 25.)</td>
</tr>
<tr>
<td>Jan. 2-Jan. 3</td>
<td>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.)</td>
</tr>
<tr>
<td>Jan. 2-Jan. 3</td>
<td>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.)</td>
</tr>
</tbody>
</table>
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 exams
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 exams
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 exams for first term
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY 4</td>
<td>Independence Day holiday</td>
</tr>
<tr>
<td>JULY 19</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>JULY 23</td>
<td>Final examinations and first term end</td>
</tr>
<tr>
<td>JULY 24</td>
<td>Second term begins</td>
</tr>
<tr>
<td>JULY 25</td>
<td>Last day to add a course for the second term</td>
</tr>
<tr>
<td>AUG. 1</td>
<td>Last day to submit applications for advanced credit examinations for second term</td>
</tr>
<tr>
<td>AUG. 16</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>AUG. 22</td>
<td>Final examinations and second term end</td>
</tr>
</tbody>
</table>

**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 40, 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 40, 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 ob- |
tained 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
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.)

June 15—June 19
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 22</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>June 23</td>
<td>Last day to add a course for the first term</td>
</tr>
<tr>
<td>June 26</td>
<td>Last day to add a course for the full quarter</td>
</tr>
<tr>
<td>July 3</td>
<td>Last day to submit applications for advanced credit examinations for first term</td>
</tr>
<tr>
<td>July 4</td>
<td>Independence Day holiday</td>
</tr>
<tr>
<td>July 18</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>July 22</td>
<td>Final examinations and first term end</td>
</tr>
<tr>
<td>July 23</td>
<td>Second term begins</td>
</tr>
<tr>
<td>July 24</td>
<td>Last day to add a course for the second term</td>
</tr>
<tr>
<td>July 31</td>
<td>Last day to submit applications for advanced credit examinations for second term</td>
</tr>
<tr>
<td>Aug. 15</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Aug. 21</td>
<td>Final examinations and second term end</td>
</tr>
</tbody>
</table>

**CHANGES IN UNIVERSITY REGULATIONS**

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

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

BOARD OF REGENTS

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

Seattle
Seattle
La Conner
Entiat
Seattle
Seattle
Yakima

HELEN E. HOAGLAND, Secretary

OFFICERS OF ADMINISTRATION

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. WOODBURNE, 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

Gunther, 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

SCHOOL OF ART

Alps, Glen Earl, 1945 (1955), Associate Professor of Art

Anderson, Frederick Neil, 1945 (1955), Assistant Professor of Art

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

Curtis, Elizabeth Long, 1930 (1947), Assistant Professor of Art

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

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

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)

Hafemehl, C. Louis, 1957, Assistant Professor of Art
B.F.A., 1940, Bethany College (Kansas); M.F.A., 1955, Cranbrook Academy of Art (Michigan)

Hensley, Mercedes Hoover, 1939 (1952), Lecturer in Art

Hill, Raymond Leroy, 1927 (1945), Professor of Art
Graduate, 1913, Rhode Island School of Design

Hixson, William John, 1950 (1955), Assistant Professor of Art

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

Moseley, Spencer Altemont, 1948 (1954), Assistant Professor of Art

Patterson, Ambrose McCarthy, 1919 (1947), Professor Emeritus of Painting; Consultant in Painting
National School of Art (Melbourne); Juliens, Colorossi, Delacluse, Whistler Simon, and Lhote Schools of Art (Paris)

Patterson, Viola Hansen, 1947 (1955), Assistant Professor of Art

Penington, Ruth Esther, 1928 (1951), Professor of Art
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

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

Tsutakawa, George, 1946 (1957), Associate Professor of Art

Welman, Valentine S., 1954 (1957), Assistant Professor of Art

ASTRONOMY
Jacobsen, Theodor Siegumfeldt, 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, Doctoraala 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

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, Washington; M.S., 1924, West Virginia; Ph.D., 1926, McGill

Rabinovitch, Benton Seymour, 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

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

Viberg, 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

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
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

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

Hopkins, Thomas Francis, 1956, Acting Instructor in Radio-Television

Irwin, Fles Lee, 1950 (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

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

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

Gray, Robert Simpson, 1939 (1957), Associate Professor of Drama

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
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
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, Western University; 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
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
Beal, Maud Layton, 1933 (1952), Assistant Professor Emeritus of English
Beaty, Jerome, 1956, Instructor in English
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

Brown, Malcolm Johnston, 1946 (1956), Associate Professor of English

B.A., 1931, Ph.D., 1946, 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


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


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

Guherlet, 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


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


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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
A.B., 1943, City College of N.Y.; M.A., 1947, Ph.D., 1952, Columbia

Kuhn, Bertha Mehitable, 1940 (1947), Assistant Professor of English

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

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

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

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

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
L.L.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

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

Gershefsky, 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., 1942, Chicago; M.A., 1951, Columbia

Jansen, Marius Berthus, 1950 (1955), Associate Professor of Japanese History

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

McKinnon, Richard Nichols, 1951 (1957), Associate Professor of Japanese Language and Literature

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

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

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

Treadgold, Donald Warren, 1949 (1955), Associate Professor of Russian History

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, Frankfort (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

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

Carrison, 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

Kakuchi, Hiroaki George, 1957, Acting Instructor in Geography

Martin, Howard Hanna, 1930 (1940), Professor of Geography

Marts, Marion Ernest, 1946 (1955), Associate Professor of Geography

Sherman, John Clinton, 1942 (1954), Associate Professor of Geography

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

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

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

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

Willkie, 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

Dobie, Edith, 1926 (1957), Professor Emeritus of History
B.A., 1914, Syracusee; 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

Saville, Max, 1947, Professor of History
A.B., 1924, M.A., 1926, Ph.D., 1932, Columbia

Treadgold, Donald Warren, 1949 (1955), Associate Professor of History

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

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., 1950, 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, 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

Blumenthal, Robert McCallum, 1956 (1957), Assistant Professor of Mathematics
B.A., 1952, Oberlin; Ph.D., 1956, Cornell

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)

Butler, John Ben, Jr., 1956 (1957), Assistant Professor of Mathematics
B.A., 1954, Svarthmore; M.S., 1947, 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
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

Macaulay, Ronald Alvin, 1957, Assistant Professor of Mathematics

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

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

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

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

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

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

Rosinbum, Ralph Rambo, 1948 (1953), Assistant Professor of Music

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

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

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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

Paquette, Robert George, 1948 (1952), Lecturer in Oceanography; Research Associate Professor of Oceanography
B.S., 1936, Ph.D., 1941, Washington

Rattray, Maurice, Jr., 1950 (1957), Associate Professor of Oceanography
B.S., 1944, M.S., 1947, Ph.D., 1951, California Institute of Technology

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

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

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

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

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

Stevens, Leonard Woodbury, 1937 (1948), Assistant Professor of Physical Education
B.S., 1933, M.S., 1941, Washington

Tallman, John D., 1950, 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.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

Frishton, 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., 1924, 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, 1938 (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

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 (1951), Associate Professor of Physics
Ph.D., 1950, University of Gottingen (Germany)

Fairhall, Arthur William, 1954, Assistant Professor of Physics
B.S., 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

Cole, Kenneth Carey, 1924 (1938), 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.I., 1948, Ph.D., 1952, Chicago

Harbold, William Henry, 1949 (1955), Assistant Professor of Political Science

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

Mander, Linden Alfred, 1928 (1937), Professor ofPolitical 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

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., 1938, 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, 1939 (1940), Assistant Professor of Psychology; Chief Examiner, Bureau of Testing
B.S., 1923, M.A., 1927, Washington

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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
B.S., 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., 1929, 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
Bace., 1923, College 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 (Bogota, Colombia); M.A., 1924, Michigan; Ph.D., 1929, Universidad Nacional (Bogota, Colombia)

Coggio, 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

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

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

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  

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  

Wager, Leonard Wesley, 1954 (1957), Acting Assistant Professor of Sociology  

Wheelbar, Stanton, 1956 (1957), Acting Instructor in Sociology  

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, 1938 (1939), Associate Professor of Speech  
B.A., 1916, M.A., 1923, Lawrence College (Wisconsin)  

Grimes, Wilma Horrell, 1953 (1955), Assistant Professor of Speech  

Hanley Clair Norton, 1952 (1956), Associate Professor of Speech  

Hogan, Michael, 1949 (1957), Lecturer in Speech  

LaRusso, Dominic Anthony, 1951 (1956), Assistant Professor of Speech  

Nelson, Oliver Wendell, 1945 (1952), Associate Professor of Speech  

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  

Pence, Orville Leon, 1941 (1954), Associate Professor of Speech  

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  
Sugarman, Alfred, 1957, Instructor in Speech  
B.A. 1947; M.A., 1951, Washington
Tiffany, William Robert, 1947 (1956), Associate Professor of Speech  
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
Hillg, 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., 1923, 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

Ordal, Erling J., 1937 (1948), 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
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 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.)

* 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:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>One foreign language</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics (elementary algebra and plane geometry)</td>
<td>2</td>
</tr>
<tr>
<td>Social science</td>
<td>1</td>
</tr>
<tr>
<td>One laboratory science</td>
<td>1</td>
</tr>
<tr>
<td>Electives (minimum)</td>
<td>7</td>
</tr>
</tbody>
</table>

* 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

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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 Univer-
sity 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 examina-
tion; 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**

<table>
<thead>
<tr>
<th>Status</th>
<th>Fee per Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident students, per quarter</td>
<td>$25.00</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Nonresident students, per quarter</td>
<td>75.00</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Status</th>
<th>Fee per Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time resident students</td>
<td>27.50</td>
</tr>
<tr>
<td>Part-time resident students (registered for 6 credits or less, exclusive of ROTC)</td>
<td>10.00</td>
</tr>
<tr>
<td>Full-time nonresident students</td>
<td>52.50</td>
</tr>
<tr>
<td>Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC)</td>
<td>35.00</td>
</tr>
<tr>
<td>Auditors do not pay an incidental fee; there are no other exemptions.</td>
<td></td>
</tr>
</tbody>
</table>

**ASUW Fees**

<table>
<thead>
<tr>
<th>Status</th>
<th>Fee per Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership, per quarter</td>
<td>8.50</td>
</tr>
<tr>
<td>Optional for auditors and part-time students.</td>
<td></td>
</tr>
<tr>
<td>Athletic admission ticket (optional for ASUW members)</td>
<td>3.00-5.00</td>
</tr>
<tr>
<td>Autumn, Winter, and Spring Quarters</td>
<td>$5.00</td>
</tr>
<tr>
<td>Winter and Spring Quarters</td>
<td>$3.00</td>
</tr>
<tr>
<td>Spring Quarter</td>
<td>$3.00</td>
</tr>
</tbody>
</table>

**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
One grade sheet is furnished each quarter without charge; the fee is charged for each additional copy.

Transcript Fee
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, $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
Military uniform deposit, breakage ticket, and locker fees 38.50

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
GENERAL INFORMATION

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:

<table>
<thead>
<tr>
<th>I. Humanities</th>
<th>II. Social Sciences</th>
<th>III. Sciences</th>
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<tbody>
<tr>
<td>Architecture</td>
<td>Anthropology</td>
<td>Anatomy 301</td>
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<tr>
<td>Art</td>
<td>Economics</td>
<td>Astronomy</td>
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<tr>
<td>Classics</td>
<td>Far Eastern Institute courses</td>
<td>Biochemistry</td>
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<tr>
<td>Drama</td>
<td>Geography</td>
<td>Biology</td>
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<td>English</td>
<td>History</td>
<td>Botany</td>
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<tr>
<td>Far Eastern languages and literature</td>
<td>Home economics</td>
<td>Chemistry</td>
</tr>
<tr>
<td>General and comparative literature</td>
<td>Philosophy</td>
<td>Conjoint 317-318</td>
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<tr>
<td>Germanic languages and literature</td>
<td>Physical education</td>
<td>Fisheries</td>
</tr>
<tr>
<td>Humanities 101, 102, 103, 201, 202, 203</td>
<td>Political science</td>
<td>Geology</td>
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<tr>
<td>Journalism</td>
<td>Psychology</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Liberal arts</td>
<td>Social Science, 101, 102, 103, 201, 202, 203</td>
<td>Meteorology and climatology</td>
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<tr>
<td>Librarianship</td>
<td>Sociology</td>
<td>Microbiology</td>
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<tr>
<td>Music</td>
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<td>Oceanography 101</td>
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<td>Radio-Television</td>
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<td>Pharmacy 115</td>
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<td>Romance languages and literature</td>
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<td>Physical Science 101</td>
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<td>Scandinavian languages and literature</td>
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<td>Physics</td>
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<td>Slavic languages and literature</td>
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<td>Zoology</td>
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<td>Speech</td>
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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, 450; 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.
Peoples of Central and Northern Asia (3) Poehl
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.

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.

Ethnology of Southeast Asia (5) 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.

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.

Basic of Civilization (3) Staff
Basic inventions, discoveries, and technological achievements of the ancient and primitive worlds; the beginnings of science.

Methods and Problems of Archaeology (5) Greengo
Field experience in this locality is included. Prerequisite, 103.

Analysis of Archaeological Data (5) Greengo
(Not offered 1957-58.)

Primate and Human Evolution (3) Hulse
Development and relationships of primates, including man, traced from comparative and paleontological data.

Introduction to Anthropology (5) Gunther
A survey of anthropology. For nonmajors. Not open to students who have taken 101, 102, or 103.

Middle American Civilization (2) Greengo, Staff
The high cultures of Mexico, Guatemala, and Northern Central America. Prerequisite, 315.

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.

Applied Anthropology (3) Ottenberg
The application of anthropology to social, economic, and political problems. Prerequisite, 102 or 390, or permission.

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.

Magic, Religion, and Philosophy (3) Read, Spiro, Ray
Comparative religious systems, magical beliefs, and philosophical concepts of nonliterate peoples.

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.

Comparative Morals and Value Systems (3) Read
Comparative treatment of the sociological functions of morality in simple societies.

Primitve 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.

Primitive Social and Political Institutions (3) Read, Ray
Comparative analysis of selected nonliterate societies.

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.

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.

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.

American Indian Languages (3) Jacobs
Methods of field research and training in phonetic recording. Prerequisite, 450J.

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.

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.)

520 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
(Not offered 1958-59.)

542 Personality Patterns in Japanese Culture (3) Hulse

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
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.

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<tr>
<th>FIRST QUARTER CREDITS</th>
<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
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<tr>
<td>Art 105 Drawing ....... 3</td>
<td>Art 106 Drawing ....... 3</td>
<td>Art 107 Drawing ....... 3</td>
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<td>Art 111 Design ....... 3</td>
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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).

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<td>Art 255 Design ....... 3</td>
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<td>Art 256 Painting ....... 3</td>
<td>Art 257 Painting ....... 3</td>
<td>Art 258 Water Color ....... 3</td>
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<td>Art 362 Life ....... 3</td>
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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**

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<td>Art 300 Design in Leather. 2</td>
<td>Art 302 Bookbinding 2</td>
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<td>Art 350 Printmaking or</td>
<td>Educ. 390 Evaluation in Educ. 3</td>
<td>Educ. 374 Reading</td>
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<td>Educ. 371X or S Directed Teaching 8</td>
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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**

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13-16

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13-16

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**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.
## CURRICULUM IN INTERIOR DESIGN

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## CURRICULUM IN PAINTING

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**First Quarter Credits**

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| Art 322 Sculpture | 3 | Art 323 Sculpture | 3 | Art 334 Adv. Sculpture | 3 |
| Art 332 Adv. Sculpture | 3 | Art 326 History | 2 | Art 362 Life | 3 |
| Art 360 Life | 3 | Art 333 Adv. Sculpture | 3 | Econ., pol. sci., or sociol. | 5 |
| Approved electives | 1 | Art 361 Life | 3 | Approved electives | 1 |
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**Curriculum in Printmaking**

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**First Quarter Credits**

| Art 212 Hist. of West. Art | 2 | Art 213 Hist. of West. Art | 2 | Art 214 Hist. of West. Art | 2 |
| Art 253 Design | 3 | Art 254 Design | 3 | Art 261 Inter. Design | 2 |
| Art 256 Painting | 3 | Art 257 Painting | 3 | Art 274 Sculpture | 3 |
| Arch. 100 Appreciation | 2 | Arch. 101 Appreciation | 2 | Art 355 Adv. Ceramic Art | 4 |
| Lab. science | 2 | Lab. science | 2 | Art history elective | 2 |
| Approved electives | 2 | Approved electives | 2 | Approved electives | 2 |
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**Curriculum in Printmaking**

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**First Quarter Credits**

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| Art 253 Design | 3 | Art 254 Design | 3 | Art 255 Design | 3 |
| Art 256 Painting | 3 | Art 257 Painting | 3 | Art 261 Inter. Design | 2 |
| Arch. 100 Appreciation | 2 | Arch. 101 Appreciation | 2 | Art 274 Sculpture | 3 |
| Lab. science | 2 | Lab. science | 2 | Art 355 Adv. Ceramic Art | 4 |
| Approved electives | 2 | Approved electives | 2 | Approved electives | 2 |
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<td>Art 350 Intro. to Printing</td>
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### 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)
Lecture and studio work. For nonmajors.

#### 105, 106, 107 Drawing (3,3,3)
Staff

#### 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 Littering (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)
Road
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) Foote
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) Foote
Study of materials and construction; execution of working drawings, color plates, and scale models. 280 is taken concurrently with 283. Prerequisites, 107 and 111.

283 History of Furniture and Interior Styles (2) Foote
Illustrated lectures on the historical development of furniture and its architectural backgrounds from the Renaissance to the present.

290, 291, 292 Art Education (2,2,2) Staff
General crafts for those preparing to teach art in the public schools. Emphasis on exploration with a variety of materials suitable for use as educational 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) Foote
Fundamentals of interior design. Scale drawings of floor and wall plans; perspective; study of color and texture. Prerequisites, 262, Architecture 126.

316, 317, 318 Design for Industry (3,3,3) Smith
Product design, working drawings, models, presentation drawings, product analysis, display, and marketing. Prerequisites, junior 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.
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.

Life (3,3,3)  Staff
Drawing and painting from the model. Prerequisites, 256, 257, and 258.

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.

Costume Design (2,2,2)  Rand
Design of clothing with emphasis on line, color, materials, use. Prerequisites, 107, 111, Home Economics, 265, 266, 267.

Advanced Painting (3,3,3)  Staff
Prerequisites, 265, 266, and 267.

Art of India (3)  Rogers
Survey of the art of India. (Offered alternate years; offered 1958-59.)

Art of China (3)  Rogers
Survey of the art of China. (Offered alternate years; offered 1958-59.)

Art of Japan and Korea (3)  Rogers
Survey of the art of Japan and Korea. (Offered alternate years; offered 1958-59.)

Art of the Ancient Near East (3)  Rogers
(Offered alternate years; offered 1957-58.)

Islamic Art (3)  Rogers
(Offered alternate years; offered 1957-58.)

Medieval Art (3)  Rogers
(Offered alternate years; offered 1957-58.)

Oriental Ceramic Art (2)  Rogers
Chinese, Korean, and Japanese ceramics from neolithic times to the present. (Offered alternate years; offered 1958-59.)

Origins of Modern Art (2)  Rogers
(Offered alternate years; offered 1957-58.)

Art since Cézanne (2)  Rogers
(Offered alternate years; offered 1957-58.)

Illustration (5)  Staff
Book and magazine illustration. Composition and history. Prerequisite, senior in art.

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.)

Sculpture Composition (5,5,5)  Du Pen
Imaginative design; problems met in professional practice. Prerequisites, 332, 333, and 334.

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.

Advanced Printmaking (5,5,5)  Alps
Lithography, etching, serigraph, linoleum block, wood-cut, and wood-engraving. Prerequisite, 352 or permission.

Advanced Metal and Jewelry (3,3,3)  Penington
Prerequisites, 357, 358, 359. Individual problems in metal design and construction.

Composition (3,3,3)  Brazau
Development of individuality in painting through creative exercises. Prerequisite, 3 credits from 360, 361, or 362.

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.

Advanced Interior Design (5,5,5)  Foote
Problems related to contemporary needs; research in period styles. For interior design students. Prerequisite, 312.

Fashion Illustration (2,2,2)  Rand
Prerequisite, junior in art or permission.

Advanced Ceramic Art (5,5,5)  Bonifas
Pottery design and construction; stone ware; clay bodies; glazes. Prerequisite, 355.

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.

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

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

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

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.

ASTRONOMY

Professor: THEODOR S. JACOBSEN, Observatory

BASIC MEDICAL SCIENCE

Advisor, 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: 18-14 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 predental students:

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<td>Chem. 160 and 170 General &amp; Qual. Anal. 6, Physics 103 and 109, or 123 General 3-5</td>
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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)
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)
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)
Structure and function of the cell. Prerequisites, 451 and permission.

401L Cytology Laboratory (2)
Must be accompanied by 401.

451 Genetics (3 or 5)
Prerequisite, 10 credits in biological science.

452 Cytogenetics (3 or 5)
Chromosomal behavior in relation to genetics. Prerequisites, 451 and permission.

453 Topics in Genetics (2, maximum 6)
Current problems and research methods. Prerequisites, 451, organic chemistry, and permission.

454 Evolutionary Mechanisms (3)
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)
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)
Must be accompanied by 472. Prerequisite, permission.

473 Limnology (5)
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)
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)
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)
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)
Local flora. Training in identification and recognition of ferns and seed plants.

114, 115 Forestry Botany (3,3)
114: structure of seed plants. 115: morphology of the plant kingdom.

201, 202, 203 Plant Propagation (2,2,2)
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) Meuse, 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: 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.

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, 473 Plant Physiology (5) Meeuse
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.

474 Plant Physiology (5) Walker
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.

475 Problems in Algal Physiology (6) Meeuse
Metabolic activity of the algae. (Offered at Friday Harbor Summer Quarter only.) Prerequisites, 472 or 371, Chemistry 232 and 242, and permission.

478 Special Problems in Botany (1-15) Staff
Prerequisite, permission of instructor.

COURSES FOR GRADUATES ONLY

BIOLOGY

501 Advanced Cytology (5) Hsu
(Of fered 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.
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 1 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.

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) 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)  
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)  
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)  
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)  
Periodic System, phase equilibria, metals and nonmetals, metallurgy, and nuclear reactions. Prerequisite, 150. (Formerly 113.)

170 Qualitative Analysis (3)  
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)  
Problems relating to experimental chemistry. For chemistry majors only. Prerequisite, permission of Chemistry adviser.

221 Quantitative Analysis (5)  
Volumetric and gravimetric. No credit if 325 has been taken. Prerequisite, 170.

231 Organic Chemistry (3)  
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 (5)  
Continuation of 231. Prerequisite, 231.

241 Organic Chemistry Laboratory (2)  
Usually to accompany 231. Preparation of representative compounds. Prerequisite, 231, which may be taken concurrently.

242 Organic Chemistry Laboratory (2)  
Usually to accompany 232. Preparations and qualitative organic analysis. Prerequisites, 231, 232 (which may be taken concurrently), and 241.

333 Intermediate Organic Chemistry (3)  
Survey of organic chemistry at intermediate level. Prerequisite, 232.

335 Organic Chemistry (3)  
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)  
Continuation of 335. Prerequisite, 335.

337 Organic Chemistry (3)  
Continuation of 336. Prerequisite, 336.

345 Organic Chemistry Laboratory (2)  
Usually to accompany 335. Organic syntheses. Prerequisite, 335, which may be taken concurrently.

346 Organic Chemistry Laboratory (2)  
Continuation of 345. Usually to accompany 336. Prerequisites, 335, 336, and 345 which may be taken concurrently.

355 Physical Chemistry (4)  
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)  
Solutions (electrolytes and non-electrolytes); thermodynamics; homogeneous and heterogeneous equilibria. Prerequisites, 355 and Mathematics 251.

357 Physical Chemistry (3)  
Electrochemistry and ionic equilibria; chemical kinetics and photochemistry. Prerequisite, 356.

358 Physical Chemistry Laboratory (4)  
Prerequisite, 356 or taken concurrently.

415 The Chemical Bond (3)  
The nature of the chemical bond, complex compounds. Prerequisite, 357.

416 Inorganic Chemistry (3)  
Study of the elements in relation to the Periodic System. Prerequisite, 357.

418 Radiochemistry (3)  
Natural radioactivity, nuclear systematics, nuclear reactions, radioactive decay processes,
### COURSES IN BIOCHEMISTRY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>361</td>
<td>Biochemistry (3)</td>
<td>Staff</td>
<td>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.</td>
</tr>
<tr>
<td>363</td>
<td>Biochemistry Laboratory (2)</td>
<td>Staff</td>
<td>Laboratory exercises in general biochemistry for home economics students and others. Prerequisite, 361, which may be taken concurrently.</td>
</tr>
<tr>
<td>481, 482</td>
<td>Biochemistry (4,3)</td>
<td>Staff</td>
<td>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.</td>
</tr>
<tr>
<td>483</td>
<td>Biochemistry Laboratory (3)</td>
<td>Staff</td>
<td>Laboratory exercises and conferences. For students of biochemistry, chemistry, and various biological sciences. Prerequisite, 481, which may be taken concurrently.</td>
</tr>
<tr>
<td>499</td>
<td>Undergraduate Research (*) (maximum 12)</td>
<td>Staff</td>
<td>Investigative work on enzymes, proteins, lipides, intermediary metabolism, physical biochemistry, and related fields. Prerequisite, permission.</td>
</tr>
</tbody>
</table>

### COURSES FOR GRADUATES ONLY

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>511</td>
<td>Advanced Inorganic Chemistry (2)</td>
<td>Ritter</td>
<td>Acid-base theory; mechanism of certain reactions; compounds of nonmetals of groups 3, 4, and 5. Prerequisite, 416 or permission.</td>
</tr>
<tr>
<td>512</td>
<td>Advanced Inorganic Chemistry (2)</td>
<td>Cady</td>
<td>Halogens; less familiar metals; chelate, elanthate, interstitial and non-stoichiometric compounds; other selected topics. Prerequisite, 416 or permission.</td>
</tr>
<tr>
<td>513</td>
<td>Advanced Nuclear Chemistry (2)</td>
<td>Fairhall</td>
<td>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.</td>
</tr>
<tr>
<td>526</td>
<td>Advanced Instrumental Analysis (3)</td>
<td>Crittenden</td>
<td>Absorption and emission spectroscopy, polarography, potentiometry, and dielectric properties as applied to problems in analytical chemistry. Prerequisite, 426 or permission.</td>
</tr>
</tbody>
</table>
CHEMISTRY

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 535, 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, 551 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)
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 450 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) Rosonmeyer
101-102: an intensive study of grammar with reading and writing of simple Attic prose; 103: reading of selections from classical Greek literature.

201 Plate: 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 Iliad or Odyssey. 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.
CLASSICS 81

N391 Sight Reading (0)  Staff
Prerequisite, permission.

413 The Pre-Socratic Philosophers (3)  McDiarmid
(Offered alternate years; offered 1958-59.)

414 Plato (3)  Rosenmeyer
(Offered alternate years; offered 1958-59.)

415 Aristotle (3)  McDiarmid
(Offered alternate years; offered 1958-59.)

420 Greek Epic (3)  Rosenmeyer
(Offered alternate years; offered 1957-58.)

422 Herodotus and the Persian Wars (3)  Rosenmeyer
(Offered alternate years; offered 1957-58.)

424 Thucydides and the Peloponnesian War (3)  Rosenmeyer
(Offered alternate years; offered 1957-58.)

442, 443, 444 Greek Drama (3,3,3)  McDiarmid
Euripides, Sophocles, Aeschylus, Aristophanes. (Offered alternate years; offered 1957-58.)

451 Lyric Poetry (3)  Rosenmeyer
(Offered alternate years; offered 1958-59.)

453 Pindar: The Epinician Odes  McDiarmid
(Offered alternate years; offered 1958-59.)

455 Hellenistic Poetry (3)  Rosenmeyer
(Offered alternate years; offered 1958-59.)

490 Supervised Study (3-5, maximum 15)  Staff
Special work in literary and philosophical texts for graduates and undergraduates.

499 Undergraduate Research (*, maximum 15)  Staff

LATIN

101-102, 103 Elementary Latin (5-5,5)  Grummel
101-102: an intensive study of grammar with reading and writing of simple Latin prose;
103: reading of selections from classical Latin literature.

201 Roman Letters (3)  Pascal
Reading in the letters of Cicero and Pliny to illustrate important phases of Roman life.
Prerequisite, two years of high school Latin or 103.

202 Roman Elegy (3)  Pascal
Selected elegies of Catullus, Tibullus, Propertius, and Ovid. Prerequisite, 201 or permission.

203 Vergil (3)  Read
Selections from the first six books of the Aeneid. Prerequisite, 202 or permission.

207, 208 Grammar and Composition (2,2)  Read
Systematic review of grammatical principles; exercises in prose composition. Prerequisite,
two years of high school Latin or 103.

309 Advanced Grammar and Composition (1, maximum 4)  Grummel
Prerequisite, 208.

N391 Sight Reading (0)  Staff
Prerequisite, permission.

401 Medieval Latin (3)  Pascal
Prerequisite, permission.

404 Comparative Grammar of Latin and Greek (3)  Grummel
Comparative and historical study of Latin and Greek as an introduction to Indo-European
philology. Prerequisite, permission.

412 Lucretius (3)  Grummel
(Offered alternate years; offered 1958-59.)

413 Cicero's Philosophical Works (3)  Grummel
(Offered alternate years; offered 1958-59.)

414 Seneca (3)  Grummel
(Offered alternate years; offered 1958-59.)

422 Livy (3)  Pascal
(Offered alternate years; offered 1958-59.)

424 Tacitus (3)  Pascal
(Offered alternate years; offered 1958-59.)

426 Roman Biography (3)  Pascal
(Offered alternate years; offered 1958-59.)

430 Latin Novel (3)  Grummel
(Offered alternate years; offered 1957-58.)

442 Roman Drama (3)  Pascal
(Offered alternate years; offered 1957-58.)
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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising 226 Introduction to Advertising</td>
<td>3</td>
</tr>
<tr>
<td>Communications 100 Communications Today</td>
<td>2</td>
</tr>
<tr>
<td>Journalism 200 Newswriting</td>
<td>5</td>
</tr>
<tr>
<td>Radio-TV 270 Elements of Radio Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition 101, 102</td>
<td>6</td>
</tr>
<tr>
<td>English or American Literature</td>
<td>8-9</td>
</tr>
<tr>
<td>Group 111 (Science)</td>
<td>10</td>
</tr>
<tr>
<td>Speech (as recommended)</td>
<td>4-6</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising 341 Advertising Copy</td>
<td>3</td>
</tr>
<tr>
<td>Advertising 342 Advertising Selling Laboratory</td>
<td>6</td>
</tr>
<tr>
<td>Advertising 344 Advertising Campaigns</td>
<td>3</td>
</tr>
<tr>
<td>Communications 303 Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>Communications 316 Contemporary Affairs</td>
<td>maximum 6, minimum 3</td>
</tr>
<tr>
<td>Journalism 300 Laboratory Work on University Daily</td>
<td>maximum 6, minimum 3</td>
</tr>
<tr>
<td>Journalism 301 Copy Editing</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 318 Reporting</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 319 Reporting</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 320 Legal Aspects of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 347 Newspaper Operation</td>
<td>5</td>
</tr>
<tr>
<td>Journalism 381 Graphic Arts and Typography Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 391 Photographic Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Radio-TV 352 Radio and Television Advertising</td>
<td>5</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications 303 Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>Communications 316 Contemporary Affairs</td>
<td>6</td>
</tr>
<tr>
<td>Journalism 300 Laboratory Work on University Daily</td>
<td>maximum 6, minimum 3</td>
</tr>
<tr>
<td>Journalism 301 Copy Editing</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 318 Reporting</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 319 Reporting</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 320 Legal Aspects of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 347 Newspaper Operation</td>
<td>5</td>
</tr>
<tr>
<td>Journalism 381 Graphic Arts and Typography Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 391 Photographic Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Radio-TV 376 Radio Newswriting</td>
<td>3</td>
</tr>
</tbody>
</table>

Two of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications 402 Freedom of the Press and Communications Law</td>
<td>3</td>
</tr>
<tr>
<td>Communications 406 Press and Society</td>
<td>3</td>
</tr>
<tr>
<td>Communications 411 Introduction to Mass Communications Research</td>
<td>3</td>
</tr>
<tr>
<td>Communications 414 History of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>Communications 415 Comparative Communications</td>
<td>3</td>
</tr>
<tr>
<td>Communications 416 Press and World Affairs</td>
<td>3</td>
</tr>
<tr>
<td>Communications 480 Propaganda</td>
<td>5</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications 303 Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>Communications 316 Contemporary Affairs</td>
<td>3, max 6</td>
</tr>
<tr>
<td>Communications 402 Freedom of the Press and Communications Law</td>
<td>3</td>
</tr>
<tr>
<td>Communications 411 Introduction to Mass Communications Research</td>
<td>3</td>
</tr>
<tr>
<td>Communications 414 History of Journalism</td>
<td>3</td>
</tr>
<tr>
<td>Communications 415 Comparative Communications</td>
<td>3</td>
</tr>
<tr>
<td>Communications 416 Press and World Affairs</td>
<td>3</td>
</tr>
<tr>
<td>Communications 480 Propaganda</td>
<td>5</td>
</tr>
</tbody>
</table>

Other requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio-TV 250 Survey of Radio and Television</td>
<td>3</td>
</tr>
<tr>
<td>Radio-TV 260 Radio Production</td>
<td>3</td>
</tr>
<tr>
<td>Radio-TV 271 Radio Continuity</td>
<td>3</td>
</tr>
<tr>
<td>Radio-TV 350 Laboratory Work on KUOW</td>
<td>max 9, min 5</td>
</tr>
<tr>
<td>Radio-TV 352 Radio and Television Advertising</td>
<td>5</td>
</tr>
<tr>
<td>Radio-TV 376 Radio Newswriting</td>
<td>3</td>
</tr>
<tr>
<td>Radio-TV 450 Television Programming</td>
<td>3</td>
</tr>
<tr>
<td>Radio-TV 475 Station Organization</td>
<td>3</td>
</tr>
</tbody>
</table>

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, max 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.
COMMUNICATIONS

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 majors and Journalism 494.

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) Amos
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, Amos
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

Advisor, 121 Miller Hall

The two-year predental 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)
Significant aspects of the modern theatre. Hughes

146, 147, 148 Theatre Speech (3,3,3)
Prerequisites, 146 for 147; 147 for 148. Carr, Galstaun, Gray
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 (2,2,2) 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.
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 482; 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 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.

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

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

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 Marxist 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.
ECONOMICS

505 Value and Distribution Theory (3)
   Mund

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, a second teaching area, 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 500, 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 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 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 Evening Classes Bulletin.

101, 102, 103 Composition (3,3,3) Leggett
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form.

150 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, Hilten, 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 (5,3) 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) Marquardt

328, 329 Dramatic Composition (3,3) Zillman
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, Persen

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.)
ENGLISH 99

361, 362, 363 American Literature (5,5,5) Blankenship, H. Burns, Davis, Hilgen, 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: 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) Hallman
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, Hallman, 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 Spenso (5,5,5) Adams, Hamilton, Stirling

513 Shakespeare’s Dramatic Contemporaries (5) Adams

515, 516 Chaucer (5,5)
515: poems; 516: Canterbury Tales.

517, 518, 519 Shakespeare (5,5,5)
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, Hilgen
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, Radford
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

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)  Williston
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.

Social, economic, and political problems of China, Japan, Korea, the Philippines, Indo-China, 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. Prerequisite, 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. Prerequisite, 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.

422J 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
Mongol 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.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>446</td>
<td>Chinese History: 906 A.D. to 1840 A.D. (5)</td>
<td>Wilhelm</td>
<td>History of the Wu Tai, Sung, Yuan, Ming, and early Ch'ing periods. (Offered alternate years; offered 1958-59.)</td>
</tr>
<tr>
<td>447</td>
<td>Modern Chinese History (5)</td>
<td>Taylor</td>
<td>Modern Chinese society from 1840 to the present. Prerequisite, 110 or 310.</td>
</tr>
<tr>
<td>450</td>
<td>Survey of Turkic Culture of Central Asia (3)</td>
<td>Posch</td>
<td>The nomadic culture of the Turks of Central Asia, their history, social organization, present state and cultural life under Soviet Russian's or China's dominance. Prerequisites, 110 or 310, Anthropology 102, or permission.</td>
</tr>
<tr>
<td>452J</td>
<td>Early Japanese History (5)</td>
<td>Jansen</td>
<td>Dominant trends in the development of Japan from the earliest times to 1600 A.D. Offered jointly with the Department of History.</td>
</tr>
<tr>
<td>453J</td>
<td>Tokugawa Period (5)</td>
<td>Jansen</td>
<td>Political, economic, problems, and intellectual currents in Japan from 1600 to 1868. Offered jointly with the Department of History.</td>
</tr>
<tr>
<td>454J</td>
<td>Modern Japanese History (5)</td>
<td>Jansen</td>
<td>The development of Japan from feudal to modern state; effects of war and occupation. Offered jointly with the Department of History.</td>
</tr>
<tr>
<td>455J</td>
<td>Undergraduate Seminar on China (3)</td>
<td>Williston</td>
<td>Cultural, political, economic influence in the nineteenth and twentieth centuries. Offered jointly with the Department of History.</td>
</tr>
<tr>
<td>459</td>
<td>Undergraduate Research (3-5, maximum 15)</td>
<td>Staff</td>
<td>For Far Eastern majors. Prerequisite, permission.</td>
</tr>
<tr>
<td>303J</td>
<td>Asia (5)</td>
<td>Earle, Eyre, Murphey</td>
<td>The historical and current patterns and development of human settlement and activities, primarily in Monsoon Asia. Regional frameworks; resources; problems of urban and agricultural development, industrialization, and economic growth.</td>
</tr>
<tr>
<td>432J</td>
<td>Islands of the Pacific (3)</td>
<td>Earle</td>
<td>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.</td>
</tr>
<tr>
<td>433J</td>
<td>The Soviet Union (5)</td>
<td>Jackson</td>
<td>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.</td>
</tr>
<tr>
<td>434J</td>
<td>Southeast Asia (5)</td>
<td>Earle</td>
<td>An analysis of regional and political structures; resources, economic activities, and problems of development, overseas and internal relationships.</td>
</tr>
<tr>
<td>435J</td>
<td>China: Topical Analysis (3)</td>
<td>Murphey</td>
<td>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.</td>
</tr>
<tr>
<td>436J</td>
<td>China: Regional Analysis (3)</td>
<td>Murphey</td>
<td>The regional concept as it applies to China; China Proper and the outer areas of Chinese dominance, the distinction and interaction; the problem of China's unity and regional coherence; recurrent political, cultural, and economic areal patterns, interactions, and nucle; regional analysis of Tibet, Sinkiang, Inner Mongolia, Manchuria, and the geographic regions of China Proper.</td>
</tr>
<tr>
<td>437J</td>
<td>Japan (5)</td>
<td>Eyre</td>
<td>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.</td>
</tr>
</tbody>
</table>

*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)
## Courses for Graduates Only

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>510</td>
<td>Methodology in Far Eastern Studies (3)</td>
<td>Maki</td>
</tr>
<tr>
<td>519J</td>
<td>Seminar on Asia (3)</td>
<td>Wilhelm</td>
</tr>
<tr>
<td>521, 522, 523</td>
<td>Seminar on Eastern Asia (4,4,4)</td>
<td>Maki, Taylor</td>
</tr>
<tr>
<td>525, 526</td>
<td>Seminar on Far Eastern Diplomacy (3,3)</td>
<td>Williston</td>
</tr>
<tr>
<td>530, 531</td>
<td>Seminar on China (3,3)</td>
<td>Wilhelm</td>
</tr>
<tr>
<td>533</td>
<td>Seminar on Chinese Society (4)</td>
<td>Wittfogel, Staff</td>
</tr>
<tr>
<td>534J</td>
<td>Modern European History: Russia (3-6)</td>
<td>Treadgold</td>
</tr>
<tr>
<td>535J-536J-537J</td>
<td>Seminar in Russian History (3-6)-(3-6)-(3-6)</td>
<td>Treadgold</td>
</tr>
<tr>
<td>538</td>
<td>Seminar on Modern China (3)</td>
<td>Michael</td>
</tr>
<tr>
<td>540J</td>
<td>Seminar on the Soviet Union; Government and Diplomacy (4, maximum 8)</td>
<td>Staff</td>
</tr>
<tr>
<td>543</td>
<td>Seminar on Russia in Asia (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>545J</td>
<td>Seminar on Japanese Government and Diplomacy (3, maximum 6)</td>
<td>Maki</td>
</tr>
<tr>
<td>549J</td>
<td>Japanese History (3-6)</td>
<td>Jansen</td>
</tr>
<tr>
<td>550J-551J-552J</td>
<td>Seminar in Japanese History (3-6)-(3-6)-(3-6)</td>
<td>Jansen</td>
</tr>
<tr>
<td>553J</td>
<td>Analysis of Linguistic Structures (3)</td>
<td>Jacobs, Li</td>
</tr>
<tr>
<td>598</td>
<td>Inner Asia Research Colloquium (5, maximum 15)</td>
<td>K. Chang, Li, Poppo, Staff</td>
</tr>
<tr>
<td>599</td>
<td>Colloquium on Chinese History Research (5, maximum 15)</td>
<td>C. L. Chang, Hsiao, Michael, Shih, Wilhelm</td>
</tr>
<tr>
<td>600</td>
<td>Research (*)</td>
<td>Staff</td>
</tr>
</tbody>
</table>

### Research Requirements
- Prerequisite, permission.
- Thesis (*)
- 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

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) Reifler
Syntactical analysis, translation from literary Chinese into English and vice versa. To be taken in sequence only. Prerequisite, 301 or equivalent.

408 Chinese Reference Works and Bibliography (3) Wilhelm
Introduction to the methodology of Sinology. (Offered alternate years; offered 1958-59.) Prerequisite, 301 or equivalent.

430 Readings in Chinese Philosophical Texts (3) 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 Turkic). 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 Sholokhov.
Russian 422 Russian Plays in English (5)  
Plays from 1782 to 1948.
Spector

Russian 423 The Russian Novel in English (5)  
Discussion of the major works of the nineteenth-century Russian novel in translation.
Erlich

Russian 424 The Russian Symbolist in English (3)  
Russian poetry and criticism from 1890 to 1910. Open only to majors in a language or literature. (Offered alternate years; offered 1958-59.)
Erlich

Russian 425 Dostoevski in English (4)  
Open only to majors in a language or literature.
Spector

Slavic 320 Polish Literature in English (5)  
Erlich  
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)  
(Offered alternate years; offered 1957-58.)  
Wilhelm

531 Studies in Chinese Poetry (5)  
(Offered alternate years; offered 1958-59.)  
Shih, Wilhelm

532 Studies in Chinese Drama and Novel (5)  
(Offered alternate years; offered 1958-59.)  
Shih

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 1957-58.) 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) Mickle
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) Pappe, 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) Mickle
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) Mickle
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, 481, 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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>108, 109, 110</td>
<td>General Survey of Fisheries Work (1,1,1)</td>
<td>Staff</td>
<td></td>
<td>Vocational orientation lectures by eminent speakers from game and fish agencies, commercial fisheries agencies, and the commercial fishing industry.</td>
</tr>
<tr>
<td>401</td>
<td>Comparative Anatomy and Physiology of Fishes (5)</td>
<td>Welander</td>
<td></td>
<td>Prerequisite, Zoology 112.</td>
</tr>
<tr>
<td>402</td>
<td>Phylogeny of Fishes (5)</td>
<td>Welander</td>
<td></td>
<td>Prerequisite, 401.</td>
</tr>
<tr>
<td>403</td>
<td>Identification of Fishes (5)</td>
<td>Welander</td>
<td></td>
<td>Prerequisite, 402.</td>
</tr>
<tr>
<td>405</td>
<td>Economically Important Mollusca (5)</td>
<td>Lynch</td>
<td></td>
<td>Classification, life histories, distribution, methods of cultivation, and economic importance of oysters, clams, scallops, abalones, cephalopods, and other mollusca. Prerequisite, Zoology 112.</td>
</tr>
</tbody>
</table>
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
Creei census methods; stocking polices, 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 (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 Fishery 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 Fishery 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) 
Guided on-the-job training in governmental or industrial fisheries organizations. Prerequisite, permission.

520 Graduate Seminar (2, maximum 6) 
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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>FIRST QUARTER</strong></td>
<td><strong>SECOND QUARTER</strong></td>
</tr>
<tr>
<td>First</td>
<td>Second</td>
</tr>
<tr>
<td>Chem. 100 or 110 General</td>
<td>4-3</td>
</tr>
<tr>
<td>Engl. 101 Composition</td>
<td>3</td>
</tr>
<tr>
<td>Math. 103 Intermed. Alg. &amp; Trig.</td>
<td>3</td>
</tr>
<tr>
<td>ROTC</td>
<td>2-3</td>
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<tr>
<td><strong>15-16</strong></td>
<td><strong>17-18</strong></td>
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</tbody>
</table>
GENERAL AND COMPARATIVE LITERATURE

SECOND QUARTER CREDITS
Chem. 232 Organic ....... 3
Chem. 242 Organic Lab. .... 2
Physics 102 & 109 General .... 5
Zool. 112 General or Bot. 112 Elementary .... 5
ROTC ........................................ 2-3

Third Quarter CREDITS
Chem. 325 Quant. Anal. .... 5
Physics 103 & 109 General .... 5
Approved electives ....... 5
ROTC ............................... 2-3

FIRST QUARTER CREDITS
Biochem. 481 Biochem. .... 4
Chem. 355 Physical ....... 4
Approved electives ....... 6

Third Year
Biochem. 482 Biochem. .... 3
Biochem. 483 Biochem. Lab. .... 3
Chem. 356 Physical ....... 6
Approved electives ....... 6

Fourth Year
Bot. 461 Yeasts & Molds .... 5
Micro. 430 Industrial .... 5
Approved electives ....... 5

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>300</td>
<td>Masterpieces of European Literature: Epic (5)</td>
<td>Jones</td>
</tr>
<tr>
<td>301</td>
<td>Masterpieces of European Literature: Drama (5)</td>
<td>Jones</td>
</tr>
<tr>
<td>302</td>
<td>Masterpieces of European Literature: Lyric (5)</td>
<td>Jones</td>
</tr>
<tr>
<td>450, 451</td>
<td>Romanticism and the Nineteenth Century in Europe (5,5)</td>
<td>Jones</td>
</tr>
<tr>
<td>480</td>
<td>The Symbolist Movement (5)</td>
<td>Staff</td>
</tr>
</tbody>
</table>

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

COURSES FOR GRADUATES ONLY

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>510, 511</td>
<td>Studies in General and Comparative Literature (5, maximum 10, 5, maximum 10)</td>
<td>Jones</td>
</tr>
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</table>

LITERATURE COURSES IN OTHER DEPARTMENTS

CLASSICS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>422</td>
<td>Greek Historians and Philosophers in English (3)</td>
<td></td>
</tr>
<tr>
<td>426</td>
<td>Greek and Roman Epic in English (3)</td>
<td></td>
</tr>
<tr>
<td>427</td>
<td>Greek and Roman Drama in English (3)</td>
<td></td>
</tr>
<tr>
<td>430</td>
<td>Greek and Roman Mythology (3)</td>
<td></td>
</tr>
<tr>
<td>440</td>
<td>Greek and Roman Critics in English (3)</td>
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</tbody>
</table>

FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>320 Chinese Literature in English (5)</td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td>320 Japanese Literature in English (5)</td>
<td></td>
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<tr>
<td>Korean</td>
<td>320 Korean Literature in English (5)</td>
<td></td>
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<tr>
<td>Mongolian</td>
<td>320 Mongolian Literature in English (5)</td>
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<tr>
<td>Russian</td>
<td>320 Russian Literature in English (5)</td>
<td></td>
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<tr>
<td>Russian</td>
<td>421 Contemporary Russian Literature in English (5)</td>
<td></td>
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<tr>
<td>Russian</td>
<td>422 Russian Plays in English (5)</td>
<td></td>
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<tr>
<td>Russian</td>
<td>423 The Russian Novel in English (5)</td>
<td></td>
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<tr>
<td>Russian</td>
<td>424 The Russian Symbolists in English (3)</td>
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<tr>
<td>Russian</td>
<td>425 Dostojevski in English (4)</td>
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</tr>
<tr>
<td>Slavic</td>
<td>320 Polish Literature in English (5)</td>
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</tbody>
</table>

GERMANIC LANGUAGES AND LITERATURE

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>350</td>
<td>Masterpieces of German Literature in English (3)</td>
<td></td>
</tr>
<tr>
<td>351</td>
<td>Contemporary German Literature in English (3)</td>
<td></td>
</tr>
<tr>
<td>462</td>
<td>Goethe in English (3)</td>
<td></td>
</tr>
<tr>
<td>464</td>
<td>Thomas Mann in English (3)</td>
<td></td>
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</tbody>
</table>

ROMANCE LANGUAGES AND LITERATURE

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>French</td>
<td>319 Nineteenth-Century Prose in English (3)</td>
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<tr>
<td>French</td>
<td>320 Contemporary Novel in English (3)</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>416 Rabelais and Montaigne in English (3)</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>417 Racine and Moliere in English (3)</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>418 Literature of the Enlightenment in English (3)</td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>315 Latin-American Authors in English (5)</td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>318 Don Quijote in English (3)</td>
<td></td>
</tr>
</tbody>
</table>
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**

- **Humanities**
  1. Hum. 101 Literature
  2. Hum. 102 The Arts
  3. Hum. 103 Philos.

- **Social Sciences**
  1. Soc. Sci. 101 Hist. of Civilization
  2. Soc. Sci. 102 Hist. of Civilization
  3. Soc. Sci. 103 Hist. of Civilization

- **Natural Sciences**
  1. Chem. 100 or 110 General Chemistry
  2. Phys. Sci. 101 The Universe
  3. Science elective

- **Expression and Methodology**
  2. Engl. Comp. 102 Eng. Comp. 103

**Second Year**

- **Humanities**
  1. Hum. 201 Literature
  2. Hum. 202 Masterpieces of Art
  3. Hum. 203 Philos.

- **Social Sciences**
  1. Soc. Sci. 201 Modern Society
  2. Soc. Sci. 202 Modern Society
  3. Soc. Sci. 203 Modern Society

- **Natural Sciences**
  2. Math. 120 Intro. to Mathematical Thinking
  3. Math. 121 Basic Ideas of Algebra

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Engl. 101 Composition</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Hum. 101 Literature</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Phys. Sci. 101 The Universe</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Soc. Sci. 101 Hist. Civ.</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Phys. Educ. activity</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>ROTC</strong></td>
<td>2-3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>19-22</td>
</tr>
</tbody>
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<table>
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<tr>
<th>Course</th>
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<tr>
<td><strong>Chem. 100 or 110 General</strong></td>
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<td><strong>Hum. 102 The Arts</strong></td>
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<td><strong>Soc. Sci. 102 Hist. Civ.</strong></td>
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### Second Year

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<td><strong>Soc. Sci. 203 Mod. Soc.</strong></td>
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<td><strong>Math. 121 Basic Algebra</strong></td>
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### Courses for Undergraduates

**Biological Science**

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

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)**

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)**

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**

**101, 102, 103 English Composition (3,3,3)**

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)**

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)**

Painting, sculpture, music, architecture, the dance, and drama studied through example, discussion, and criticism.

**103 Philosophy (5)**

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)**

Reading and critical discussion of some of the greatest works in world literature.

**202 Masterpieces of Art (5)**

**203 Philosophy (5)**

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)**

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, Janson, 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, Janson, 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 era; the Industrial Revolution and the rise of democracy.

103 History of Civilization: The Contemporary World (5)  Burke, Giesey, Janson, 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**

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<th>Description</th>
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<tr>
<td>391</td>
<td>Supervised Study in Selected Fields (*) maximum 6</td>
<td>Staff</td>
<td>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.</td>
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<tr>
<td>451</td>
<td>Sources of the Modern Cultural Crisis (2-6)</td>
<td>Interdepartmental Staff</td>
<td>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.</td>
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<tr>
<td>455-456</td>
<td>Analysis of the Modern Cultural Crisis (3-3)</td>
<td>Interdepartmental Staff</td>
<td>Economic, psychological, scientific and technological, artistic, moral, religious aspects; essential conflicts; the problem of synthesis. Open to seniors; juniors by permission.</td>
</tr>
<tr>
<td>493</td>
<td>Senior Study (1-5)</td>
<td>Staff</td>
<td>For majors only. Prerequisites, permission of supervisor of study and General Studies Office.</td>
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**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, Kakiuichi
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 manufactural industries and trade; status and problems of transportation; trends in the distribution of population. Offered jointly with the Far Eastern and Russian Institute.

444 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.
Aerial Photograph Interpretation (2)  
Marts  
A study of the techniques of identifying and interpreting features of the land and land use from aerial photographs.

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.

Statistical Measurement and Inference (5)  
Garrison  
Identification of geographic problems and selection of data; tests of simple hypotheses; applications of unification, simultaneous equation, and variance models; evaluation of findings. Prerequisites, 360 or 423J, and an introductory course in statistics or permission.

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.

Map Composition 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.

Reproduction processes and methods of photographic projection as applied to cartography. Prerequisite, 360.

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

Seminar (0)  
Graduate Students, Faculty  

Seminar: Source Materials in Geographic Research (3)  
Staff  

Seminar: Writing and Critique (*, maximum 6)  
Hudson, Martin  

Seminar: Southeast Asia (3, maximum 6)  
Earle  
Offered jointly with the Far Eastern and Russian Institute.

Seminar: Japan and Northeast Asia (3, maximum 6)  
Kakiuchi  
Offered jointly with the Far Eastern and Russian Institute.

Seminar: China and Northeast Asia (3, maximum 6)  
Staff  
Offered jointly with the Far Eastern and Russian Institute.

Seminar: Anglo-America (3, maximum 6)  
Hudson, Marts  

Seminar: Soviet Union (3, maximum 6)  
Jackson  
Offered jointly with the Far Eastern and Russian Institute.

Seminar: Settlement and Urban Geography (3, maximum 9)  
Ullman  

Seminar: Cartography (3, maximum 6)  
Sherman  

Seminar: Quantitative Methods in Economic Geography (3, maximum 6)  
Garrison  

Seminar: Geography of Transportation (3, maximum 6)  
Ullman  

Seminar: Utilization of Water Resources (3, maximum 6)  
Marts  

Seminar: Recent Trends in Geographic Research (3, maximum 9)  
Staff  

Seminar: History and Theory of Geography (*, maximum 6)  
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

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<td>Engl. 101 Composition</td>
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<tr>
<td>Gen. Engr. 101 Engr. Drawing</td>
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<tr>
<td>Math. 103 Plane Trig. or 104 Intermed. Alg. and Trig.</td>
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<td>Gen. Engr. 103 Descript. Geom.</td>
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<td>Math. 105 College Algebra</td>
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<td>Engl. 103 Composition</td>
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<td>Gen. Engr. 121 Plane</td>
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<td>Health Educ. 110 or 175 Health</td>
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GEOLOGY

FIRST QUARTER CREDITS
Geol. 205 Rocks & Min. 5
Physics 101 and 107 5
General 5
Approved electives 5
ROTC 2-3
15-18

SECOND QUARTER CREDITS
Geol. 206 Elem. Physiog. 5
Physics 102 and 108 5
General 5
Approved electives 5
ROTC 2-3
15-18

THIRD QUARTER CREDITS
Geol. 207 Historical Geol. 5
Physics 103 and 109 5
General 5
ROTC 2-3
15-18

FIRST QUARTER CREDITS
Geol. 308 Struct. Geol. 5
Geol. 323 Optical Min. 5
Approved electives 5
15

SECOND QUARTER CREDITS
Geol. 330 Gen. Paleon. 5
Geol. 424 Petrography and Petrology 5
Geol. 480 Hist. of Geol. 3
Approved electives 2
15

THIRD QUARTER CREDITS
Geol. 344 Field Methods 5
Geol. 432 Adv. Paleon. or 436 Micro. Paleon. 5
Approved electives 5
15

Fourth Year

FIRST QUARTER CREDITS
Geol. 361 Stratigraphy 5
Geol. 412 Physiog. of U.S. 5
Foreign language 5
15

SECOND QUARTER CREDITS
Geol. 427 Ore Deposits 5
Geol. 443 Adv. Structural. 5
Foreign language 5
15

THIRD QUARTER CREDITS
Geol. 414 Map Interpret. 5
Approved electives 5
15

Courses for Undergraduates

101 Survey of Geology (5) Barksdale, Coombs, Mallory
102 Geology in World Affairs (5) Barksdale
103 Earth History (5) Wheeler
205 Rocks and Minerals (5) Staff
206 Elements of Physiography (5) Mackin
207 Historical Geology (5) Wheeler
221 Mineralogy (3 or 5) Staff
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 (*) Staff
412 Physiography of the United States (5) Mackin
414 Map Interpretation (5) Mackin

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; 5 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, 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>424</td>
<td>Petrography and Petrology (5)</td>
<td>Coombs</td>
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<tr>
<td></td>
<td>Systematic study of rocks with the petrographic microscope. Prerequisite, 323.</td>
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<tr>
<td>425</td>
<td>Petrography and Petrology (5)</td>
<td>Misch</td>
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<td></td>
<td>Metamorphic rocks, petrogenesis. Prerequisite, 424.</td>
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<tr>
<td>426</td>
<td>Sedimentary Petrography (5)</td>
<td>Staff</td>
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<td>Prerequisite, 425.</td>
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<tr>
<td>427</td>
<td>Ore Deposits (5)</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Form, structure, mineralogy, petrology, and mode of origin. Prerequisites, 221</td>
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<td></td>
<td>and 424.</td>
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<tr>
<td>429</td>
<td>Advanced Ore Deposits (3)</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Prerequisite, 427.</td>
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<tr>
<td>432</td>
<td>Advanced Paleontology (5)</td>
<td>Mallory</td>
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<tr>
<td></td>
<td>Principles of biostratigraphy; invertebrate faunas in space and time. Prerequisites, 207,</td>
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<td></td>
<td>330 or permission.</td>
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<td>436</td>
<td>Micropaleontology (5)</td>
<td>Mallory</td>
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<td></td>
<td>Prerequisite, 330.</td>
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<tr>
<td>443</td>
<td>Advanced Structural Geology (5)</td>
<td>Misch</td>
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<td></td>
<td>Prerequisite, 308.</td>
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<tr>
<td>450</td>
<td>Elements of Seismology (5)</td>
<td>Neumann</td>
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<tr>
<td>480</td>
<td>History of Geology (3)</td>
<td>Barksdale</td>
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<tr>
<td></td>
<td>Prerequisite, 15 credits in geology.</td>
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<tr>
<td>481</td>
<td>Preparation of Geologic Reports and Publications (3)</td>
<td>Coombs</td>
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<tr>
<td>498</td>
<td>Undergraduate Thesis (5)</td>
<td>Staff</td>
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<td></td>
<td>The thesis must be submitted at least one month before graduation.</td>
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<tr>
<td>499</td>
<td>Undergraduate Research (*, maximum 5)</td>
<td>Staff</td>
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<td></td>
<td>Prerequisites, senior standing and permission.</td>
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**COURSES FOR GRADUATES ONLY**

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

**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, 500, 501, 502, 503, 550, 552, 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

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) Vail (Offered 1959-60.)

438 Schiller's Historical Dramas (3) Kahn (Offered 1958-59.)

450J Introduction to General Linguistics (5) Jacobs, Reed (Offered jointly with the Department of Anthropology.

497 Studies in German Literature (1-5, maximum 15) Staff

498 Studies in the German Language (1-5, maximum 15) Staff

Prerequisite, 310 or equivalent.

COURSES IN ENGLISH

350 Masterpieces of German Literature in English (3) Sommerfeld

351 Contemporary German Literature in English (3) Roy Trends in German thought and letters in the twentieth century; social and economic backgrounds.

462 Goethe in English (3) Sauerlander

464 Thomas Mann in English (3) Roy

COURSES FOR GRADUATES ONLY

LITERATURE COURSES

500 Bibliography and Methodology (2) Sommerfeld (Offered 1957-58.)

510 Literature of the Middle Ages (5) Buck (Offered 1958-59.)

511 Reformation and Renaissance (3) Wilkie (Offered 1958-59.)

512 Baroque (3) Wilkie (Offered 1958-59.)

513 Eighteenth-Century Movements (3) Kahn (Offered 1958-59.)

515 The Romantic Movement (4) Sommerfeld (Offered 1957-58.)

516 The Drama of the Nineteenth Century (4) Sauerlander (Offered 1957-58.)

517 The Literature of the Later Nineteenth Century (4) Roy (Offered 1957-58.)

518, 519 The Literature of the Twentieth Century (3,3) Roy (Offered 1958-59.)

531 Lessing (3) Vail (Offered 1959-60.)

534 Goethe: Life and Works, 1775-88 (4) Buck (Offered 1957-58.)

535 Goethe: Life and Works, 1788-1832 (4) Sommerfeld (Offered 1957-58.)

538 Schiller (4) Kahn (Offered 1958-59.)

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

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, Giesey, Jansen, Kaminsky, Katz, Woolf

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

101 Medieval European History (5) Giesey, 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, Savelle
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
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.

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) Jansen
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) Giesey, 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, Giesey, 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.
**HISTORY**

131

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 1957-58.)

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 Fein 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 advance 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, Saville
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) Saville
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) Saville
(Not offered 1957-59.)

442 The Colonial Mind (5) Saville
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) Saville
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 nationalism 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) Saville
(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) Burko, Gates
Territorial and economic expansion of the United States from the Revolution to World War II; 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)  
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)  
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)  
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)  
See Introductory Courses above.

451J History of Chinese-Japanese Relations (3)  
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)  
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)  
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)  
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)  
The purposes, materials, and techniques of historical scholarship. Theory, practice, and criticism.

499 Undergraduate Research (1-5)  

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)  
Savelle

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 Empiro History (3-6)  
MacKirdv
SEMINARS

503-504 Seminar in Philosophy of History (3-6)-(3-6) Costigan
(Offered alternate years; offered 1957-58.)

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) Treadgold
(Of ferred jointly, alternate years, with the Far Eastern and Russian Institute; offered 1958-59.) Prerequisites, reading knowledge of Russian and permission.

550J-551J-552J Seminar in Japanese History (3-6)-(3-6)-(3-6) Jansen
(Of ferred jointly with the Far Eastern and Russian Institute. Prerequisite, permission.

553-554-555 Seminar in American History: Early (3-6)-(3-6)-(3-6) Savelle

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 homemaking 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Home Ec. 101 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Home Ec. 115 Food Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 125 Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 134 Clothing Construction</td>
<td>5</td>
</tr>
<tr>
<td>Art 109 Design</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 120 General and Organic</td>
<td>4-3</td>
</tr>
<tr>
<td>Engl. 101, 102, 103 Composition</td>
<td>9</td>
</tr>
<tr>
<td>Health Educ. 110 Health</td>
<td>2</td>
</tr>
<tr>
<td>Speech 100 Basic Improvement</td>
<td>3</td>
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<tr>
<td>Approved electives</td>
<td>5-6</td>
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<td>Phys. Educ. activity</td>
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<td><strong>Total Credits</strong></td>
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### Second Year

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<th>Course</th>
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<tbody>
<tr>
<td>Home Ec. 215 Meal Planning</td>
<td>3</td>
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<tr>
<td>Home Ec. 234 Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 248 The House</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 200 Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Educ. 209 Educ. Psychol.</td>
<td>3</td>
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<tr>
<td>Educ. 370 Intro. to Teach. Procedures</td>
<td>5</td>
</tr>
<tr>
<td>Music Appreciation</td>
<td>2-5</td>
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<tr>
<td>Nursing 100 Home Nursing</td>
<td>3</td>
</tr>
<tr>
<td>Psychol. 100 General</td>
<td>5</td>
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<tr>
<td>Soc. 110 Survey</td>
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<tr>
<td>Zool. 208 or 118 Physiology</td>
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<td><strong>Total Credits</strong></td>
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### Third Year

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<tbody>
<tr>
<td>Home Ec. 307 Nutrition</td>
<td>5</td>
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<tr>
<td>Home Ec. 315 Adv. Food Selection</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 347 Home Furnishing</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 354 Family Economics</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 333 Teaching Institution</td>
<td>5</td>
</tr>
<tr>
<td>Educ. 374 Fund. of Reading Instruct.</td>
<td>5</td>
</tr>
<tr>
<td>Psych. 306 Child Psych. or Educ. 402</td>
<td>5-3</td>
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<tr>
<td>Child Study</td>
<td>5-3</td>
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<td>Approved electives</td>
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### Fourth Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Home Ec. 338 Family Clothing</td>
<td>3</td>
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<tr>
<td>Home Ec. 348 Home-Management House</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 407 Adv. Nutrition or</td>
<td></td>
</tr>
<tr>
<td>434 Costume Design or 447 Adv.</td>
<td></td>
</tr>
<tr>
<td>Home Furnishing or 495 Special Problems</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 457 Child Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 360 Principles</td>
<td>3</td>
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<tr>
<td>Educ. 371S Directed Teaching</td>
<td>8</td>
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<tr>
<td>Educ. 372E Professional Lab.</td>
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<tr>
<td>Experiences</td>
<td>3</td>
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<tr>
<td>Educ. 374 Fund. of Reading Instruct.</td>
<td>5</td>
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<tr>
<td>Hist. 404 Wash. and Pac. N.W.</td>
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<tr>
<td>Psychol. 320 Obs. of Child Behavior</td>
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<tr>
<td>in Nurs. School</td>
<td>2</td>
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<tr>
<td>Approved electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Home Ec. 101 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Home Ec. 115 Food Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 125 Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Art 109 Design</td>
<td>3</td>
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<tr>
<td>Chem. 100 or 110 General</td>
<td>4-3</td>
</tr>
<tr>
<td>Chem. 120 General and Organic</td>
<td>5</td>
</tr>
<tr>
<td>Engl. 101, 102, 103 Composition</td>
<td>9</td>
</tr>
<tr>
<td>Health Educ. 110 Health</td>
<td>2</td>
</tr>
<tr>
<td>Math. 101 Intermediate Algebra</td>
<td>5</td>
</tr>
<tr>
<td>Psych. 100 General</td>
<td>5</td>
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<td>Approved electives</td>
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<tr>
<td>Phys. Educ. activity</td>
<td>3</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td><strong>48</strong></td>
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</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>CREDITS</th>
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</thead>
<tbody>
<tr>
<td>Home Ec. 101 Introduction</td>
<td>1</td>
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<tr>
<td>Home Ec. 125 Textiles</td>
<td>3</td>
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<tr>
<td>Home Ec. 110 Foods &amp; Nutrition or 300 Nutrition</td>
<td>5-2</td>
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<tr>
<td>Chem. 100 or 110 General</td>
<td>4-3</td>
</tr>
<tr>
<td>Chem. 120 General and Organic</td>
<td>5</td>
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<tr>
<td>Engl. 101,102,103 Composition</td>
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<tr>
<td>Health Educ. 110 Health</td>
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<td>Sociol. 110 Survey</td>
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<td>Phys. Educ. activity</td>
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<table>
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<tr>
<th>Third Year</th>
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<tbody>
<tr>
<td>Home Ec. 347 Home Furnishing</td>
<td>5</td>
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<tr>
<td>Home Ec. 354 Family Economics</td>
<td>5</td>
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<tr>
<td>Home Ec. 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Micro. 301 General</td>
<td>5</td>
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<tr>
<td>Pers. 310 Personnel Management</td>
<td>5</td>
</tr>
<tr>
<td>Prod. 355 Purchasing &amp; Material Mgmt.</td>
<td>5</td>
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<tr>
<td>Psychol. 320 Obs. of Child Behavior in Nurs. School</td>
<td>2</td>
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<tr>
<td>Speech 332 Principles of Group Discussion</td>
<td>5</td>
</tr>
<tr>
<td>Zool. 118 Physiology</td>
<td>5</td>
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<td>Approved electives</td>
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<td>Total CREDITS</td>
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Recommended electives: Journalism 200 (5), Speech 230 (5), Personnel 345 and 346 (3,3), Policy and Administration 463 (2).

<table>
<thead>
<tr>
<th>Fourth Year</th>
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<tbody>
<tr>
<td>Home Ec. 457 Child Nutrition</td>
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<tr>
<td>Home Ec. 473 Institution Mgmt.</td>
<td>5</td>
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<tr>
<td>Home Ec. 474 Institution Management (Accounting)</td>
<td>5</td>
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<tr>
<td>Home Ec. 475 Institution Equip.</td>
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<tr>
<td>Educ. 333 Methods of Teach. for Inst. Admin. Students</td>
<td>5</td>
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<tr>
<td>Hum. Rel. 460 Human Relations in Business and Industry</td>
<td>5</td>
</tr>
<tr>
<td>Mech. Engr. 418 Work Simplification</td>
<td>2</td>
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<tr>
<td>Pub. Health 451 Indust. Hygiene</td>
<td>3</td>
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<tr>
<td>Sociol. 466 Indust. Sociol. (should precede Hum. Rel. 460)</td>
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<tr>
<td>Home Ec. 457 Child Nutrition</td>
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<tr>
<td>Adver. 226 Intro. to Advertising</td>
<td>3</td>
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<tr>
<td>Commun. 100 Communications Today</td>
<td>2</td>
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<tr>
<td>Journ. 200 News Writing</td>
<td>5</td>
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<tr>
<td>Journ. 301 Copy Editing</td>
<td>3</td>
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<tr>
<td>Commun. 307 Public Relations</td>
<td>3</td>
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<tr>
<td>Journ. 404 Mag. Article Writing</td>
<td>3</td>
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<tr>
<td>Radio-TV 352 Radio and Television</td>
<td>5</td>
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<tr>
<td>Advertising</td>
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<table>
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<tr>
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<tr>
<td>Home Ec. 316 Demonstr. Cookery</td>
<td>3</td>
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<tr>
<td>Home Ec. 408 Diet Therapy, and 415 Exper. Cook., or Biochem. 361 and 363 Biochem.</td>
<td>6-5</td>
</tr>
<tr>
<td>Home Ec. 457 Child Nutrition</td>
<td>3</td>
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<tr>
<td>Commun. 100 Communications Today</td>
<td>2</td>
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<tr>
<td>Journ. 200 News Writing</td>
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<td>Speech 120 Public Speaking</td>
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<td>Commun. 100 Communications Today</td>
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<tr>
<td>Journ. 200 News Writing</td>
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<tr>
<td>Journ. 301 Copy Editing</td>
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<tr>
<td>Commun. 307 Public Relations</td>
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<tr>
<td>Journ. 404 Mag. Article Writing</td>
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</tr>
<tr>
<td>Radio-TV 352 Radio and Television</td>
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</tr>
<tr>
<td>Advertising</td>
<td></td>
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<tr>
<td>Approved electives</td>
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<tr>
<td>Total CREDITS</td>
<td>48</td>
</tr>
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</table>

| Home Economics and Social or                  | CREDITS |
| Public Health Work                            |---------|
| Home Ec. 408 Diet Therapy                     | 3       |
| Home Ec. 457 Child Nutrition                  | 3       |
| Pub. Health 470 Intro. to Biochem. 300         | 3       |
| 12 Credits from Soc. Work 300, 301, 302, 304, 305, with Biochem. 361 and 363 advised | 10     |
| Approved electives                            |         |
| Total CREDITS                                  | 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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Ec. 101 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Home Ec. 125 Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 134 Clothing Construction</td>
<td>5</td>
</tr>
<tr>
<td>Art 105 Drawing</td>
<td>3</td>
</tr>
<tr>
<td>Art 109, 110 Design</td>
<td>6</td>
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<tr>
<td>Chem. 100 or 110 General</td>
<td>4-5</td>
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<tr>
<td>Engl. 101, 102, 103 Composition</td>
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<tr>
<td>Health Educ. 110 Health</td>
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<td>Approved electives</td>
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<tr>
<td>Phys. Educ. activity</td>
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<table>
<thead>
<tr>
<th>Second Year</th>
<th>CREDITS</th>
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</thead>
<tbody>
<tr>
<td>Home Ec. 334, 434 Costume Design</td>
<td>6</td>
</tr>
<tr>
<td>Home Ec. 347 Home Furnishing</td>
<td>5</td>
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<tr>
<td>Home Ec. 354 Family Economics</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Art 369, 370, 371 Costume Design</td>
<td>6</td>
</tr>
<tr>
<td>Philos. 100 Introduction</td>
<td>5</td>
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<tr>
<td>Approved electives</td>
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<table>
<thead>
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<th>Third Year</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Ec. 334, 434 Costume Design</td>
<td>6</td>
</tr>
<tr>
<td>Home Ec. 347 Home Furnishing</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 354 Family Economics</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Acctg. 150 Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>Art 369, 370, 371 Costume Design</td>
<td>6</td>
</tr>
<tr>
<td>Gen. Bus. 101 Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Mkgt. 301 Principles</td>
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<tr>
<td>Approved electives</td>
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<tr>
<td><strong>Total</strong></td>
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<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Ec. 425 Advanced Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 432, 433 History of Costume &amp; Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 435, 436 History of Costume &amp; Textiles</td>
<td>8</td>
</tr>
<tr>
<td>Acctg. 350 Fundamentals</td>
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<td>Art electives</td>
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<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

### 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:

<table>
<thead>
<tr>
<th>Third Year</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Ec. 334, 434 Costume Design</td>
<td>6</td>
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<tr>
<td>Home Ec. 347 Home Furnishing</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 354 Family Economics</td>
<td>5</td>
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<tr>
<td>Home Ec. 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Art 369, 370, 371 Costume Design</td>
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<td>Phys. Educ. activity</td>
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<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Ec. 425 Advanced Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 432, 433 History of Costume &amp; Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 435, 436 History of Costume &amp; Textiles</td>
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</tr>
<tr>
<td>Business Administration electives</td>
<td>10-15</td>
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<tr>
<td>Production 380 Field Work</td>
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<td>Approved electives</td>
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<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Ec. 334, 434 Costume Design</td>
<td>6</td>
</tr>
<tr>
<td>Home Ec. 347 Home Furnishing</td>
<td>5</td>
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<tr>
<td>Home Ec. 354 Family Economics</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 356 Family Relationships</td>
<td>3</td>
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<tr>
<td>Art 369, 370 Costume Design</td>
<td>4</td>
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<tr>
<td>Philos. 100 Introduction</td>
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<td>Approved electives</td>
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### Fourth Year

<table>
<thead>
<tr>
<th>COURSE</th>
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<tbody>
<tr>
<td>Home Ec. 425 Adv. Textiles</td>
<td>3</td>
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<tr>
<td>Home Ec. 432, 433 History of Costume &amp; Textiles</td>
<td>8</td>
</tr>
<tr>
<td>4 credits from Home Ec. 321 Needlecraft, 322 Needlecraft, 329 Hand Weaving</td>
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<td>Art or upper-division business electives</td>
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<td><strong>Total Credits</strong></td>
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</table>

### 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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Ec. 101 Introduction</td>
<td>1</td>
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<tr>
<td>Home Ec. 115 Food Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 125 Textiles</td>
<td>3</td>
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<tr>
<td>Home Ec. 134 Clothing Construction</td>
<td>5</td>
</tr>
<tr>
<td>Art 109 Design</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 100 or 110 General</td>
<td>4-3</td>
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<td>Chem. 120 General and Organic</td>
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<td>Encl. 101, 102, 103 Composition</td>
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<tr>
<td>Health Educ. 110 Health</td>
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<td>Phys. Educ. activity</td>
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<thead>
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<tbody>
<tr>
<td>Home Ec. 215 Meal Planning</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 234 Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>Home Ec. 248 The House</td>
<td>3</td>
</tr>
<tr>
<td>Econ. 200 Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Psychol. 100 General</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 110 Survey</td>
<td>5</td>
</tr>
<tr>
<td>Zool. 208 Physiology</td>
<td>5</td>
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<tr>
<td>Approved electives</td>
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<tr>
<td><strong>Total Credits</strong></td>
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### Third Year

<table>
<thead>
<tr>
<th>COURSE</th>
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<tbody>
<tr>
<td>Home Ec. 307 Nutrition</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 347 Home Furnishing</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 348 Home-Management House</td>
<td>2</td>
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<tr>
<td>Home Ec. 354 Family Economics</td>
<td>5</td>
</tr>
<tr>
<td>Home Ec. 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Psychol. 320 Obs. Child Behavior</td>
<td>2</td>
</tr>
<tr>
<td>in Nurs. School</td>
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<td>Approved electives</td>
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### Fourth Year

<table>
<thead>
<tr>
<th>COURSE</th>
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<tbody>
<tr>
<td>Home Ec. 457 Child Nutrition</td>
<td>3</td>
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<tr>
<td>Approved electives</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

### 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), 358, and 457, and Education 332 (Teachers' Course in Home Economics).

**College of Business Administration Students.** For those interested in institution management the following sequence is recommended: Home Economics 115, 125, 215, 240, 307, 372, 472, 473, and 474; Chemistry 100 or 110 (General) and 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.


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. 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) Gould
Principles underlying good family relationships; wholesome adjustment of the home to a changing society.

372 Institution Food Preparation (5) Smith
Laboratory and institution practice in large-quantity food preparation and cost control. Prerequisite, 215.

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 textile qualities and the contributing factors. Trends in textile design and production and study of contemporary designer.

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, Wyborn
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.

437 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.

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 J. 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. ALLENDORFER, 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 8 units of algebra and 2 units 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Offered by</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>XA, XB Survey of Algebra (½ unit each)</strong></td>
<td><strong>Staff</strong></td>
<td>For students who are deficient in high school algebra for entrance requirements. Offered by extension only. Prerequisite, XA or permission for XB.</td>
</tr>
<tr>
<td><strong>XC, XD Survey of Plane Geometry (½ unit each)</strong></td>
<td><strong>Staff</strong></td>
<td>For students who are deficient in high school plane geometry for entrance requirements. Offered by extension only. Prerequisite, one year of high school algebra for XC; XC or permission for XD.</td>
</tr>
<tr>
<td><strong>101 Intermediate Algebra (5)</strong></td>
<td><strong>Staff</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>103 Intermediate Algebra and Trigonometry (3)</strong></td>
<td><strong>Staff</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>104 Plane Trigonometry (3)</strong></td>
<td><strong>Staff</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>105 College Algebra (5)</strong></td>
<td><strong>Staff</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>112 Mathematics of Business (5)</strong></td>
<td><strong>Staff</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>120 Introduction to Mathematical Thinking (2)</strong></td>
<td><strong>Staff</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>121 Basic Ideas of Algebra (3)</strong></td>
<td><strong>Staff</strong></td>
<td>Groups and fields; foundations of elementary algebra; simultaneous linear equations; quadratic equations; Boolean algebra. Prerequisite, 120.</td>
</tr>
<tr>
<td><strong>153 Analytic Geometry and Calculus (5)</strong></td>
<td><strong>Staff</strong></td>
<td>Equations of straight lines and simple curves. Differentiation of algebraic functions, applications. Differentials, indefinite integrals. Prerequisites, 103 or 104, and 193, or exemption by qualifying test.</td>
</tr>
<tr>
<td><strong>155, 156 Algebra and Calculus (3, 3)</strong></td>
<td><strong>Staff</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>251 Analytic Geometry and Calculus (5)</strong></td>
<td><strong>Staff</strong></td>
<td>Definite integrals, integration of simple algebraic functions, applications. Conic sections, polar coordinates, and differentiation of transcendental functions. Prerequisite, 153.</td>
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</tbody>
</table>
### Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
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</tr>
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<tbody>
<tr>
<td>252</td>
<td>Analytic Geometry and Calculus (5)</td>
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</tr>
<tr>
<td>253</td>
<td>Analytic Geometry and Calculus (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>281</td>
<td>Elements of Statistical Method (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>351, 352</td>
<td>Analytic Geometry and Calculus (5,5)</td>
<td>Staff</td>
</tr>
<tr>
<td>374</td>
<td>Principles of Digital Computers and Coding (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>382, 383</td>
<td>Statistical Inference in Applied Research (5,5)</td>
<td>Staff</td>
</tr>
<tr>
<td>401</td>
<td>Linear Algebra (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>402, 403</td>
<td>Introduction to Modern Algebra (3,3)</td>
<td>Staff</td>
</tr>
<tr>
<td>417</td>
<td>Advanced Calculus I (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>418</td>
<td>Advanced Calculus II (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>421, 422</td>
<td>Differential Equations (3,3)</td>
<td>Staff</td>
</tr>
<tr>
<td>424, 425, 426</td>
<td>Fundamental Concepts of Analysis (3,3,3)</td>
<td>Staff</td>
</tr>
<tr>
<td>427, 428, 429</td>
<td>Topics in Applied Analysis (3,3,3)</td>
<td>Staff</td>
</tr>
<tr>
<td>441</td>
<td>Foundations of Geometry (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>442</td>
<td>Advanced Analytic Geometry (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>443</td>
<td>Differential Geometry (3)</td>
<td>Staff</td>
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<tr>
<td>444</td>
<td>Advanced Euclidean Geometry (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>445</td>
<td>Non-Euclidean Geometry (2½)</td>
<td>Staff</td>
</tr>
<tr>
<td>464</td>
<td>Numerical Analysis I (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>465</td>
<td>Numerical Analysis II (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>466</td>
<td>Numerical Analysis III (5)</td>
<td>Staff</td>
</tr>
</tbody>
</table>

- **Mathematics 252**: Analytic Geometry and Calculus (5) - Parametric equations, curvature, integration of algebraic and transcendental functions, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251.
- **Mathematics 253**: Analytic Geometry and Calculus (3) - Solid analytic geometry, multiple integrals, partial derivatives. Prerequisite, 252.
- **Mathematics 281**: Elements of Statistical Method (5) - 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.
- **Mathematics 351, 352**: Analytic Geometry and Calculus (5,5) - 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.
- **Mathematics 374**: Principles of Digital Computers and Coding (5) - 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.
- **Mathematics 382, 383**: Statistical Inference in Applied Research (5,5) - 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.
- **Mathematics 401**: Linear Algebra (5) - Matrices; determinants; groups of transformations; linear spaces; linear transformations and their invariants. Prerequisite, 253.
- **Mathematics 402, 403**: Introduction to Modern Algebra (3,3) - Construction of the number systems in algebra; groups, rings, and fields; polynomials. Prerequisite, 401 for 402; 402 for 403.
- **Mathematics 417**: Advanced Calculus I (3) - Continuous functions, infinite series, series expansions, gamma function, transformations of coordinates and Jacobians. Prerequisite, 253.
- **Mathematics 418**: Advanced Calculus II (3) - 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).
- **Mathematics 421, 422**: Differential Equations (3,3) - Elementary methods of solution, linear differential equations, systems of differential equations, series solutions. Prerequisites, 253 for 421; 421 for 422.
- **Mathematics 424, 425, 426**: Fundamental Concepts of Analysis (3,3,3) - 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.
- **Mathematics 427, 428, 429**: Topics in Applied Analysis (3,3,3) - 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.
- **Mathematics 441**: Foundations of Geometry (3) - Axiomatic treatment of the foundations of projective and Euclidean geometries. Introduction to non-Euclidean geometry. Prerequisite, 253 or 309.
- **Mathematics 442**: Advanced Analytic Geometry (3) - Advanced topics in plane analytic geometry; solid analytic geometry, including analysis of quadric surfaces; homogeneous coordinates. Prerequisites, 253 or 309, and 401 or permission.
- **Mathematics 443**: Differential Geometry (3) - Elementary differential geometry of curves and surfaces. Prerequisites, 421 and 442.
- **Mathematics 444**: Advanced Euclidean Geometry (5) - (Offered Summer Quarter only.)
- **Mathematics 445**: Non-Euclidean Geometry (2½) - (Offered Summer Quarter only.)
- **Mathematics 464**: Numerical Analysis I (3) - Basic principles of numerical analysis, classical interpolation and approximation formulas, finite differences and difference equations. Laboratory work on desk calculators. Prerequisite or corequisite, 421.
- **Mathematics 465**: Numerical Analysis II (5) - 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.
- **Mathematics 466**: Numerical Analysis III (5) - 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) Offered through extension only.  

481 Calculus of Probabilities (5) Fundamental concepts; discrete and continuous random variables; mathematical expectations, law of large numbers; important types of distributions; characteristic functions; central limit theorem. Prerequisite, 233.

482 Classical Methods of Statistical Inference (5) 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) Multivariate distributions; variances, covariances, regression, and correlation; specialization of multivariate normal distributions; sampling of bivariate normal variables. Prerequisite, 482.

484 Chi-Tests (5) 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) (Offered when demand is sufficient.)

COURSES FOR GRADUATES ONLY

501, 502 Foundations of Mathematics (3,3) Fundamental concepts and methods of mathematics; the axiomatic method; the logical foundations of mathematics.

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.

510 Seminar in Algebra (*, maximum 5) 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) Theory of sets; ordinal and cardinal numbers; real numbers; topological spaces; homology; 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) 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) 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) 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) 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) 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) 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) 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) 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)  
Reports by students and staff on contemporary research.

591, 592, 593 Special Topics in Statistics (3, maximum 9, 3, maximum 9, 3, maximum 9)  
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 (*)  
Prerequisite, permission.

Thesis (*)  
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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FIRST QUARTER</td>
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</tr>
<tr>
<td>Chem. 100 or 110 General</td>
<td>4-3</td>
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<tr>
<td>Engl. 101 Composition</td>
<td>3</td>
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<tr>
<td>Health Educ. 110 or 175 Health</td>
<td>2</td>
</tr>
<tr>
<td>Math. 101 or 103 or 105 Algebra</td>
<td>5-3</td>
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<tr>
<td>Phys. Educ. activity</td>
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<td>ROTC</td>
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<td><strong>12-18</strong></td>
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<tr>
<td>SECOND QUARTER</td>
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<tr>
<td>Chem. 150 General</td>
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<td>Engl. 102 Composition</td>
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<tr>
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<td><strong>16-19</strong></td>
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<td>THIRD QUARTER</td>
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<tr>
<td>Anatomy 301 General</td>
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<td>Chem. 160 General</td>
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<tr>
<td>Chem. 170 Qual. Anal.</td>
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<td>Zoology 112 General</td>
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<td>2-3</td>
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<tr>
<td><strong>16-19</strong></td>
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</tbody>
</table>
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 PROGRM**

**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.
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

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
441: preliminary mathematics, vector operators, fundamental equations, simple manipulations of equations. Prerequisites, 341 or permission, and Mathematics 253. 442: vorticity theorem, instability of large scale motions, behavior of weather systems, bases of forecasting. Prerequisites, 414, 441, or permission.

445 Atmospheric Thermodynamics (3) Badgley
Fundamental thermodynamic concepts and their relation to kinetic theory; first and second laws of thermodynamics; change of phase; mixture of gases; nuclei and pseudo-adiabatic processes; theories of precipitation; thermodynamic charts and computations. Prerequisites, calculus and general physics.

451, 452 Meteorological Laboratory (5,5) Reed
451: routine three-dimensional weather analysis using current teletype data; practice forecasting by conventional techniques; measurement of vertical velocity and horizontal convergence and divergence for a selected synoptic case; isentropic analysis; exercises in numerical prediction. Prerequisites, 350 and 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) Buettnner
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) Buettnner
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.
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.

Dynamic Meteorology (3,3) Fleagle
541, 542: 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.

Atmospheric Wave Theory (3,3) Flagg
543, 544: 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.

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.

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.

Theory of Meteorological Instruments (3) Badgley
560: 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.

Seminar on Cloud Physics (2) Badgley
570: The physical processes in the formation and modification of clouds and the formation of precipitation in the atmosphere are examined. Prerequisite, permission.

Seminar on Atmospheric Radiation (3) Buettner
571: 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.

Seminar on Polar Meteorology (3) Staff
572: Critical examination of source materials and original papers on selected topics applicable to polar meteorology. Prerequisite, permission.

Field Investigations (10) Church
580: 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.

Laboratory in Experimental Meteorology (3, maximum 6) Staff
593: 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.

Research (*) Staff
600: 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>204</td>
<td>Medical Parasitology for Sanitarians (4)</td>
<td>Groman</td>
<td>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.</td>
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</tr>
<tr>
<td>235</td>
<td>Microbiology for Students of Dentistry (7)</td>
<td>Zahler</td>
<td>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.</td>
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<tr>
<td>300</td>
<td>Fundamentals of Bacteriology (*, maximum 6)</td>
<td>Douglas, Ordal</td>
<td>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.</td>
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</tr>
<tr>
<td>301</td>
<td>General Microbiology (5)</td>
<td>Rickenberg</td>
<td>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.</td>
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<tr>
<td>320</td>
<td>Media Preparation (*, maximum 5)</td>
<td>Duchow</td>
<td>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.</td>
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<tr>
<td>322</td>
<td>Applied Bacteriology (5)</td>
<td>Staff</td>
<td>Practical experience in a public health laboratory, fifteen hours per week. For students majoring in medical bacteriology. Prerequisites, 441-442 or equivalent, and permission.</td>
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</tr>
</tbody>
</table>
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 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, Actinoymycetales, Myxobacteriales, Chlamydobacteriales, Caryophanaes, and Borrromycetaceae. (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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Second Year</th>
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<tr>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
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<tr>
<td>Music 101, 102, 103 Theory .......... 6</td>
<td>Music 124, 125 Orch. Instruments Lab. .. 2</td>
</tr>
<tr>
<td>Music 104 Sight Singing ............. 3</td>
<td>Music 202, 203 Theory .................. 6</td>
</tr>
<tr>
<td>Music Ensemble .................... 0</td>
<td>Music 207, 208 Music Lit. .............. 4</td>
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<tr>
<td>Vocal or Instrumental Instruction ........ 6</td>
<td>Music Ensemble .................. 0</td>
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<td>Engl. 101, 102, 103 Composition .... 9</td>
<td>Vocal or Instrumental Instruction ........ 6</td>
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<td>Health Educ. 110 or 175 Health .......... 2</td>
<td>Science or Social Science .......... 15</td>
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<tr>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
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<tr>
<td>Music 301, 401 Contemp. Idioms .......... 6</td>
<td>Music 353, 453 Orchestration .......... 6</td>
</tr>
<tr>
<td>Music 304 Choral Lit. ................ 1</td>
<td>Music 408, 409 Music Hist. &amp; Lit. .......... 6</td>
</tr>
<tr>
<td>Music 321, 421 Modal Counterpoint .......... 6</td>
<td>Music 484, 485, 486 Conducting .......... 4</td>
</tr>
<tr>
<td>Music 384, 385, 386 Conducting ............. 4</td>
<td>Music 491 Composer's Lab. ............... 9</td>
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<tr>
<td>Music 491 Composer's Lab. .......... 6</td>
<td>Music Ensemble .................... 3</td>
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<td>Music History, upper-division .......... 4</td>
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<td>Approved electives ............. 12</td>
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</tr>
</tbody>
</table>
MUSIC 157

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Music 101, 102, 103 Theory</td>
<td>6</td>
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<tr>
<td>Music 104 Sight Singing</td>
<td>3</td>
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<td>Music 131, 132, 133 Piano Sight Reading</td>
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</tr>
<tr>
<td>Music 150A Piano</td>
<td>9</td>
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<tr>
<td>Music Ensemble</td>
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<tr>
<td>Health Educ. 110 or 175 Health</td>
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<td>Science or Social Science</td>
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<td>Phys. Educ. activity</td>
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Second Year

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>Music 150A Piano</td>
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</tr>
<tr>
<td>Music 202, 203 Theory</td>
<td>6</td>
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<tr>
<td>Music 207, 208 Music Lit.</td>
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<tr>
<td>Music Ensemble</td>
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<td>ROTC</td>
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Third Year

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>Music 304 Choral Lit.</td>
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<tr>
<td>Music 331, 332, 333 Keyboard</td>
<td>1</td>
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<tr>
<td>Transposition</td>
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<tr>
<td>Music 334, 335 Accompanying</td>
<td>6</td>
</tr>
<tr>
<td>Music 337, 338, 339 Repertoire</td>
<td>6</td>
</tr>
<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
<td>9</td>
</tr>
<tr>
<td>Music Theory, upper-division</td>
<td>6</td>
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<td>Music Ensemble</td>
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<td>Approved electives</td>
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Fourth Year

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
<td>9</td>
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<tr>
<td>Music 380 Adv. Chamber Music</td>
<td>3</td>
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<tr>
<td>Music 434, 435, 436 Piano Teaching</td>
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<td>Music Ensemble</td>
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<td>Music History, upper-division</td>
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<td>Music Theory, upper-division</td>
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VIOLIN AND VIOLONCELLO

First Year

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<tr>
<td>Music 104 Sight Singing</td>
<td>3</td>
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<tr>
<td>Music 150B or D Violin, Viola, or Violoncello</td>
<td>9</td>
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<td>Music Ensemble</td>
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<tr>
<td>Engl. 101, 102, 103 Composition</td>
<td>9</td>
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<td>Health Educ. 110 or 175 Health</td>
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Second Year

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<tbody>
<tr>
<td>Music 150B or D Violin, Viola, or Violoncello</td>
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</tr>
<tr>
<td>Music 202, 203 Theory</td>
<td>6</td>
</tr>
<tr>
<td>Music 207, 208 Music Lit.</td>
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<td>Music Ensemble</td>
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Third Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Music 337, 338, 339 Repertoire</td>
<td>6</td>
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<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
<td>9</td>
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<tr>
<td>Music 360 Univ. Symphony Orch.</td>
<td>3</td>
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<tr>
<td>Music 380 Adv. Chamber Music</td>
<td>3</td>
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<tr>
<td>Music 386 Conducting</td>
<td>1</td>
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<td>Music Theory, upper-division</td>
<td>6</td>
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<tr>
<td>Approved electives</td>
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Fourth Year

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Music 334 Accompanying</td>
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<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
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<tr>
<td>Music 360 Univ. Symphony Orch.</td>
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<td>Music 380 Adv. Chamber Music</td>
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<td>Music History, upper-division</td>
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<tr>
<td>Music Theory, upper-division</td>
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ORGAN

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<tr>
<td>Music 101, 102, 103 Theory</td>
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</tr>
<tr>
<td>Music 104 Sight Singing</td>
<td>3</td>
</tr>
<tr>
<td>Music 111, 112, 113</td>
<td>Piano Sight Reading</td>
</tr>
<tr>
<td>Music 150E Organ</td>
<td>9</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>0</td>
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<tr>
<td>Engl. 101, 102, 103 Composition</td>
<td>9</td>
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<tr>
<td>Health Educ. 110 or 175 Health</td>
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<tr>
<td>Science or Social Science</td>
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<tr>
<td>Phys. Educ. activity</td>
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**Total:** 48-57

<table>
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<tr>
<th>Second Year</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>Music 150E Organ</td>
<td>9</td>
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<td>Music 202, 203 Theory</td>
<td>6</td>
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<tr>
<td>Music 207, 208 Music Lit.</td>
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<td>Music Ensemble</td>
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<tr>
<td>Science or Social Science</td>
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<td>Approved electives</td>
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**Total:** 45-54

**Third Year**

<table>
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<tr>
<th>CREDITS</th>
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<tbody>
<tr>
<td>Music 304 Choral Lit.</td>
</tr>
<tr>
<td>Music 322, 422 Tonal Counterpoint</td>
</tr>
<tr>
<td>Music 337, 338, 339 Repertoire</td>
</tr>
<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
</tr>
<tr>
<td>Music 385 Conducting</td>
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<tr>
<td>Music Ensemble</td>
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<tr>
<td>Music Theory, upper-division</td>
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<tr>
<td>Approved electives</td>
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**Total:** 45

**Fourth Year**

<table>
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<th>CREDITS</th>
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<tbody>
<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
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<tr>
<td>Music 357 Church Music</td>
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<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Music History, upper-division</td>
</tr>
<tr>
<td>Music Theory, upper-division</td>
</tr>
<tr>
<td>Approved electives</td>
</tr>
<tr>
<td>Senior Recital</td>
</tr>
</tbody>
</table>

**Total:** 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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>CREDITS</th>
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</thead>
<tbody>
<tr>
<td>Music 101, 102, 103 Theory</td>
<td>6</td>
</tr>
<tr>
<td>Music 104 Sight Singing</td>
<td>3</td>
</tr>
<tr>
<td>Music 111, 112, 113</td>
<td>Rhythmic Movement</td>
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<td>Music 150C Voice</td>
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<tr>
<td>Music Ensemble</td>
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<tr>
<td>Engl. 101, 102, 103 Composition</td>
<td>9</td>
</tr>
<tr>
<td>Health Educ. 110 or 175 Health</td>
<td>2</td>
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<tr>
<td>Science or Social Science</td>
<td>13</td>
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<tr>
<td>Phys. Educ. activity</td>
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<tr>
<td>ROTC</td>
<td>6-9</td>
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**Total:** 48-57

<table>
<thead>
<tr>
<th>Second Year</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>Music 150C Voice</td>
<td>9</td>
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<tr>
<td>Music 202, 203 Theory</td>
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<tr>
<td>Music 207, 208 Music Lit.</td>
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<tr>
<td>Music 211 Music Theatre Tech.</td>
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**Total:** 47-56

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<tbody>
<tr>
<td>Music 304 Choral Lit.</td>
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<tr>
<td>Music 337, 338, 339 Repertoire</td>
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<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
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</tr>
<tr>
<td>Music 385 Conducting</td>
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</tr>
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<td>Music Ensemble</td>
<td>3</td>
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<tr>
<td>Music Theory, upper-division</td>
<td>6</td>
</tr>
<tr>
<td>Engl. 257 or 320 Poetry</td>
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<td>Science or Social Science</td>
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**Total:** 45

<table>
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<tr>
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<tbody>
<tr>
<td>Music 334 Accompanying</td>
<td>3</td>
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<tr>
<td>Music 350 Vocal or Instrumental Instr.</td>
<td>6</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>6</td>
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<tr>
<td>Music History, upper-division</td>
<td>4</td>
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<tr>
<td>Music Theory, upper-division</td>
<td>6</td>
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<tr>
<td>Approved electives</td>
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<tr>
<td>Senior Recital</td>
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</table>

**Total:** 43

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

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

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Music 101, 102, 103 Theory</td>
<td>3</td>
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<td>Music 104 Sight Singing</td>
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<td>Music Ensemble</td>
<td>0</td>
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<td>Vocal or Instrumental Instruction</td>
<td>6</td>
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<tr>
<td>Engl. 101, 102, 103 Composition</td>
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<td>Health Educ. 110 or 175 Health</td>
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<td>Psychol. 100 General</td>
<td>5</td>
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<td>Science (Group III)</td>
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<td>Speech 109 Basic Improvement</td>
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**Total Credits:** 48-57

### Second Year

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<tbody>
<tr>
<td>Music 124, 125, 234 Orch. Instruments Lab.</td>
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<tr>
<td>Music 202, 203 Theory</td>
<td>6</td>
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<tr>
<td>Music 207, 208 Music Lit.</td>
<td>4</td>
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<tr>
<td>Music Ensemble</td>
<td>0</td>
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<tr>
<td>Vocal or Instrumental Instruction</td>
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<tr>
<td>Art elective</td>
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<tr>
<td>Educ. 209 Educ. Psychol.</td>
<td>3</td>
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<td>Science or Social Science</td>
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<td>Psychol. 306 Child Psychol.</td>
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**Total Credits:** 41-50

### Third Year

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

### Fourth Year

<table>
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<tbody>
<tr>
<td>Music 244 Orch. Lab.</td>
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<tr>
<td>Music 346J Teachers' Course in Secondary School Music</td>
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<td>Music Ensemble</td>
<td>3</td>
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<tr>
<td>Music Theory, upper-division</td>
<td>6</td>
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<tr>
<td>Vocal or Instrumental Instruction</td>
<td>6</td>
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<tr>
<td>Educ. 360 Principles</td>
<td>3</td>
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<td>Educ. 371S Directed Teaching</td>
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<tr>
<td>Educ. 372E Prof. Lab. Experiences</td>
<td>3</td>
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<tr>
<td>History 464 Wash. &amp; Pacific NW</td>
<td>5</td>
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<tr>
<td>Public Health 461 School and Community Programs</td>
<td>5</td>
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**Total Credits:** 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

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Music 101, 102, 103 Theory</td>
<td>6</td>
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<tr>
<td>Music 104 Sight Singing</td>
<td>3</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>0</td>
</tr>
<tr>
<td>Vocal or Instrumental Instruction</td>
<td>6</td>
</tr>
<tr>
<td>Engl. 101, 102, 103 Composition</td>
<td>9</td>
</tr>
<tr>
<td>Health Educ. 110 or 175 Health</td>
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</tr>
<tr>
<td>Science or Social Science</td>
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<tr>
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<td>ROTC</td>
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**Total Credits:** 48-57

### Second Year

<table>
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<tbody>
<tr>
<td>Music 202, 203 Theory</td>
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</tr>
<tr>
<td>Music 207, 208 Music Lit.</td>
<td>4</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>0</td>
</tr>
<tr>
<td>Vocal or Instrumental Instruction</td>
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<td>Science or Social Science</td>
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<tr>
<td>French or German</td>
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<td>ROTC</td>
<td>6-9</td>
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</table>

**Total Credits:** 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
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, 558, 559, 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>University Singers (1-1-1, maximum 6)</td>
<td>Kochlau</td>
<td>Study, preparation, and performance of oratorios, cantatas, and other large choral works.</td>
</tr>
<tr>
<td>101, 102, 103</td>
<td>First-Year Theory (2,2,2)</td>
<td>Staff</td>
<td>Intensive training in basic musicianship; sight reading, ear training, keyboard harmony, creative harmony; elements of counterpoint, analysis, and form. Primarily for majors. Prerequisite, permission.</td>
</tr>
<tr>
<td>104</td>
<td>Sight Singing (1, maximum 3)</td>
<td>Staff</td>
<td>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.</td>
</tr>
<tr>
<td>107</td>
<td>Survey of Music (5)</td>
<td>Kinsella</td>
<td>Illustrated lectures with supplementary readings to provide the general student with background for the understanding of common musical forms, idioms, and styles. For nonmajors.</td>
</tr>
<tr>
<td>108</td>
<td>The Orchestra (2)</td>
<td>Kinsella, Sokol</td>
<td>The development of the orchestra and its literature. For nonmajors.</td>
</tr>
<tr>
<td>110A</td>
<td>Class Instruction: Piano (1-1-1, maximum 3)</td>
<td>Staff</td>
<td>Primarily for majors who cannot meet the entrance requirements in piano. Fee, $5.00. Prerequisite, permission.</td>
</tr>
<tr>
<td>110C</td>
<td>Class Instruction: Voice (1-1-1, maximum 3)</td>
<td>Staff</td>
<td>Primarily for majors. Fee, $5.00. Prerequisite, permission.</td>
</tr>
<tr>
<td>110Y</td>
<td>Class Instruction: Piano (1)</td>
<td>Staff</td>
<td>For elementary education students. Fee, $5.00. Prerequisite for Education 377X-377Y.</td>
</tr>
<tr>
<td>110Z</td>
<td>Class Instruction: Voice (1)</td>
<td>Staff</td>
<td>For elementary education students. Fee, $5.00. Prerequisite for Education 377X-377Y.</td>
</tr>
<tr>
<td>111, 112, 113</td>
<td>Rhythmic Movement (1,1,1)</td>
<td>Rosinbum</td>
<td>Muscular coordination with musical rhythms.</td>
</tr>
</tbody>
</table>
Music Appreciation: Symphonic Music, Nineteenth Century (2) Hokanson, Kinsella, Sokol
Illustrated studies to increase the understanding and enjoyment of symphonic music of the nineteenth century. For nonmajors. Prerequisite, 107 or 108.

Music Appreciation: Symphonic Music, Seventeenth and Eighteenth Centuries (2) Hokanson, Kinsella, 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.

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.

120C Class Instruction: Voice (1-1-1, maximum 3) Staff
Primarily for majors. Fee, $5.00. Prerequisite, 110C or equivalent.

131, 132, 133 Piano Sight Reading Laboratory (1,1,1) Moore
For majors in piano and organ; exemption by examination. Others by permission.

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. For description and teacher designation, see 150. Prerequisite, examination.

160 University Symphony Orchestra (1, maximum 6) Chapple

180 Chamber Music (1, maximum 6) Staff
Small instrumental and vocal groups.
A. PIANO. Jacobson (A1), Ringold (A2), Bostwick (A3), Normann (A4), Geissmar (A5), Moore (A6), Hokanson (A7)
B. VIOLIN or VIOLA. Zeltin (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)
I. PERCUSSION. Barth (J)
J. HARPSICHORD. Bostwick (K)

161 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 Techniquo (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.
301 Contemporary Idioms (3) McKay
Analytical study of present-day composition techniques. Prerequisite, 203 or permission.

304 Choral Literature (1) Terry
Interpretation and analysis of choral music through performance. Prerequisites, 103 and 104 or permission.

307, 308, 309 Music History and Literature (3,3,3) Terry, Woodcock, Irvine
307: classic period; 308: early romantic period; 309: late romantic period. Prerequisites, 203 and 208, or permission.

317 Music Appreciation: Chamber Music (2) Heinitz
Survey of literature for chamber music ensembles. For nonmajors. Prerequisite, 107 or 108.

321 Model Counterpoint (3) Babb
Studies in sixteenth-century style. Prerequisite, 203 or permission.

322 Tonal Counterpoint (3) Verrall
Polyphonic composition: canon, invention, and fugue. Prerequisite, 203 or permission.

330 Vocal or Instrumental Instruction (2-3, maximum 18) Staff
For majors not specializing in performance. Fee. $25.00 for 2 credits or $37.50 for 3 credits. For description and teacher designation, see 150.

331, 332, 333 Keyboard Transposition and Improvisation (2,2,2) Beale
Prerequisite, 203 or permission.

334, 335 Accompanying (3,3) Woodcock
Study and performance of music of different types and periods for voice or instrument in combination with piano.

337, 338, 339 Repertoire (2,2,2) Staff
For applied music majors. To be taken concurrently with 350 during the junior year.
Section A. PIANO
Section B. STRING
Section C. SONG
Section D. ORGAN

340 University Concert Band (1, maximum 6) Welke
Prerequisite, audition.

344 Elementary School Music (4) Swanson
The development of the music program in the public schools from grade one through nine. Prerequisites, 385, Education 370, and examination.

346J Teachers' Course in Secondary School Music (4) Normann
The development of the music program in the senior high school. Two credits count as education and 2 as music. Offered jointly with the College of Education. Prerequisites, 344, 385, and Education 370.

347 Music in the Americas (3) KinSELLA
Contribution of music to church and society in the western hemisphere during the seventeenth and eighteenth centuries. Prerequisites, 203 and 208, or permission.

348 Music in the Americas (3) KinSELLA
Study through performance of American composition of the nineteenth and twentieth centuries. Prerequisites, 203 and 208, or permission.

350 Vocal or Instrumental Instruction (2-3, maximum 18) Staff
To be taken concurrently with 337, 338, and 339 during the junior year. Fee. $25.00 for 2 credits or $37.50 for 3 credits. For description and teacher designation, see Music 150. Prerequisite, examination.

352 Musical Form (3) Woodcock
Analysis of the principal forms of music composition. Prerequisite, 203 or permission.

353 Orchestration (3) Verrall
Technique of writing for orchestra and other large ensembles; analytical and historical approach to problems of organization and sonority. Prerequisite, 203.

354 Band Arranging (3) Welke
Study of tone color, voicing, transposition, and arranging. Prerequisite, 203.

355 Music Calligraphy (1) Verrall
Preparation, editing, proofreading, and copying of manuscripts.

357 Church Music (3) Woodcock
Survey of liturgy, chant, hymn, anthem, and solo. Prerequisites, 203 and 208, or permission.

360 University Symphony Orchestra (1, maximum 6) ChappElE
Prerequisite, audition.

377, 378, 379 Score Reading (2,2,2) Irvine
Reading from score at the piano as a technique for the investigation of ensemble literature. Prerequisites, 203 and 208, or permission.

380 Advanced Chamber Music (1, maximum 6) Staff
Selected instrumental and vocal groups. Prerequisite, permission.

384 Conducting (1) Welke
Transposition, score analysis, and baton technique. Prerequisite, 203.

385 Conducting (2) Munro
Score analysis, musical styles, hand technique. To be taken concurrently with 304. Prerequisite, 103 and 104.
386 Conducting (1) Transposition, score analysis, and baton technique. Prerequisite, 203.
Kirchner

401 Contemporary Idioms (3) Continuation of 301.
McKay

407, 408, 409 Music History and Literature (3,3,3) Prerequisites, 203 and 208, or permission.
Irvine, Terry, McKay 407: renaissance; 408: baroque; 409: contemporary.

417 Music of the Middle Ages (3) Prerequisite, 203 and 208, or permission.
Irvine

421 Model Counterpoint (3) Continuation of 321.
Babb

422 Tonal Counterpoint (3) Continuation of 322.
Verrall

428 Beethoven (3) Prerequisite, 203 and 208, or permission.
Woodcock

434, 435, 436 Piano Teaching (2,2,2) Survey and study of teaching material; supervised practice teaching.
Woodcock, Moore

437 Rococo and Preclassic Music (3) Prerequisite, 203 and 208, or permission.
Terry

440 Wind Sinfonietta (2, maximum 6) (Offered Summer Quarter only.)
Welke

447 Schumann (3) Prerequisite, 203 and 208, or permission.
Woodcock

450 Vocal or Instrumental Instruction (2-3, maximum 18) Fee, $25.00 for 2 credits or $37.50 for 3 credits. For description and teacher designation, see ISO.
Staff

452 Musical Form (3) Continuation of 352.
Woodcock

453 Orchestrartion (3) Continuation of 353.
Verrall

465 Opera Direction and Production (4,4) Practical experience with problems of the opera theatre.
Rosinbun

467 History of Keyboard Music (3) Development of organ, clavichord, harpsichord, and piano; idioms of corresponding types of keyboard music and styles of performance. Prerequisites, 203 and 208, or permission.
Kinscolla

474 The Curriculum in Music Education (3) Normann

490 College (1-2, maximum 6) Special studies in the performance of early ensemble music. Techniques and repertoire of the viols. Prerequisite, permission.
Bostwick, Heinitz, Terry

491 Composer's Laboratory (3, maximum 18) Prerequisite, 203 or permission.
McKay, Verrall

495 Choral Conducting (3) Prerequisite, permission.
Munro

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) 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 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, Verrall

600 Research (*)
Irvine
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 1½ units of algebra, ½ 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**

<table>
<thead>
<tr>
<th>FIRST QUARTER CREDITS</th>
<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ocean. 110- Lectures...</td>
<td>-1-</td>
<td>Ocean. -111- Lectures..</td>
</tr>
<tr>
<td>Chem. 110 General.....</td>
<td>-1-</td>
<td>Chem. 150 General.....</td>
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<tr>
<td>&amp; Calc. .......</td>
<td>-5-</td>
<td>&amp; Calc. ................</td>
</tr>
<tr>
<td>Physics 121 General..</td>
<td>-3-</td>
<td>Physics 122 General..</td>
</tr>
<tr>
<td>Physics 131 General Lab.</td>
<td>-2-</td>
<td>Physics 132 General Lab.</td>
</tr>
<tr>
<td>Health Educ. 175 or..</td>
<td>2</td>
<td>Phys. Educ. activity.</td>
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<td>110 Health ....</td>
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<td></td>
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<tr>
<td>Phys. Educ. activity.</td>
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<tr>
<td>ROTC .......</td>
<td>2-3</td>
<td></td>
</tr>
<tr>
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<td>17-20</td>
<td></td>
</tr>
</tbody>
</table>

**Second Year**

<table>
<thead>
<tr>
<th>FIRST QUARTER CREDITS</th>
<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. 170 Qual. Anal..</td>
<td>-3-</td>
<td>Chem. 221 Quant. Anal..</td>
</tr>
<tr>
<td>Engl. 101 Composition.</td>
<td>-3-</td>
<td>Engl. 102 Composition.</td>
</tr>
<tr>
<td>Math. 253 Anal. Geom.</td>
<td>-3-</td>
<td>Science electives .....</td>
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<tr>
<td>&amp; Calc. ...............</td>
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<td>ROTC ...................</td>
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<td>ROTC .......</td>
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<td></td>
<td>16-19</td>
<td></td>
</tr>
</tbody>
</table>

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 (5) 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.
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.

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.

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.

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.

Ocean Circulation (2)
Rattray
Hydrodynamic theories concerning the origin and characteristics of the major ocean currents. Prerequisites, 511, 512, or equivalent.

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.

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.

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.

Seminar (*) (maximum 6)
Staff

Seminar in Chemical Oceanography (3, maximum 9)
Thompson
Lectures, discussions, and field and laboratory work on selected problems of current interest. Prerequisite, 421-422.

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.

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, Sesonske
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

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, Sesonske
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.)
### Courses for Graduates Only

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<th>Course Code</th>
<th>Title</th>
<th>Instructor(s)</th>
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<tr>
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<td>521</td>
<td>Seminar in Modern Philosophy (2)</td>
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<td>(Not offered 1957-58.)</td>
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<td>522</td>
<td>Seminar in Recent Philosophy (2)</td>
<td>Murphy</td>
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<td>540</td>
<td>Seminar in Ethics (2)</td>
<td>Melden</td>
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<td>545</td>
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<td>570</td>
<td>Seminar in Logic (2)</td>
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<td></td>
<td>(Offered alternate years; offered 1958-59.)</td>
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<tr>
<td>584</td>
<td>Reading in Philosophy (1-4)</td>
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<td>Intensive reading in the philosophical literature. Prerequisite, permission of Executive Officer.</td>
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<td>587</td>
<td>Contemporary Analytic Philosophy (3)</td>
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<td>600</td>
<td>Research (1-6)</td>
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<td>Prerequisite, permission.</td>
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### Thesis (*)

**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:

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<td>Phys. Educ. activities</td>
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<td>Phys. Educ. 161, 162, 163, 264, 265, 266</td>
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<td>Zool. 118 &amp; 118L, or 208 Physiology (or approved substitute)</td>
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<td>ROTC</td>
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<tr>
<td>Health Educ. 110 Health</td>
<td>…… 2</td>
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<tr>
<td>Phys. Educ. 115, 121, 157 Archery, Bowling, Canoeing</td>
<td>…… 3</td>
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<tr>
<td>Anat. 301 General</td>
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<td>Chem. 100 General (or one year of high school chemistry)</td>
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**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.

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<td>Health Educ. 291 Hygiene</td>
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<td>Health Educ. 292 First Aid &amp; Safety</td>
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<td>Phys. Educ. 293 Physiol. of Muscular Exercise</td>
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<td>Phys. Educ. 309 School Dance Program</td>
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<td>Phys. Educ. 340 Admin. of Intramural Sports</td>
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<td>Phys. Educ. 345 Principles</td>
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<td>Phys. Educ. 363 Teaching Sports</td>
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<td>Phys. Educ. 370 Coaching of Football</td>
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<td>Phys. Educ. 371 Coaching of Basketball</td>
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<td>Phys. Educ. 493 Problems in Athletics</td>
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<tr>
<td>Rec. Educ. 294 Intro. to Recreation</td>
<td>…… 2</td>
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<td>Rec. Educ. 324 Recreation Programs</td>
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<td>Health Educ. 292 First Aid &amp; Safety</td>
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<td>…… 3</td>
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<tr>
<td>Phys. Educ. 311 Rhythmic Activities for Small Children</td>
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<td>Phys. Educ. 312 Elem. School Athletic Program</td>
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<td>Phys. Educ. 345 Principles</td>
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<td>Phys. Educ. 301 Methods &amp; Materials in Gymnastics, Stunts &amp; Tumbling</td>
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<td>Phys. Educ. 355 Teaching Modern Dance</td>
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<td>Phys. Educ. 362 Teaching Folk, Tap &amp; Clog Dancing</td>
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<td>Phys. Educ. 363 Teaching Sports</td>
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<td>Phys. Educ. 364 Teaching Aquatics</td>
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<td>Rec. Educ. 344 Camp Programs</td>
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<td>Sociol. 110</td>
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<td>Phys. Educ. 290</td>
<td>Orchestra</td>
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<td>Rec. Educ. 324</td>
<td>Recreation Programs</td>
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<td>Drama 437</td>
<td>Creative</td>
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<td>Hist. of gov. electives</td>
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<td>Approved electives</td>
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### Additional Credit Requirements for Women

Women are required to complete additional credit requirements, including: art, 7; business administration, 4; drama, 8; 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

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<td>Phys. Educ. 358</td>
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<td>Rec. Educ. 374</td>
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<td>Cultural skills electives</td>
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<td>Psychol. electives</td>
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<td>Phys. Educ. 292</td>
<td>First Aid &amp; Safety</td>
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<td>Rec. Educ. 294</td>
<td>Intro. to Recreation</td>
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<td>Libranship 452</td>
<td>Storytelling</td>
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<td>Psychol. 100</td>
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<tr>
<td>Science or elective</td>
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<tr>
<td>Sociol. 110</td>
<td>Survey</td>
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<tr>
<td>Speech 100</td>
<td>Basic Speech Improvement</td>
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<tr>
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<td>4</td>
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</tbody>
</table>

* Dependent upon area of specialization
PHYSICAL AND HEALTH EDUCATION

Third Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Phys. Educ. 311 Rhythmic Activities for Small Children or Educ. 378D</td>
<td>2-3</td>
</tr>
<tr>
<td>Phys. Educ. for the Elem. School</td>
<td>3</td>
</tr>
<tr>
<td>Phys. Educ. 363 Teaching Sports Teachers</td>
<td>3-3</td>
</tr>
<tr>
<td>Drama 437 Creative</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 377X-377Y Music for Elem. Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 301 Survey or 350 Wildlife Management</td>
<td>3</td>
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<tr>
<td>Social electives</td>
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<tr>
<td>Approved electives and/or area specialization</td>
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</tbody>
</table>

Total Credits: 44-46

AREAS OF SPECIALIZATION

Art, 10 credits—109 and select 7 credits from 105, 151, 300, 302, 303, 357 or Home Economics 329.
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 180A, 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Health Educ. 110 Health</td>
<td>2</td>
</tr>
<tr>
<td>Phys. Educ. 115, 121, 157 Archery, Bowling, Canoeing</td>
<td>3</td>
</tr>
<tr>
<td>Phys. Educ. 190 Introduction</td>
<td>2</td>
</tr>
<tr>
<td>Biol. 101J-102T General</td>
<td>10</td>
</tr>
<tr>
<td>Engl. 101, 102, 103 Composition</td>
<td>9</td>
</tr>
<tr>
<td>Physics 170 &amp; 170L Intro. to Health Sciences Physics and Lab.</td>
<td>6</td>
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<tr>
<td>Psychol. 100 General</td>
<td>5</td>
</tr>
<tr>
<td>Speech 100 Basic Speech Improvement</td>
<td>5</td>
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<tr>
<td>Approved electives</td>
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</table>

Total Credits: 45-48

Effective through Summer Quarter, 1958:

Third Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Phys. Educ. 301 Methods &amp; Materials in Gymnastics, Stunts &amp; Tumbling</td>
<td>3</td>
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<tr>
<td>Phys. Educ. 311 Rhythmic Activities for Small Children</td>
<td>2</td>
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<tr>
<td>Phys. Educ. 315 Analysis of Rhythm</td>
<td>3</td>
</tr>
<tr>
<td>Phys. Educ. 322 Kinesiology</td>
<td>2</td>
</tr>
<tr>
<td>Phys. Educ. 362 Teaching Folk, Tap &amp; Clog Dancing</td>
<td>2</td>
</tr>
<tr>
<td>Phys. Educ. 363 Teaching Sports</td>
<td>3</td>
</tr>
<tr>
<td>Phys. Educ. 364 Teaching Aquatics</td>
<td>3</td>
</tr>
<tr>
<td>Micro. 301 General (or approved substitute)</td>
<td>5</td>
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<tr>
<td>Psychol. 305 Abnormal or 309 Exceptional Child</td>
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Total Credits: 45

Fourth Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Rec. Educ. 426 Field Work</td>
<td>5</td>
</tr>
<tr>
<td>Commun. 303 Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>Drama 426 H.S. Play Production</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 455 Auditory and Visual Aids</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 356 Forest Recreation</td>
<td>3</td>
</tr>
<tr>
<td>History</td>
<td>5</td>
</tr>
<tr>
<td>Librship. 452 Storytelling</td>
<td>3</td>
</tr>
<tr>
<td>Soc. Work 521 Social Group Work</td>
<td>2</td>
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<tr>
<td>Speech 332 Group Discussion</td>
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<td>Approved electives and/or area specialization</td>
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</table>

Total Credits: 44-46

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**

<table>
<thead>
<tr>
<th>First Quarter Credits</th>
<th>Second Quarter Credits</th>
<th>Third Quarter Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys. Educ. 190 Intro-</td>
<td>Engl. 102 Composition</td>
<td>Engl. 103 Composition</td>
</tr>
<tr>
<td>duction</td>
<td>Speech 120 Public Speaking</td>
<td>Psychol. 100 General</td>
</tr>
<tr>
<td>Engl. 101 Composition</td>
<td>Zool. 112 or Biol. 101J</td>
<td>Speech 100 Basic Speech</td>
</tr>
<tr>
<td>Zool. 111 or Biol. 101J</td>
<td>General</td>
<td>Improvement</td>
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<tr>
<td>ROTC</td>
<td>ROTC</td>
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**Second Year**

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<tr>
<th>First Quarter Credits</th>
<th>Second Quarter Credits</th>
<th>Third Quarter Credits</th>
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</thead>
<tbody>
<tr>
<td>Health Educ. 292</td>
<td>Health Educ. 291</td>
<td>Health Educ. 266</td>
</tr>
<tr>
<td>Aid &amp; Safety</td>
<td>Hygiene</td>
<td>Individual Sports</td>
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<tr>
<td>ing &amp; Wrestling</td>
<td>Organized Games</td>
<td>of Muscular Exercise</td>
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<tr>
<td>duction</td>
<td>Music 108 Orchestra or 217</td>
<td>Art 129, 261 or 300 Design</td>
</tr>
<tr>
<td>Zool. 116 &amp; 118L Physiol. &amp; Lab.</td>
<td>or 218 or 219 Apprecia-</td>
<td>or 291 or 292 Art Educ.</td>
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<tr>
<td>Approved electives (second</td>
<td>tion: Opera</td>
<td>Educ. 370 Teaching</td>
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<td>area of concentration)</td>
<td>Psy chol. 306 Child Psychol.</td>
<td>Procedures</td>
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<td>ROTC</td>
<td>Educ. 402 Child</td>
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<td>Study</td>
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<td>Approved elective or Phys.</td>
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<td>Educ. 290 Officiating</td>
<td>Educ. 290 Officiating</td>
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<td>ROTC</td>
<td>ROTC</td>
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<td>17-18</td>
<td>18-19</td>
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**Third Year**

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<thead>
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<th>Third Quarter Credits</th>
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<tbody>
<tr>
<td>Dance Program</td>
<td>Rec. Educ. 324 Recreation Programs</td>
<td>of Intramural Sports</td>
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<td></td>
<td>15-16</td>
<td>18</td>
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### Fourth Year

<table>
<thead>
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<tbody>
<tr>
<td>Educ. 360 Principles</td>
<td>3</td>
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<tr>
<td>Educ. 371E, X, or S</td>
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<tr>
<td>Directed Teaching (may be taken Autumn, Winter, or Spring.)</td>
<td>8</td>
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<tr>
<td>Public Health 461 School &amp; Commun. Health</td>
<td>5</td>
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<tr>
<td>Approved elective</td>
<td>1</td>
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<table>
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<tbody>
<tr>
<td>Health Educ. 465 School</td>
<td>3</td>
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<tr>
<td>Health Educ. Program</td>
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<tr>
<td>Phys. Educ. 358 Teaching</td>
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</tr>
<tr>
<td>Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>Phys. Educ. 447 Tests &amp; Measurements</td>
<td>3</td>
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<tr>
<td>Phys. Educ. 450 School</td>
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<tr>
<td>Phys. Educ. Program</td>
<td>3</td>
</tr>
<tr>
<td>Edu. 372E, X, or S</td>
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<tr>
<td>Professional Lab. Experiences</td>
<td>3</td>
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<td>Approved electives (second area of concentration)</td>
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<table>
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<tr>
<td>Phys. Educ. 364 Teaching</td>
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<tr>
<td>Aquatics</td>
<td>2</td>
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<tr>
<td>Phys. Educ. 493 Problems in Athletics</td>
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<td>Hist. 646 Wash. &amp; Fac. NW.</td>
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<tr>
<td>Health Educ. 429 Teaching First Aid and Safety,</td>
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<tr>
<td>Phys. Educ. 295 Swimming &amp; Water Safety,</td>
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<tr>
<td>Phys. Educ. 435 Adapted Activities</td>
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### WOMEN

#### First Year

<table>
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<th>Credits</th>
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<tbody>
<tr>
<td>Health Educ. 110 Health Education</td>
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<tr>
<td>Phys. Educ. 115, 121, 157 Archery, Bowling, Canoeing</td>
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<tr>
<td>Phys. Educ. 181, 182, 183, 281 or 284, 283 Backgrounds</td>
</tr>
<tr>
<td>Phys. Educ. 190 Introduction</td>
</tr>
<tr>
<td>Chem. 100 General (or 1 yr. high school chem.)</td>
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<tr>
<td>Engl. 101, 102, 103 Composition</td>
</tr>
<tr>
<td>Physics 170 &amp; 170L Intro. to Health Sciences Physics and Lab.</td>
</tr>
<tr>
<td>Sociol. 110 Survey</td>
</tr>
<tr>
<td>Speech 100 Basic Speech Improvement</td>
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<tr>
<td>Approved electives and teacher training requirements</td>
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#### Third Year

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Phys. Educ. 293 Physiol. of Muscular Exercise</td>
</tr>
<tr>
<td>Phys. Educ. 301 Methods &amp; Materials in Gymnastics, Stunts &amp; Tumbling</td>
</tr>
<tr>
<td>Phys. Educ. 311 Rhythmic Activities for Small Children</td>
</tr>
<tr>
<td>Phys. Educ. 362 Teaching Folk, Tap &amp; Clog Dancing</td>
</tr>
<tr>
<td>Phys. Educ. 363 Teaching Sports</td>
</tr>
<tr>
<td>Phys. Educ. 364 Teaching Aquatics</td>
</tr>
<tr>
<td>Public Health 301 Communicable Diseases (if not accompanied by health educ. area)</td>
</tr>
<tr>
<td>Zool. 118 &amp; 118L Physiology &amp; Lab.</td>
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<tr>
<td>Approved electives and professional education requirements</td>
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#### Fourth Year

<table>
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<tbody>
<tr>
<td>Health Educ. 453 (if not accompanied by health educ. area) Health Teaching</td>
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<tr>
<td>Phys. Educ. 322 Kinesiology</td>
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<tr>
<td>Phys. Educ. 345 Principles</td>
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<tr>
<td>Phys. Educ. 356 Teaching Modern Dance</td>
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<tr>
<td>Phys. Educ. 435 Adapted Activities</td>
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<tr>
<td>Phys. Educ. N466 Coaching (1 quarter)</td>
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<tr>
<td>Phys. Educ. 480 Principles of Movement</td>
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<tr>
<td>Approved electives and professional education requirements</td>
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<tr>
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</table>

### 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).
**The College of Arts and Sciences**

**MEN AND WOMEN**

<table>
<thead>
<tr>
<th>First Year</th>
<th>CREDITS</th>
<th>Second Year</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Educ. 110 or 175 Health</td>
<td>2</td>
<td>Health Educ. 291 Hygiene</td>
<td>3</td>
</tr>
<tr>
<td>Phys. Educ. activities</td>
<td>3</td>
<td>Health Educ. 292 First Aid &amp; Safety</td>
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<tr>
<td>Biol. 101J-102J General</td>
<td>10</td>
<td>Anat. 301 General</td>
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<td>Chem. 100 or 110 General and 120</td>
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<td>Educ. 209 Educ. Psychol.</td>
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<td>Org. and General</td>
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<td>Psychol. 100 General</td>
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<tr>
<td>Engl. 101, 102, 103 Composition</td>
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<td>Zool. 118 &amp; 118L or 208 Physiol.</td>
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<tr>
<td>Sociol. 110 Survey</td>
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<td>Approved electives</td>
<td>22-23</td>
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<tr>
<td>Speech 100 Basic Speech Improvement</td>
<td>5</td>
<td>ROTC</td>
<td>6-9</td>
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<td>ROTC</td>
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**Third Year**

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<tbody>
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<td>Educ. 370 Teaching Procedures</td>
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<td>Health Educ. 453 Health Teaching</td>
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<tr>
<td>Educ. 370E Elem. Methods</td>
<td>5</td>
<td>Conjoint 496 Concept of the Child or</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 373 Wash. State Manual</td>
<td>2</td>
<td>Educ. 402 Child Study</td>
<td>3</td>
</tr>
<tr>
<td>Educ. 374 Reading Instr.</td>
<td>3</td>
<td>Educ. 340 Teachers' Course in Health</td>
<td>2</td>
</tr>
<tr>
<td>Educ. 390 Evaluation</td>
<td>3</td>
<td>and Phys. Educ. for Women</td>
<td>2</td>
</tr>
<tr>
<td>Home Ec. 300 Nutrition</td>
<td>2</td>
<td>Educ. 360 Principles</td>
<td>3</td>
</tr>
<tr>
<td>Micro. 301 (or approved substitute)</td>
<td>5</td>
<td>Educ. 371 E, X, or S Directed Teaching</td>
<td>8</td>
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<tr>
<td>Psychiatry 267 Introduction to Mental</td>
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<td>Educ. 372 E, X, or S Professional Lab.</td>
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<tr>
<td>Hygiene or 450 Personality Develop.</td>
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<td></td>
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<tr>
<td>or Educ. 408 Mental Hygiene for</td>
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<td>Hist. 464 Wash. &amp; Pac. NW</td>
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<tr>
<td>Teachers</td>
<td>2-3</td>
<td>Public Health 421, 422, 423,</td>
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<tr>
<td>Public Health 420 Principles I</td>
<td>2</td>
<td>Principles II, III, IV</td>
<td>9</td>
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<td>Sociol. 353 Social Factors in Marriage,</td>
<td></td>
<td>Public Health 461 School &amp; Comm.</td>
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<tr>
<td>or Home Ec. 356 Family Relationships</td>
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<td>Health</td>
<td>5</td>
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<td>11-12</td>
<td>Public Health 464 Commun. Health Educ.</td>
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**Recommended electives are:**

**MEN AND WOMEN**

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<th>Credits</th>
<th></th>
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<tbody>
<tr>
<td>Health Educ. 429 Teaching First Aid and Safety</td>
<td>2</td>
<td>Physics 100 Survey or 170 &amp; 170L Intro. to Health Sciences Physics &amp; Lab.</td>
<td>5-6</td>
</tr>
<tr>
<td>Phys. Educ. 293 Physiol. of Muscular</td>
<td></td>
<td>Pol. Sci. 201 Modern Government or</td>
<td>5-6</td>
</tr>
<tr>
<td>Exertion</td>
<td>3</td>
<td>328 United Nations &amp; Special Agencies</td>
<td>5</td>
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<tr>
<td>Phys. Educ. 322 Kinesiology</td>
<td>3</td>
<td>Psychol. 245 Individual Differences</td>
<td>5</td>
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<tr>
<td>Anthro. 102 Social Customs or</td>
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<td>Public Health 426 Biostatistics, 450</td>
<td>5-6</td>
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<tr>
<td>290 Introduction</td>
<td>5</td>
<td>Measure. &amp; Control Air Pollution</td>
<td>5</td>
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<tr>
<td>Art 100 Introduction, or 205 Lettering</td>
<td>2-5</td>
<td>463 Commun. Organ. for Health Educ. 2-3</td>
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<tr>
<td>or 290 Art Education</td>
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<td>Radio-TV 373 Television Writing or</td>
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<td>450 Television Programming</td>
<td>3</td>
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<tr>
<td>Commun. 480 Propaganda</td>
<td>5</td>
<td>Social. 240 Group Behavior, 352</td>
<td>3</td>
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<td>Journ. 200 Newswriting or 404</td>
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<td>Magazine Article Writing</td>
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<td>Music 107 Survey</td>
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<td>Speech 120 Public Speaking or 332</td>
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<td>Pharmacy 115 Home Remedies</td>
<td>2</td>
<td>Group Discussion</td>
<td>5</td>
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</table>

**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, Horno, 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, through 255, 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; 153, freshman, 253, 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; 213, intermediate archery; 218, intermediate badminton; 221, intermediate bowling (fee); 222, advanced bowling (fee); 224, intermediate fencing; 228, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dancing; 251, intermediate modern dance; 252, advanced modern dance; 257, intermediate canoeing (fee, $2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, rhythmic swimming; 266, diving; 267, lifesaving.

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 School health 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) Toney

162 Skills and Materials in Gymnastics (2) Hughes

163 Skills and Materials in Team Sports (2) Hendershot

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, 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 338.

295 Functional Swimming and Water Safety (Men and Women) (2)

Buckley, MacLean

(A modified class program) 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

Prerequisites, 183, 281, Anatomy 301, and 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)

do 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) (2/3)

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)

do 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 muscular 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)

Clarket

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 338, Sociology 110, and Psychology 100.

351 Theater Dance (Men and Women) (2)

do 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)

do 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)

do 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 316, 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.

N456 Coaching (Women) (0) Kidwell, Staff
Prerequisite, permission.

480 Principles of Movement (Woman) (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, play-ground 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
(Of 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
(Of 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 1½ 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, 152, 193, 221, 222, 225, 226, 320, 322, 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

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<thead>
<tr>
<th>Quarter</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>First Quarter</strong></td>
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<tr>
<td>Physics 121 General</td>
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<td>Physics 131 General Lab</td>
<td>Physics 132 General Lab</td>
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<td>Chem. 110 General</td>
<td>Chem. 150 General</td>
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### Second Year

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<tr>
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<tr>
<td>Physics 221 Mechanics</td>
<td>Physics 222 Mechanics</td>
</tr>
<tr>
<td>Engl. 103 Composition</td>
<td>Physics 225 Electric Circuits</td>
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<tr>
<td>ROTC</td>
<td>Approved electives</td>
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<td>16-19</td>
<td>ROTC</td>
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### Third Year

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<tr>
<td>Physics 325 Electricity &amp; Magnetism</td>
<td>Physics 326 Electricity &amp; Magnetism</td>
</tr>
<tr>
<td>Approved electives</td>
<td>Approved electives</td>
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<td>16</td>
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</table>
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 481, 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

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<th>Course Code</th>
<th>Course Title</th>
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<td>100</td>
<td>Survey of Physics (5)</td>
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<td>101, 102, 103</td>
<td>General Physics (4,4,4)</td>
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<td>107, 108, 109</td>
<td>General Physics Laboratory (1,1,1)</td>
</tr>
<tr>
<td>121, 122, 123</td>
<td>General Physics (3,3)</td>
</tr>
</tbody>
</table>

**Staff**

Mechanics and sound; methods for handling problems in physics. For students concurrently registered in 101 with deficiencies. Prerequisite, concurrent registration in 101.

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.

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: 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.

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, 125, 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.

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 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.

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 Theroretical 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, 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.
POLITICAL SCIENCE

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.

335J Japanese Foreign Policy in Asia (3) Maki
Analysis of modern Japanese expansion in Asia; Japanese political, diplomatic, and economic impact on Asia; the "Greater East Asia Co-Prosperity Sphere." Offered jointly with the Far Eastern and Russian Institute.

336 National Power and International Politics (5) Martin
Geographical, economic, and political foundations of the major powers as factors in international relations of the world.

420 Foreign Relations of the Soviet Union (5) Rossetar
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
Important writings of the masters in political science; the political classics.

511, 512, 513 Seminar in Readings in Political Science (3,3,3)  Cole
Selected topics, historical and conceptual, national, regional, and universal.

514 Seminar in Problems of Political Theory (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, 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor(s)</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>General Psychology (5)</td>
<td>Staff</td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Psychology of Adjustment (5)</td>
<td>Wilson</td>
<td>Prerequisite, 100.</td>
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<tr>
<td>200</td>
<td>Advanced General Psychology (5)</td>
<td>Hermans</td>
<td></td>
</tr>
<tr>
<td>245</td>
<td>Individual Differences (2)</td>
<td>Edwards</td>
<td></td>
</tr>
<tr>
<td>301</td>
<td>Statistical Methods (5)</td>
<td>Hothers, Smith</td>
<td>Prerequisite, 200 and Mathematics WI, or permission</td>
</tr>
<tr>
<td>305</td>
<td>Abnormal Psychology (5)</td>
<td>Strother</td>
<td>Prerequisite, 15 credits in psychology, including 101</td>
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<tr>
<td>306</td>
<td>Child Psychology (5)</td>
<td>Bijou, Baer</td>
<td></td>
</tr>
<tr>
<td>307</td>
<td>Psychology of Adolescence (3)</td>
<td>Baer</td>
<td>Prerequisite, 306.</td>
</tr>
<tr>
<td>308</td>
<td>Genetic Psychology (5)</td>
<td>Bijou, Baer</td>
<td>Prerequisite, 306.</td>
</tr>
<tr>
<td>309</td>
<td>Psychology of Exceptional Children (3)</td>
<td>Bijou</td>
<td></td>
</tr>
<tr>
<td>320</td>
<td>Directed Observation of Child Behavior in the Nursery School (2)</td>
<td>Harris</td>
<td>Analysis of developmental trends and age-level expectancies of the preschool-age child with interpretations of typical behavior manifestations. Prerequisite, 100 or equivalent.</td>
</tr>
<tr>
<td>321</td>
<td>Program Planning for Young Children (5)</td>
<td>Evans</td>
<td>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.</td>
</tr>
<tr>
<td>322</td>
<td>Practicum in the Nursery School (10)</td>
<td>Staff</td>
<td>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.</td>
</tr>
<tr>
<td>323</td>
<td>Advanced Practicum in the Nursery School (10)</td>
<td>Staff</td>
<td>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.</td>
</tr>
<tr>
<td>331</td>
<td>Applied Psychology (3)</td>
<td>Culbert</td>
<td>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.</td>
</tr>
<tr>
<td>400</td>
<td>Psychology of Learning (5)</td>
<td>Smith</td>
<td>Theories and experimental research in the field of human learning. Prerequisite, 301.</td>
</tr>
<tr>
<td>401, 402</td>
<td>Contemporary Psychological Theory (3,3)</td>
<td>McKeever</td>
<td>Current approaches in theory construction in psychology. Prerequisite, permission.</td>
</tr>
<tr>
<td>403</td>
<td>Psychology of Motivation (3)</td>
<td>Smith</td>
<td>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.</td>
</tr>
</tbody>
</table>
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 (2-3) Esper
Experimental and theoretical backgrounds of modern psychology, especially in the nineteenth century. Prerequisites, 100 and permission.

409A 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) Esper
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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>Problems in Learning Theory (3)</td>
<td>McKeever</td>
<td>Selected topics in the interpretation and evaluation of current theories of learning. Prerequisite, permission.</td>
</tr>
<tr>
<td>509</td>
<td>Problems in Developmental Psychology (3)</td>
<td>Bijou</td>
<td>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.</td>
</tr>
<tr>
<td>514-515</td>
<td>Experimental Design (3-3)</td>
<td>Edwards</td>
<td>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.</td>
</tr>
<tr>
<td>516</td>
<td>Introduction to Multivariate Psychological Measurement (5)</td>
<td>Horst</td>
<td>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.</td>
</tr>
<tr>
<td>517</td>
<td>Factor Analysis (5)</td>
<td>Horst</td>
<td>Mathematical and theoretical foundations; alternative methods of analysis; computational procedures; applications to psychological problems. Prerequisite, 516 or permission.</td>
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<tr>
<td>518</td>
<td>Test Construction (5)</td>
<td>Horst</td>
<td>Correlation analysis; statistical bases of test construction and of the use of test batteries; practice in test construction. Prerequisite, 517 or permission.</td>
</tr>
<tr>
<td>520</td>
<td>Seminar (2)</td>
<td>Staff</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
</tr>
<tr>
<td>523</td>
<td>Seminar in the History of Psychology (2)</td>
<td>Esper</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
</tr>
<tr>
<td>524</td>
<td>Seminar in Physiological Psychology (2)</td>
<td>Horton, Loucks</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
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<tr>
<td>525</td>
<td>Seminar in Genetic and Comparative Psychology (2)</td>
<td>Horton</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
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<tr>
<td>527</td>
<td>Seminar in Social Psychology (2)</td>
<td>Edwards</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
</tr>
<tr>
<td>528</td>
<td>Seminar in Experimental Psychology (2)</td>
<td>Hermons</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
</tr>
<tr>
<td>529</td>
<td>Seminar in Clinical Psychology (2)</td>
<td>Bijou, Strother</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
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<tr>
<td>530</td>
<td>Seminar in Theory (2)</td>
<td>Staff</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
</tr>
<tr>
<td>531</td>
<td>Seminar in Learning and Motivation (2)</td>
<td>Staff</td>
<td>May be repeated for credit. Prerequisite, permission.</td>
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<tr>
<td>544-545</td>
<td>Psychology of Social Attitudes (3-3)</td>
<td>Edwards</td>
<td>Theory and techniques of attitude-scale construction; scaling by the methods of equal-appearing intervals and of summed 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.</td>
</tr>
<tr>
<td>581</td>
<td>Individual Testing (Children) (5)</td>
<td>Sarason</td>
<td>Construction, administration, and scoring of individual mental tests used with children. Prerequisites, 306, 413, and permission.</td>
</tr>
<tr>
<td>582</td>
<td>Individual Testing (Adults) (5)</td>
<td>Heathers</td>
<td>Construction, administration, and scoring of clinical psychological tests used with adults. Prerequisites, 305, 413, and permission.</td>
</tr>
<tr>
<td>585</td>
<td>Experimental Problems in Clinical Psychology (5)</td>
<td>Bijou</td>
<td>Analysis of research and theories of concepts and processes in deviant behavior. Prerequisite, permission.</td>
</tr>
<tr>
<td>587</td>
<td>Clinical Pro-Seminar I: Personality (5)</td>
<td>Sarason</td>
<td>The theories of personality development relating to the psychodynamics of personality organization. Prerequisite, permission.</td>
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<tr>
<td>588</td>
<td>Clinical Pro-Seminar II: Psychopathology (5)</td>
<td>Strother</td>
<td>Major historical and contemporary theories of psychopathology and research in the main categories of the behavior disorders. Prerequisite, 587.</td>
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<tr>
<td>589</td>
<td>Clinical Pro-Seminar III: Theories and Systems of Psychotherapy (5)</td>
<td>Strother</td>
<td>A review of some of the principal theories and systems of psychotherapy. Prerequisite, 588.</td>
</tr>
<tr>
<td>591</td>
<td>Projective Personality Tests (3)</td>
<td>Sarason</td>
<td>Theory of projective tests; practice in scoring and interpreting projective tests with emphasis on the Rorschach. Prerequisite, 581, 582, or permission.</td>
</tr>
<tr>
<td>592</td>
<td>Projective Personality Tests (5)</td>
<td>Sarason</td>
<td>Training in interpretation of normal Rorschach records; review of literature on the use of the Rorschach in psychopathology. Prerequisite, 591 or permission.</td>
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</table>
596 Field Work in Clinical Psychology (3-5, maximum 36)  
Field training in clinics and institutions for students of clinical psychology. May be repeated for credit. Prerequisite, permission.  
Staff  
A. Clerkship in child testing  
B. Clerkship in adult testing  
C. Externship  
599 Survey of Clinical Psychometrics (2)  
The nature, development, and clinical application of psychological tests. Prerequisites, permission and registration in the Graduate School of Social Work.  
Staff  
600 Research (*)  
The name of the staff member with whom research will be done should be indicated in registration. Prerequisite, permission.  
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**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
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<tr>
<td>Eng. 101 Composition</td>
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<tr>
<td>Math. 104 Plane Trig.</td>
<td>3</td>
</tr>
<tr>
<td>Psychol. 100 General</td>
<td>5</td>
</tr>
<tr>
<td>Social 110 Survey</td>
<td>5</td>
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<tr>
<td>Phys. Educ. activity</td>
<td>1</td>
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<tr>
<td>ROTC</td>
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<td><strong>Total</strong></td>
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<td>Chem. 100 or 110 General</td>
<td>4-3</td>
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<tr>
<td>Eng. 102 Composition</td>
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<tr>
<td>Math. 105 College Algebra</td>
<td>5</td>
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<td>Math. 120 Intro. to Math.</td>
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<tr>
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<td>1</td>
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<tr>
<td>ROTC</td>
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<tr>
<td>Chem. 120 Gen. or Organic</td>
<td>5</td>
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<tr>
<td>Math. 103 Composition</td>
<td>3</td>
</tr>
<tr>
<td>Health Educ. 110 or 175 Health</td>
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<td>ROTC</td>
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**Second Year**

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<tr>
<td>Physics 101 General</td>
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<td>Physics 107 Lab</td>
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<tr>
<td>Social 112 General</td>
<td>5</td>
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<td>ROTC</td>
<td>2-3</td>
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<tbody>
<tr>
<td>Math. 252 Anal. Geom. &amp; Calc</td>
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<tr>
<td>Physics 102 General</td>
<td>4</td>
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<tr>
<td>Physics 108 Lab</td>
<td>1</td>
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<tr>
<td>Zool. 112 General</td>
<td>5</td>
</tr>
<tr>
<td>ROTC</td>
<td>2-3</td>
</tr>
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<thead>
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<th>Third Quarter</th>
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<tbody>
<tr>
<td>Physics 103 General</td>
<td>4</td>
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<tr>
<td>Physics 109 Lab</td>
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<tr>
<td>Zool. 208 Elem. Human Physiol.</td>
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<td>Approved electives</td>
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<td>ROTC</td>
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### First Quarter

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<tbody>
<tr>
<td>Math. 401 Linear Algebra</td>
<td>5</td>
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<tr>
<td>Math. 481 Calc. of Probabilities</td>
<td>5</td>
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<tr>
<td>Speech 120 Public Speaking</td>
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Total: 15

### Second Quarter

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<tr>
<td>Math. 482 Class. Meth. of Stat. Inf.</td>
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Total: 15

### Third Quarter

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<tr>
<td>Public Health 420 Principles I</td>
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<tr>
<td>Micro. 301 General</td>
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### Fourth Year

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<th>Course</th>
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<tbody>
<tr>
<td>Speech 120 Public</td>
<td>2</td>
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<tr>
<td>Public Health 422 Principles III</td>
<td>3</td>
</tr>
<tr>
<td>Public Health 422 Applied Stat. in Health Sci.</td>
<td>4</td>
</tr>
<tr>
<td>Public Health 480 Problems</td>
<td>2-6</td>
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<tr>
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Total: 15-19

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**Environmental Health:** (Basic Option)

### First Year

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<tr>
<td>Chem. 100 or 110 General</td>
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<tr>
<td>Engl. 101 Composition</td>
<td>3</td>
</tr>
<tr>
<td>Health Educ. 110 or 175</td>
<td></td>
</tr>
<tr>
<td>Physics 101 General</td>
<td>4</td>
</tr>
<tr>
<td>Physics 107 Lab.</td>
<td>1</td>
</tr>
<tr>
<td>Phys. Educ. activity</td>
<td>1</td>
</tr>
<tr>
<td>Approved electives</td>
<td>3</td>
</tr>
<tr>
<td>ROTC</td>
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Total: 17-21

### Second Year

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<tr>
<td>Chem. 150 General</td>
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<td>Engl. 102 Composition</td>
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<tr>
<td>Physics 102 General</td>
<td>4</td>
</tr>
<tr>
<td>Physics 108 Lab.</td>
<td>1</td>
</tr>
<tr>
<td>Phys. Educ. activity</td>
<td>1</td>
</tr>
<tr>
<td>Approved electives</td>
<td>3</td>
</tr>
<tr>
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Total: 15-18

### Third Year

<table>
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<tr>
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<tbody>
<tr>
<td>Micro. 301 General</td>
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<tr>
<td>Psychol. 100 General</td>
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Total: 15

### Fourth Year

<table>
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<tr>
<td>Public Health 422 Principles III</td>
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<tr>
<td>Public Health 441 Environ. Health II</td>
<td>3</td>
</tr>
<tr>
<td>Public Health 453 Indust. Hygiene</td>
<td>3</td>
</tr>
<tr>
<td>Public Health 480 Problems</td>
<td>2-6</td>
</tr>
<tr>
<td>Civil Engr. 350 Intro. to San. Engr.</td>
<td>3</td>
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</table>

Total: 14-18

**Summer**

Recommended: 15 hours Field Practice—Public Health 482, 483, 484.
## Environmental Health: (Technical Option)

### First Year

<table>
<thead>
<tr>
<th>Quarter</th>
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<tr>
<td>Public Health 421</td>
<td>3</td>
<td>Principles II</td>
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<tr>
<td>Public Health 440</td>
<td>3</td>
<td>Environ. Health I</td>
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<tr>
<td>Public Health 450</td>
<td>3</td>
<td>Meas. &amp; Control of Air Pollution</td>
</tr>
<tr>
<td>Public Health 470</td>
<td>2</td>
<td>Intro. to Biometry</td>
</tr>
<tr>
<td>Public Health 480</td>
<td>2-6</td>
<td>Problems</td>
</tr>
<tr>
<td>Approved electives</td>
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### Second Year

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<tr>
<td>Micro. 301</td>
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<tr>
<td>Physics 323</td>
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<td>Intro. to Mod. Physics</td>
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<td>Psychol. 100</td>
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<td>ROTC</td>
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### Third Year

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<tr>
<td>Engl. 102</td>
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<tr>
<td>Math. 104</td>
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<td>Plan Trig.</td>
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<tr>
<td>Physics 102</td>
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<td>General</td>
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<tr>
<td>Physics 108</td>
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<td>Lab.</td>
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<td>Phys. Educ. activity</td>
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### Fourth Year

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<tr>
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<td></td>
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<td>Public Health 422</td>
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<td>Principles III</td>
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<td>Public Health 441</td>
<td>3</td>
<td>Environ. Health II</td>
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<td>Public Health 453</td>
<td>3</td>
<td>Public Health Survey</td>
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<td>Public Health 480</td>
<td>2-6</td>
<td>Problems</td>
</tr>
<tr>
<td>Civil Engr. 350</td>
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<td>Intro. to San. Engr.</td>
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### 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

<table>
<thead>
<tr>
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<tr>
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<tr>
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<tr>
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<tr>
<td>Engl. 101</td>
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<td>Composition</td>
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<tr>
<td>Speech 100</td>
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<td>Basic Speech Improvement</td>
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## Notes

- Recommended: 5-15 hours Field Practice—Public Health 482, 483, 484.
# THE COLLEGE OF ARTS AND SCIENCES

## First Quarter Credits

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<td>Aid &amp; Safety</td>
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## Second Quarter Credits

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<tr>
<td>Aid &amp; Safety</td>
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## Third Quarter Credits

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## Fourth Quarter Credits

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## Health Education: (Public Health Emphasis)

- **First Year**
  - Health Educ. 110 or 175                   | 2 - 5 |
  - Eng. 101 J– General                       | 5 |
  - Speech 100 Basic Speech                   | 5 |
  - Public Speaking                           | 5 |
  - Phys. Educ. activity                      | 1 |
  - ROTC                                      | 2 - 3 |

- **Second Year**
  - Chem. 100 or 110                          | 2 - 5 |
  - General                                   | 5 |
  - Eng. 102 Composition                      | 5 |
  - Speech 100 Instructions                    | 5 |
  - ROTC                                      | 2 - 3 |

- **Third Year**
  - Chem. 100 or 110                          | 2 - 5 |
  - General                                   | 5 |
  - Eng. 102 Composition                      | 5 |
  - Speech 100 Instructions                    | 5 |
  - ROTC                                      | 2 - 3 |

- **Fourth Year**
  - Chem. 100 or 110                          | 2 - 5 |
  - General                                   | 5 |
  - Eng. 102 Composition                      | 5 |
  - Speech 100 Instructions                    | 5 |
  - ROTC                                      | 2 - 3 |

- **First Quarter Credits**
  - Health Educ. 292 First                    | 2       |
  - Aid & Safety                              | 1       |
  - Anthro. 390 Intro. to Anthro. or 102      | 1       |
  - Principles                                | 5       |

- **Second Quarter Credits**
  - Health Educ. 292 First                    | 2       |
  - Aid & Safety                              | 1       |
  - Anthro. 390 Intro. to Anthro. or 102      | 1       |
  - Principles                                | 5       |

- **Third Quarter Credits**
  - Health Educ. 292 First                    | 2       |
  - Aid & Safety                              | 1       |
  - Anthro. 390 Intro. to Anthro. or 102      | 1       |
  - Principles                                | 5       |

- **Fourth Quarter Credits**
  - Health Educ. 292 First                    | 2       |
  - Aid & Safety                              | 1       |
  - Anthro. 390 Intro. to Anthro. or 102      | 1       |
  - Principles                                | 5       |
COURSES FOR UNDERGRADUATES

**Fourth Year**

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<td>Public Health 464 Health Educ. Techniques</td>
<td>Public Health 484</td>
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**Courses Approved 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) Hatlon

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) Hatlon

Advanced study of the sanitary control of water supplies, sewage, and refuse disposal. Prerequisite, 421 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.

460 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 unofficial 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.
THE COLLEGE OF ARTS AND SCIENCES

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) Doischer, 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 (½ 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 (1½ 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, Weinor
Bibliographical resources for Romance literature; 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, 365, 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 Thomas (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) Croore, David
Analysis of sounds, intonation, rhythm; training in correct and natural pronunciation. Prerequisite, 103 or equivalent.

358, 359 Advanced Syntax (2,2) Chassex
Syntax from the teacher's standpoint. Should precede Education 329.

390 Supervised Study (2-5, maximum 20) Staff
Prerequisite, permission of Executive Officer.
ROMANCE LANGUAGES

421, 422, 423 Prose (3,3,3) Kellor, 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: Farnassians, 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) Kellor, Hanzeli, David
451: Montaigne. (Offered 1957-58.)
452: 18th century. (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 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) Croore
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  
B. Renaissance  
C. Classic period  
D. Eighteenth century  
E. Nineteenth century  
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)  
Prerequisite, permission of Executive Officer.  
Staff

421, 422, 423 Survey of Italian Literature (3,3,3)  
From the thirteenth to twentieth century.  
Budel

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  
B. Renaissance  
C. Baroque  
D. Eighteenth century  
E. Nineteenth century  
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

PORTUGUESE

101-102, 103 Elementary (5-5, 5)  
C. Wilson

390 Supervised Study (2-5, maximum 20)  
Prerequisite, permission of Executive Officer.  
C. Wilson

PROVENCAL

Course for Graduates Only

534 Old Provencal  
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, or -101-; 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.
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<th>Instructor</th>
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<td>210, 211</td>
<td><em>Elementary Spanish Conversation</em> (2,2)</td>
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<td>Prerequisites, 103, 112 or 121-, or equivalent for 210; 210 or permission for 211.</td>
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<td>212, 213, 214</td>
<td><em>Modern Readings</em> (2,2,2)</td>
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<td>Staff</td>
<td>Reading for the acquisition of an extensive vocabulary. Prerequisite, 202 or permission.</td>
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<td>301, 302, 303</td>
<td><em>Advanced Composition and Conversation</em> (3,3,3)</td>
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<td>Staff</td>
<td>Prerequisite, 203 or equivalent.</td>
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<td>304, 305, 306</td>
<td><em>Survey of Spanish Literature</em> (3,3,3)</td>
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<td>Staff</td>
<td>From early times to the present. Prerequisite, 212 or permission.</td>
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<td>327, 328, 329</td>
<td><em>Advanced Conversation</em> (2,2,2)</td>
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<td>Staff</td>
<td>Prerequisite, 302 or equivalent, or permission.</td>
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<td>358, 359</td>
<td><em>Advanced Syntax</em> (2,2)</td>
<td></td>
<td>Staff</td>
<td>Elementary principles of philology and their application to teaching; difficulties of Spanish grammar from the teacher's point of view. Prerequisite, 302 or equivalent.</td>
</tr>
<tr>
<td>390</td>
<td><em>Supervised Study</em> (2-5, maximum 20)</td>
<td></td>
<td>Staff</td>
<td>Prerequisite, permission of Executive Officer.</td>
</tr>
<tr>
<td>430</td>
<td><em>Advanced Conversational Spanish</em> (1-3, maximum 6)</td>
<td></td>
<td>Ayllon</td>
<td>Continuation of 330. Advanced conversational problems primarily for teachers. For participants in the Living-Language Group program only. (Offered Summer Quarter only.)</td>
</tr>
<tr>
<td>441, 442, 443</td>
<td><em>Drama</em> (3,3,3)</td>
<td></td>
<td>W. Wilson</td>
<td>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.</td>
</tr>
<tr>
<td>451, 452, 453</td>
<td><em>Spanish Literature since 1700</em> (3,3,3)</td>
<td></td>
<td>McDonald</td>
<td>Poetry, drama, historical narrative, prose fiction. (Offered 1957-58.) Prerequisite, 203 or equivalent.</td>
</tr>
<tr>
<td>461, 462, 463</td>
<td><em>Spanish Literature of the Golden Era</em> (3,3,3)</td>
<td></td>
<td>W. Wilson</td>
<td>(Offered 1957-58.) Prerequisite, 203 or equivalent.</td>
</tr>
<tr>
<td>471, 472, 473</td>
<td><em>Individual Spanish Authors</em> (3,3,3)</td>
<td></td>
<td>Staff</td>
<td>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.</td>
</tr>
<tr>
<td>481, 482, 483</td>
<td><em>Spanish-American Literature</em> (3,3,3)</td>
<td></td>
<td>Bary, Vargas-Baron</td>
<td>General survey of the literature of Spanish America.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>481: The colonial period and early years of independence.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>482: The middle years of the nineteenth century.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>483: The twentieth century.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Offered 1957-58.) Prerequisite, 203 or equivalent.</td>
</tr>
<tr>
<td>484</td>
<td><em>The Colonial Period in Spanish-American Literature</em> (3)</td>
<td></td>
<td>Vargas-Baron</td>
<td>A study of colonial authors in the fields of the chronicle, poetry, and drama (1500-1810). (Offered 1958-59.) Prerequisite, 203 or equivalent.</td>
</tr>
<tr>
<td>485</td>
<td><em>The Romantic and Costumbrista Movements in Spanish-American Literature</em> (3)</td>
<td></td>
<td>Vargas-Baron</td>
<td>A study of leading Romantic and Costumbrista authors (1810-1890). (Not offered 1957-59.)</td>
</tr>
<tr>
<td>486</td>
<td><em>The Modernista Movement in Spanish-American Literature</em> (3)</td>
<td></td>
<td>Vargas-Baron</td>
<td>A study of the leading poets, essayists, and novelists of South America (1890-1920). (Offered 1958-59.)</td>
</tr>
<tr>
<td>487</td>
<td><em>The Contemporary Spanish-American Novel</em> (3)</td>
<td></td>
<td>Vargas-Baron</td>
<td>(Offered 1958-59.)</td>
</tr>
</tbody>
</table>

**Courses for Graduates Only**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>511</td>
<td><em>The Poema de Mio Cid</em> (3)</td>
<td></td>
<td>W. Wilson</td>
<td>(Offered 1958-59.)</td>
</tr>
<tr>
<td>512</td>
<td><em>Epic Poetry</em> (3)</td>
<td></td>
<td>W. Wilson</td>
<td>The epic material in old Spanish literature and its later treatment in poetry and drama. Special investigations and reports. (Offered 1958-59.)</td>
</tr>
<tr>
<td>513</td>
<td><em>The Spanish Ballad</em> (3)</td>
<td></td>
<td>W. Wilson</td>
<td>The origin and evolution of the Spanish ballad. (Offered 1958-59.)</td>
</tr>
<tr>
<td>521</td>
<td><em>The Renaissance in Spain</em> (5)</td>
<td></td>
<td>Ayllon</td>
<td>(Offered 1957-58.)</td>
</tr>
<tr>
<td>531</td>
<td><em>Literary Problems</em> (2-5, maximum 20)</td>
<td></td>
<td>Staff</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>A. Middle ages</td>
<td></td>
<td></td>
<td>E. Nineteenth century</td>
</tr>
<tr>
<td></td>
<td>B. Renaissance</td>
<td></td>
<td></td>
<td>F. Twentieth century</td>
</tr>
<tr>
<td></td>
<td>C. Golden age</td>
<td></td>
<td></td>
<td>G. Spanish colonial literature</td>
</tr>
<tr>
<td></td>
<td>D. Eighteenth century</td>
<td></td>
<td></td>
<td>H. Latin America</td>
</tr>
</tbody>
</table>

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ROMANCE LANGUAGES

---
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

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) 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-102, 103</td>
<td>Elementary Danish (3-3,3)</td>
<td>Staff</td>
</tr>
<tr>
<td>104-105, 106</td>
<td>Danish Reading (2-2,2)</td>
<td>Staff</td>
</tr>
<tr>
<td>220, 221, 222</td>
<td>Introduction to Danish Literature (2,2,2)</td>
<td>Arestad</td>
</tr>
<tr>
<td>300, 301, 302</td>
<td>Modern Danish Literature (3,3,3)</td>
<td>Arestad</td>
</tr>
<tr>
<td>490</td>
<td>Supervised Reading (*, maximum 5)</td>
<td>Arestad</td>
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</tbody>
</table>

**NORWEGIAN**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-102, 103</td>
<td>Elementary Norwegian (3-3,3)</td>
<td>Arestad</td>
</tr>
<tr>
<td>104-105, 106</td>
<td>Norwegian Reading (2-2,2)</td>
<td>Staff</td>
</tr>
<tr>
<td>220, 221, 222</td>
<td>Introduction to Norwegian Literature (2,2,2)</td>
<td>Arestad</td>
</tr>
<tr>
<td>223, 224, 225</td>
<td>Conversational Norwegian (2,2,2)</td>
<td>Staff</td>
</tr>
<tr>
<td>226, 227, 228</td>
<td>Norwegian Composition (1,1,1)</td>
<td>Staff</td>
</tr>
<tr>
<td>300, 301, 302</td>
<td>Modern Norwegian Literature (*, maximum 3, *, maximum 3, *, maximum 3)</td>
<td>Arestad</td>
</tr>
<tr>
<td>303, 304, 305</td>
<td>Advanced Conversational Norwegian (2,2,2)</td>
<td>Staff</td>
</tr>
<tr>
<td>306, 307, 308</td>
<td>Advanced Norwegian Composition (1,1,1)</td>
<td>Staff</td>
</tr>
<tr>
<td>450</td>
<td>History of Norwegian Literature (3)</td>
<td>Arestad</td>
</tr>
<tr>
<td>490</td>
<td>Supervised Reading (*, maximum 5)</td>
<td>Arestad</td>
</tr>
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</table>

**SWEDISH**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-102, 103</td>
<td>Elementary Swedish (3-3,3)</td>
<td>Johnson</td>
</tr>
<tr>
<td>104-105, 106</td>
<td>Swedish Reading (2-2,2)</td>
<td>Staff</td>
</tr>
<tr>
<td>220, 221, 222</td>
<td>Introduction to Swedish Literature (2,2,2)</td>
<td>Johnson</td>
</tr>
<tr>
<td>223, 224, 225</td>
<td>Conversational Swedish (2,2,2)</td>
<td>Staff</td>
</tr>
<tr>
<td>226, 227, 228</td>
<td>Swedish Composition (1,1,1)</td>
<td>Staff</td>
</tr>
<tr>
<td>300, 301, 302</td>
<td>Modern Swedish Literature (2,2,2)</td>
<td>Johnson</td>
</tr>
<tr>
<td>303, 304, 305</td>
<td>Advanced Conversational Swedish (2,2,2)</td>
<td>Staff</td>
</tr>
<tr>
<td>306, 307, 308</td>
<td>Advanced Swedish Composition (1,1,1)</td>
<td>Staff</td>
</tr>
<tr>
<td>409</td>
<td>Recent Swedish Literature (3)</td>
<td>Johnson</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Instructor(s)</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>450</td>
<td>History of Swedish Literature (3)</td>
<td>Johnson</td>
</tr>
<tr>
<td>455</td>
<td>History of the Swedish Language (3)</td>
<td>Johnson</td>
</tr>
<tr>
<td>490</td>
<td>Supervised Reading (*, maximum 6)</td>
<td>Johnson</td>
</tr>
</tbody>
</table>

**SCANDINAVIAN COURSES IN ENGLISH**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>230</td>
<td>Scandinavian Culture and Institutions (2)</td>
<td>Arestad</td>
</tr>
<tr>
<td>299</td>
<td>Outline of Modern Scandinavian Culture (1)</td>
<td>Arestad</td>
</tr>
<tr>
<td>309, 310, 311</td>
<td>The Scandinavian Novel in English (2,2,2)</td>
<td>Arestad, Johnson</td>
</tr>
<tr>
<td></td>
<td>From the sagas through representative novels of Strindberg, Jacobsen, Hamsun, Lagerlöf, Nexo, Undset, Dunn, Gunnarsson, and Laxness.</td>
<td></td>
</tr>
<tr>
<td>380</td>
<td>Ibsen and His Major Plays in English (2)</td>
<td>Arestad</td>
</tr>
<tr>
<td>381</td>
<td>Strindberg and His Major Plays in English (2)</td>
<td>Johnson</td>
</tr>
<tr>
<td>382</td>
<td>Twentieth-Century Scandinavian Drama in English (2)</td>
<td>Johnson</td>
</tr>
<tr>
<td></td>
<td>Outstanding twentieth-century plays, with introductory consideration of Ibsen and Strindberg.</td>
<td></td>
</tr>
</tbody>
</table>

**COURSES FOR GRADUATES ONLY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500, 501, 502</td>
<td>Old Icelandic (2,2,2)</td>
<td>Johnson</td>
</tr>
<tr>
<td>503</td>
<td>Problems in Scandinavian Literature (*, maximum 5)</td>
<td>Arestad, Johnson</td>
</tr>
<tr>
<td>507</td>
<td>Ibsen (*, maximum 5)</td>
<td>Arestad</td>
</tr>
<tr>
<td>508</td>
<td>The Scandinavian Novel (*, maximum 5)</td>
<td>Arestad</td>
</tr>
<tr>
<td>510, 511, 512</td>
<td>Strindberg (2,2,2)</td>
<td>Johnson</td>
</tr>
<tr>
<td></td>
<td>Thesis (*)</td>
<td>Staff</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Field of Social Work (3)</td>
<td>Lawrence, Parsons, Staff Lecturers</td>
</tr>
<tr>
<td></td>
<td>Principles and practices in the field of social work, with a comprehensive picture of available services and future needs. Prerequisite, upper-division standing.</td>
<td></td>
</tr>
<tr>
<td>302</td>
<td>Introduction to Child Welfare (2)</td>
<td>Lawrence, Parsons</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>
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.

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.

SOCIODEY

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

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. Prerequisite, 110 or 310.

230 Introduction to Human Ecology (5) Cohen, Schmid
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.

240 Group Behavior (5) Miyamoto
Socialization of the individual; social processes; and interactions 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.

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.

352 The Family (5) Staff
The family as a social institution; personality development within the family; marriage adjustment; changing family patterns; disorganization and reorganization. Prerequisite, 110 or 310.

353 Social Factors in Marriage (3) Camilleri
Courtship and marriage; marital adjustments; specific problems of marriage and family life. Prerequisite, 352.

362 Race Relations (5) Barth
Interracial contacts and conflicts. Prerequisite, 10 credits in social science.

365 Urban Community (5) Cohen
Comparative and analytic study of organization and activities of urban groups. Prerequisite, 110.

371 Criminology (5) Haynor, Schrag
Individual and social factors in delinquency; history and methods of criminal justice. Field trips to local penal institutions. Prerequisite, 110 or 310.

389 Reading in Selected Fields (2-5, maximum 15) Staff
Open only to qualified undergraduate students by permission.

410 History of Sociological Thought (5) Staff
Background and trends in sociological thought from Comte to the present. Prerequisite, 110 or 310.

411, 412, 413 Systematic Sociology (3,3,3) Dodd

414 Sociological Theory (5) Lundberg
Modern scientific theory applied to social behavior; sociology as a natural science. Prerequisite, 20 credits in social science.

415 Theory of Social Organization (5) Staff
Prerequisite, 110 or 310.

420 Methods of Sociological Research (5) Faris
A general survey of the principal methods of research used in sociology, and of special issues and problems in methodology.

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, 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) Larson, 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 society; 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)  Larson
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) Nilson, Rahskopf
The nature of speech as an activity of daily life and as a field of study.

499 Undergraduate Research (2-5) Staff
Prerequisite, permission. Field must be indicated in registration.
A. Voice and phonetics
B. Public address
C. Oral interpretation
D. Radio-TV speech
E. Speech correction and hearing

VOICE AND PHONETICS

110 Voice Improvement (2) Tiffany in Charge
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) Franzko in Charge
Audience analysis, choice and organization of material, oral style, and delivery. Frequent conferences before the class, followed by conferences with instructor.

320 Public Speaking (5) Franzko
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 Extemporaneous Speaking (3) Franzko
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) Franzko
Methods of organizing and conducting public meetings, based on *Robert's Rules of Order*.

332 Principles of Group Discussion (3 or 5) Crowell, Nilsen
Discussion as an everyday community activity, with emphasis on the informal cooperative problem-solving methods of committee, conference, and round-table groups. Only 3 credits can be obtained through extension; 5 credits in residence. Prerequisite, 100 or 230, or permission.

339 Public Discussion Workshop (1-3, maximum 9) 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) Franzko
Includes practices 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 200 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 1440.

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, lisping, or similar defects. Meetings are arranged after interview with the instructor for individual or group instruction.

470, 471 Speech Correction (3 or 5, 5) Carroll, Hanley
Nature, etiology, and therapy of disorders of speech. 470: introduction, developmental, and functional disorders, cleft palate. 471: dysphasia, quadriplegia, 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) Grimes
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) Carroll
Etiology, diagnosis, and therapy. 570: morphogenetic 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) Carroll
(Offered alternate years; offered 1958-59.) Prerequisite, 475 or permission.

578 Psychogenic Factors in Speech and Hearing Disorders (2) Wingate
Psychogenic factors as etiologic 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 Audimetry (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

ZOOGOGY

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)  
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)  
Structure and function of the cell. Prerequisites, 451 and permission.

401L Cytology Laboratory (2)  
Must be accompanied by 401.

451 Genetics (3 or 5)  
The principles underlying inheritance in animals and plants. Prerequisite, 10 credits in biological science.

452 Cytogenetics (3 or 5)  
Chromosomal behavior in relation to genetics. (Offered alternate years; offered 1957-58.) Prerequisites, 451 and permission.

453 Topics in Genetics (2, maximum 6)  
Current problems and research methods. Prerequisites, 451, organic chemistry, and permission.

454 Evolutionary Mechanisms (3)  
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)  
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)  
Must be accompanied by 472. Prerequisite, permission.

473 Limnology (5)  
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 these as the groups of animals of greatest practical importance in the forest fauna. Prerequisites, Botany 114, 115, and 216.

208 Elementary Human Physiology (5)
Florey
Each organ system is described and its function illustrated in the laboratory. Prerequisite, freshman chemistry.

330 Natural History of Marine Invertebrates (5)
Ilg, 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)
Florey
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)
Ilg, 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) Florey
Selected chapters of comparative physiology of nerve, muscle, circulation, respiration, renal function, and hormone action. Prerequisites, 400 and 434.

537L Comparative Invertebrate Physiology Laboratory (2) Florey
Exercises in kymographic, oscillographic 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
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 65 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 Tatics (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)  
Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.

411S Advanced Supply Afloat and Basic Ships' Stores (4)  
Records, reports, and returns for supply afloat, and ships' store operating procedure.

412S Advanced Ships' Stores, Commissary, Clothing, and Small Stores (4)  
Records, reports, and returns for ships' stores, commissary, clothing, and small stores.
313S Supply Afloat, Intermediate (4)  
Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.

411S Advanced Supply Afloat and Basic Ships' Stores (4)  
Records, reports, and returns for supply afloat, and ships' store operating procedure.

412S Advanced Ships' Stores, Commisary, Clothing, and Small Stores (4)  
Records, reports, and returns for ships' stores, commissary, clothing, and small stores.
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

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.
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. (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.)

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. (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 17, 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 17, 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  
(January 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.  
(January 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,  
att 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  
Mar. 21—Friday  Instruction ends  

SPRING QUARTER, 1958  

REGISTRATION PERIOD  
(January appointments will be issued on presentation of ASUW cards beginning January 24.)  
(January 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,  
att 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 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**
- 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 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

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# 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 17, 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 17, 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.


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

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Winlock W. Miller, Vice-President
Grant Armstrong
Thomas Balmer
Donald G. Corbett
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Mrs. J. Herbert Gardner

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Nelson A. Wahlstrom, B.B.A.               Comptroller and Business Manager
Donald K. Anderson, B.A.                  Dean of Students
Austin Grimshaw, D.C.S.                   Dean of the College of Business Administration
Margaret P. Fenn, M.B.A.                  Assistant to the Dean
Louise L. Martin, B.A.                    Assistant to the Dean

COLLEGE OF BUSINESS ADMINISTRATION EXECUTIVE COMMITTEE

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Edward G. Brown, M.B.A.                   Executive Officer of the Department of Policy, Personnel Relations, and Production
Joseph Demmery, M.A.                      Executive Officer of the Department of General Business
Kermit O. Hanson, Ph.D.                   Executive Officer of the Department of Accounting, Finance, and Statistics
Charles J. Miller, M.B.A.                 Executive Officer of the Department of Marketing, Transportation, and Foreign Trade

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, Acting Assistant Professor of Finance
B.S., 1949, M.A., 1953, Minnesota

Bentley, James R., 1956, Part-Time Lecturer in Accounting
B.A., 1943, Stanford

Berg, Kenneth B., 1950 (1955), Associate Professor of Accounting

Blythe, Harry, 1949 (1955) Lecturer in Finance
B.S., 1947, M.S., 1949, Columbia

Brabb, George J., 1956, Acting Assistant Professor of Statistics
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

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
A.B., 1938, Luther College (Iowa); M.S., 1940, Ph.D., 1950, Iowa State

HENNING, CHARLES N., 1938, M.A., 1940, Ph.D., 1952, California (Los Angeles)

HOLMES, RODERICK L., 1956, Part-Time Lecturer in Accounting

JOHNSON, FLETCHER O., 1950, Lecturer in Accounting

JOLIVET, VINCENT M., 1956, Acting Assistant Professor of Finance

LORIC, ARTHUR N., 1934 (1949), Professor of Accounting

MARCUS, SUMNER, 1955, Lecturer in Finance and Business Law

MUELLER, FRED J., 1956, Assistant Professor of Accounting and Finance

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

ROLLE, 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)

WRIGHT, LAURENCE A., 1954, Acting Assistant Professor of Finance

DEPARTMENT OF GENERAL BUSINESS

BRIGGS, ROBERT, 1952 (1955), Associate Professor of Secretarial Training

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

BURL, RITA K., 1956, Instructor in Secretarial Training
B.A., 1953, Washington

BURL, MARY E., 1943, Part-Time Lecturer in Business Law

DEMMERY, JOSEPH, 1928 (1934), Professor of General Business and Executive Officer of the Department of General Business
Ph.B., 1920, M.A., 1924, Chicago
FRERRICH, 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  

HAYNE, DONALD F., 1950 (1955), Associate Professor of Insurance  

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  

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  

SECREST, THOMAS W., 1955, Part-Time Lecturer in Business Law  
B.S., 1943, M.S., 1946, Washington; L.L.B., 1951, Georgetown

SEYFRIED, WARREN R., 1956, Assistant Professor of Business Fluctuations and Real Estate  

WHEELER, BAYARD O., 1948 (1953), Professor of Real Estate  
A.B., 1928, California; M.A., 1930, Washington; Ph.D., 1942, California

WICKMAN, JAMES A., 1954, 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  

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  

Burd, Henry A., 1924 (1927), Professor Emeritus  

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  

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;  

LAMBRIGHT, ROBERT W., 1955, Instructor in Marketing  

LITTLE, WALLACE L., 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

MURPHY, Herta A., 1946 (1955), Assistant Professor of Business Writing

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

PECK, Charles E., 1951 (1955), Associate Professor of Business Writing

WAGNER, Louis C., 1947 (1955), Professor of Marketing
B.B.A., 1938, Washington; M.A., 1946, 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

HENNING, Dale A., 1955 (1956), Associate Professor of Policy and Administration and Production

JOHNSON, Richard A., 1955, Lecturer in Production

KAST, Fremont E., 1951 (1956), Associate Professor of Production and Assistant Director of the Bureau of Business Research

MENGES, Paul F., 1956, Part-Time Instructor in Personnel

SCHRIEBER, Albert N., 1948 (1956), Professor of Production and Policy and Administration

SHUSTER, Louis J., 1956, Instructor in Production

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
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 under-graduates. 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

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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 COLLEGE OF BUSINESS ADMINISTRATION

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

APITUDE 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

<table>
<thead>
<tr>
<th>Category</th>
<th>Fee</th>
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</thead>
<tbody>
<tr>
<td>Resident students, per quarter</td>
<td>$25.00</td>
</tr>
<tr>
<td>Nonresident students, per quarter</td>
<td>75.00</td>
</tr>
<tr>
<td>Auditors, per quarter</td>
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</tr>
</tbody>
</table>

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.

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.
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, 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
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 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.

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.

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 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**

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<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
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<td>Acctg. 151</td>
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<td>Engl. 101</td>
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<td>Engl. 102</td>
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<td>Engl. 103</td>
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<td>Econ. 160</td>
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<td>Electives</td>
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Plus required physical education activity and military science.

**Upper-Division Requirements**

<table>
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<th>Course</th>
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<td>Prod. 301</td>
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<td>5</td>
</tr>
<tr>
<td>Hum. Rel. 460 Human Relations in Business and Industry</td>
<td>5</td>
</tr>
<tr>
<td>Major requirements and approved electives</td>
<td>64</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Credit Load and Residence</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum load for full residence credit</td>
<td>9</td>
</tr>
<tr>
<td>Normal load</td>
<td>12</td>
</tr>
<tr>
<td>Maximum load: Autumn, Winter, and Spring Quarters</td>
<td>15</td>
</tr>
<tr>
<td>Summer Quarter</td>
<td>12</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy and Administration 560 or 561</td>
<td>3</td>
</tr>
<tr>
<td>Policy and Administration 590, 591, or 596</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 591 or 592</td>
<td></td>
</tr>
<tr>
<td>Thesis or General Business 570, 571-572</td>
<td>9</td>
</tr>
<tr>
<td>Electives (at least 6 credits in 500 series other than policy and administration, accounting controls, and General Business 570, 571-572)</td>
<td>18</td>
</tr>
</tbody>
</table>

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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 the 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 policies, 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 in 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, break even 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.
THE DEPARTMENTAL PROGRAMS

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, 301.

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)

315 Highway Transportation (5)
Business methods and practices in operation and management of common, contract, and private motor carriers in intrastate 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. 

102 Principles of Anthropology: Social Customs (5)
Man's social customs, political institutions, religion, art, literature, and language.

103 Principles of Anthropology: Prehistory (5)
Man's cultural development as revealed by archaeology and carried to the beginning of history.

280 Theories of Race (2)
Survey of human heredity; racial history; race differences. Not open to students who have had 101, 380, or 390.

ARCHITECTURE

100, 101 Architectural Appreciation (2,2)
Survey of architectural design from a historical viewpoint.

105 The House (2)
Analysis of domestic architecture.

ART

100 Introduction to Art (5)
Lectures and studio work. For nonmajors.

ASTRONOMY

101 Astronomy (5)
Star finding, solar system, sidereal universe.

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.

BOTANY

111 Elementary Botany (5)
Structure, physiology, and reproduction of seed plants.

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.
CHEMISTRY

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 Placement Test. (Formerly 111.)

110 General Chemistry (3)
For students who have had high school chemistry. States of matter, atomic and molecular structure, covalence, reactions, and equations. To continue with Chemistry ISO, students must have passed Mathematics 101 or 103 or the Algebra Placement Test. (Formerly 115.)

150 General Chemistry (4)
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)
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)
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)
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)
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)
Significant aspects of the modern theatre.

ECONOMICS

160 American Economic History (5)
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)
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)
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)
Employment, unemployment, wages, working conditions, trade-unionism, collective bargaining, labor-management relations, and public policy. 200 or 211, recommended.

441 Union-Management Relations (5)
The collective-bargaining process, with special reference to economic implications. Prerequisite, 340 or permission.

442 American Labor History (5)
Analysis in historical perspective of the American labor movement, its organizational structure, ideology, policy, and practices.

ENGLISH

101, 102, 103 Composition (3,3,3)
Fundamentals of effective exposition; collecting, organizing, and evaluating materials for writing; reading contemporary writings for meaning and form.

257 Introduction to Poetry (5)
Poetry as an art; its relationship to other arts and to the creative mind. No verse writing required.
THE DEPARTMENTAL PROGRAMS

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 processes; 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.
THE DEPARTMENTAL PROGRAMS

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
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; 133, elementary skiing (fee); 135, stunts and tumbling; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, tennis; 150, freshman, 250, varsity volleyball; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.

111 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; 133, elementary skiing (fee); 135, stunts and tumbling; 141, basketball; 142, field sports; 143, hockey; 144, softball; 145, volleyball; 148, tennis; 150, freshman, 250, varsity tennis; 152, freshman, 252, varsity gymnastics; 155, freshman, 255, varsity wrestling.

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; -112 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.
THE DEPARTMENTAL PROGRAMS

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.
RESERVE OFFICERS TRAINING PROGRAMS

COURSES FOR UNDERGRADUATES

131, 132, 133 Air Science I—Basic (2,2,2)  
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)  
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)  
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)  
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)  
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 UNDERGRADUATES

101, 102, 103 Military Science I—Basic (2,2,2)  
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)  
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)  
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)  
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)  
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 undersea, 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)  
Surface fire control; battery alignment; antiaircraft fire control.  

213 Applied Naval Electronics (3)  
Advanced fire control; radar, sonar; C.I.C.; shore bombardment; guided missiles; nuclear explosives; underwater ordnance; rockets.  

LINE  

311 Naval Engineering (3)  
Marine engineering installations: boilers, power plants, auxiliary machinery, turbines, distillers, refrigeration plants.  

312 Engineering and Navigation (3)  
Combination of diesel engines and elements of stability with piloting aspects and navigation.  

313 Navigation (3)  
Nautical astronomy necessary for celestial navigation; daily work of the navigator at sea.  

411 Naval Operations (3)  
Nautical operations and shiphandling; maneuvering board. (Formerly 400.)  

412 Naval Operations and Administration (3)  
Combination of diesel engines and elements of stability and naval administration.  

413 Military Justice and Leadership (3)  
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)  
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)  
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)  
Tactics of the platoon and company; jungle warfare; river crossings; fortified positions.  

411M, 412M Amphibious Warfare (2,3)  
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)  
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)  
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)  
Reports and returns; property and stores accounting; organization and administration of supply afloat; material identification, classification, and allowance.  

313S Supply Afloat, Intermediate (4)  
Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.  

411S Advanced Supply Afloat and Basic Ships' Stores (4)  
Records, reports, and returns for supply afloat, and ships' store operating procedure.  

412S Advanced Ships' Stores, Commissary, Clothing, and Small Stores (4)  
Records, reports, and returns for ships' stores, commissary, clothing, and small stores.
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

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Corbally, John E., Ph.D. Professor of Secondary Education
Culbert, Sidney S., Ph.D. Assistant Professor of Psychology
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Edwards, Alvin L., Ph.D. ............................................. Professor of Psychology
Fea, Henry R., Ph.D. .................................................. Assistant Professor of Education
Garfield, Viola E., Ph.D.............................................. Associate Professor of Anthropology
Gates, Charles M., Ph.D. ............................................. Professor of History
Gordon, Donald F., Ph.D. ............................................ Associate Professor of Economics
Gottfried, Alex, Ph.D. ................................................ Assistant Professor of Political Science
Gray, Robert S., M.A.................................................. Associate Professor of Drama
Greengo, Robert E., Ph.D. ........................................... Assistant Professor of Anthropology
Gunther, Erna, Ph.D. .................................................. Professor of Anthropology
Hamack, Frank H., LL.B.............................................. Lecturer in Accounting
Hatch, Melville Harrison, Ph.D. .................................. Professor of Zoology
Heathers, Louise B., Ph.D........................................... Assistant Professor of Psychology
Henning, Charles N., Ph.D........................................... Professor of Accounting, Finance, and Statistics
Herrman, Arthur P., B.A.............................................. Professor of Architecture and Urban Planning
Hitchner, Dell Gillette, Ph.D...................................... Associate Professor of Political Science
Jessup, John H., M.A.................................................. Associate Professor of Educational Sociology
Johnson, Walter Gilbert, Ph.D.................................... Associate Professor of Scandinavian Languages
Lampman, Robert J., Ph.D........................................... Associate Professor of Economics
Little, Wallace I., Ph.D................................................ Associate Professor of Transportation
Lutey, William Glen, M.A........................................... Assistant Professor of Liberal Arts
McAffree, Kenneth Maurice, Ph.D................................. Associate Professor of Economics
McKeever, Benjamin Butler, Ph.D................................. Associate Professor of Psychology
Martin, Charles E., Ph.D............................................ Professor of Political Science
Meyer, Herman Carl Henry, Ph.D................................. Associate Professor of Germanic Languages
Miller, Charles J., M.B.A.......................................... Professor of Marketing
Miyamoto, Frank, Ph.D............................................... Associate Professor of Sociology
Mueller, Fred J., Ph.D............................................... Assistant Professor of Accounting and Finance
Nelson, Robert A., Ph.D............................................. Associate Professor of Transportation
Payne, Blanche M.A.................................................. Professor of Home Economics
Peck, C. E., Ph.D.................................................... Associate Professor of Marketing, Transportation, and Foreign Trade
Person, Henry A., Ph.D.............................................. Assistant Professor of English
Phillips, William L., Ph.D.......................................... Assistant Professor of English
Powers, Francis Fountain, Ph.D.................................. Professor of Educational Psychology
Redford, Grant H., M.A.............................................. Associate Professor of English
Reed, Carroll E., Ph.D.............................................. Associate Professor of Germanic Languages
Roller, Julius A., B.B.A.............................................. Associate Professor of Accounting, Finance, and Statistics
Rustad, John R., M.A.................................................. Assistant Professor of Humanistic-Social Studies
Sarasen, Irwin C., Ph.D.............................................. Assistant Professor of Psychology
Simpson, Lurline Violet, Ph.D..................................... Associate Professor of Romance Languages
Sokol, Vilem Mark, M.Mus.......................................... Assistant Professor of Music
Souther, James W., M.A............................................. Associate Professor of Humanistic-Social Studies
Spector, Ivar, Ph.D................................................... Associate Professor of Far Eastern and Slavic Languages and Literature
Storey, Reed K., B.S.................................................. Acting Assistant Professor of Accounting
Strayer, George Drayton, Jr., Ph.D......................... Professor of Educational Administration
Suh, Doo Soo, Ph.D.................................................. Visiting Lecturer in Far Eastern and Slavic Languages and Literature
Vargas-Barón, Anibal, Ph.D....................................... Associate Professor of Spanish
Vopni, Sylvia, M.A.................................................. Assistant Professor of Education
Wagner, Louis C., M.A............................................... Professor of Marketing, Transportation, and Foreign Trade
Walters, Margaret C., M.A........................................... Assistant Professor of English
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
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 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 1½ quarter credits.)

In many academic fields, a student may earn up to half the credits required for a bachelor's degree through Home Study. However, he may earn only 10 of his last 45 credits by Home Study. The others must be earned as a resident student. If a student plans to take a large part of his undergraduate work in Home Study, he should consult with faculty advisers and plan his program several years in advance. In general, it is better to take the first rather than the latter part of a University program by Home Study.
A maximum of 45 credits earned in extension and correspondence courses at other institutions may be transferred, but none of these credits can apply toward the work of the senior year. Extension and correspondence credits from schools that are members of the National University Extension Association are accepted without examination; credits from schools that are not members are accepted only after examination. No correspondence credit is accepted in the combined arts-law program.

Credits earned in extension or correspondence courses at this University are accepted after the student has satisfactorily completed 35 credits of work in residence (that is, registered in regular University classes). A maximum of 90 extension and correspondence credits is acceptable; the 90 credits may include the 45 extension or correspondence credits allowable from other institutions or may consist entirely of courses taken in this University's 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 8½” x 11” paper may be used. First sheets with printed headings may be obtained from the Home Study Office in blocks of forty for 25 cents. Plain second sheets in blocks of approximately fifty may also be obtained from this office for 20 cents a block. Each thirty-assignment course requires one block of printed sheets and two or more blocks of second sheets.

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:

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<tr>
<th>Last Name</th>
<th>First Name</th>
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Address in full ______________________________________________________________________
Street and Number City and Zone State
Tel. No. Occupation Date of Birth

Father's Name Mother's Maiden Name

What correspondence instruction have you had?________________________________________________________________________
Have you completed any course at the University of Washington by:
Correspondence Study Evening Classes Residence Study?

Do you wish the Department of Correspondence Study to order the required text? ___________
(Textbooks will be sent C.O.D.)

REGISTRATION

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Department</th>
<th>Subject</th>
<th>Price</th>
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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)
HOME STUDY COURSES

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 120c. (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 130c. (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 111 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 through 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 school children. 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 influence; 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, 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)

445c 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, anecotal 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)

475c 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)

4755c Improvement of Teaching: Science (3) Baily
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. Pleriterate education, beginning 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.
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 is adapted
Trends in Industrial Education (3) Bailly
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
Instructional Analysis for Industrial Education Teachers (3) Bailly
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.

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)

General Engineering

Engineering Drawing (3) booher
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)

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

Current Reading for Enjoyment (0) Adams
Reviews and written discussion of new books chosen primarily for the reader's enjoyment. (12 lessons, $16.00)

Basic Grammar (0) Irwin
For those who fail in entrance tests for 101. A review of English grammar. (18 lessons, $24.00)

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 progressively difficult. 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)

Factual Writing (3) Walters
Expository and critical writing. Biographical and informational writing. Prerequisites, 101, 102, 103, or equivalent. (18 lessons, $24.00)

Writing for essays, feature articles, and biography; opinion writing. (18 lessons, $24.00)

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)

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)

Verso Writing (5,5,5) Zillman
Prerequisites, 101, 102, 103, or equivalent. (30 lessons each, $40.00 each)

Historical survey of chief English classics from Beowulf and Chaucer to Shakespeare’s early plays. (15 lessons each, $20.00 each)

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)
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Instructor</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>267c</td>
<td>Survey of American Literature (3)</td>
<td>Phillips</td>
<td>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)</td>
</tr>
<tr>
<td>269c</td>
<td>Survey of American Literature (3)</td>
<td>Phillips</td>
<td>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)</td>
</tr>
<tr>
<td>272c</td>
<td>Introduction to Modern Literature (3)</td>
<td>Brown</td>
<td>Essays, poetry, novels, plays. Not open for credit to students who have taken or are taking 404, 406, or 406. (18 lessons, $24.00)</td>
</tr>
<tr>
<td>277c, 278c, 279c</td>
<td>Narrative Writing (3,3,3)</td>
<td>Binns</td>
<td>Elementary narrative writing for students beginning work in short story. Prerequisites, 101, 102, 103, or equivalent. (18 lessons each, $24.00 each)</td>
</tr>
<tr>
<td>362ac, 362bc</td>
<td>American Literature (2(\frac{1}{2}),(\frac{1}{2}))</td>
<td>Eby</td>
<td>A study of Milton with particular emphasis on Paradise Lost. Prerequisite for 362b is 362a. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>367c</td>
<td>Seventeenth-Century Literature (5)</td>
<td>Willis</td>
<td>A survey with emphasis on Bacon, Donne, Thomas Browne, Dryden and others. (30 lessons, $40.00)</td>
</tr>
<tr>
<td>368ac, 368bc</td>
<td>Seventeenth-Century Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Willis</td>
<td>A study of Milton with particular emphasis on Paradise Lost. Prerequisite for 368b is 368a. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>370ac, 370bc</td>
<td>Shakespeare (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Adams</td>
<td>A survey of some of Shakespeare's more complex and penetrating dramas, including at least one of the profound and &quot;universal&quot; tragedies. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>371ac, 371bc</td>
<td>Shakespeare (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Adams</td>
<td>A study of some of Shakespeare's more complex and penetrating dramas, including at least one of the profound and &quot;universal&quot; tragedies. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>374ac, 374bc</td>
<td>Late Nineteenth-Century Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Winther</td>
<td>Carlyle, Arnold, Hallam, Tennyson, Dickens, Eliot, and others. Prerequisite for 374b is 374a. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>375ac, 375bc</td>
<td>Late Nineteenth-Century Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Winther</td>
<td>Browning, Swinburne, Rossetti, and selections from the minor poets. Darwin, Hardy, and Thackeray. Prerequisite for 375b is 375a. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>377ac, 377bc</td>
<td>Early Nineteenth-Century Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Winther</td>
<td>Wordsworth, Coleridge, Lamb, Hazlitt, and others. Prerequisite for 377b is 377a. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>378ac, 378bc</td>
<td>Early Nineteenth-Century Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Winther</td>
<td>Shelley, Byron, Keats, and others. Prerequisite for 378b is 378a. (15 lessons each, $20.00 each)</td>
</tr>
<tr>
<td>388c</td>
<td>Current English Usage (3)</td>
<td>Person</td>
<td>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)</td>
</tr>
<tr>
<td>410c, 411c, 412c</td>
<td>Advanced Verse Writing (5,5,5)</td>
<td>Zillman</td>
<td>Prerequisites, 261, 262, 263. (30 lessons each, $40.00 each)</td>
</tr>
<tr>
<td>440ac, 440bc</td>
<td>Social Ideals in Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Adams</td>
<td>A study of some of western man's most typical concepts of what forms a &quot;good life&quot; 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)</td>
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<tr>
<td>441ac, 441bc</td>
<td>Social Ideals in Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Adams</td>
<td>A study of some of western man's most typical concepts of what forms a &quot;good life&quot; 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)</td>
</tr>
<tr>
<td>448c</td>
<td>The English Novel (5)</td>
<td>Brown</td>
<td>Novels by Dickens, Thackeray, and George Eliot compared and contrasted with a novel of Balzac. (30 lessons, $40.00)</td>
</tr>
<tr>
<td>449c</td>
<td>The English Novel (5)</td>
<td>Brown</td>
<td>Novels by Maugham, James Joyce, and Marcel Proust. (30 lessons, $40.00)</td>
</tr>
<tr>
<td>466ac, 466bc</td>
<td>Modern American Literature (2(\frac{1}{2}),2(\frac{1}{2}))</td>
<td>Bentley</td>
<td>The beginning of realism; tendencies from 1900 to 1915; contemporary fiction and poetry. (15 lessons each, $20.00 each)</td>
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</tbody>
</table>

**FAR EASTERN AND SLAVIC LANGUAGES AND LITERATURE**

<table>
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<tr>
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<tbody>
<tr>
<td>405c</td>
<td>Korean Grammar (5)</td>
<td>Suh</td>
<td>Prerequisite 304 or equivalent. (30 lessons, $40.00)</td>
</tr>
<tr>
<td>406c, 407c</td>
<td>Advanced Korean Reading (5,5)</td>
<td>Suh</td>
<td>Prerequisite, 405. (30 lessons each, $40.00 each)</td>
</tr>
</tbody>
</table>
HOME STUDY COURSES

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)

MATHMATICS

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. Functions, 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 Tschaikovsky. 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 Thones (2,2) Writing of original compositions. Prerequisite, 302 or equivalent. (12 lessons each, $16.00 each)

358c, 359c Advanced Syntax (2,2) Syntax from the teacher's standpoint. Should precede Education 329. Prerequisite, 303 or 307. (12 lessons each, $16.00 each)

390c Supervised Study (2,5-20) 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)


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)  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)  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)  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)  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)  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)  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)

SOCIOLGY

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 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

BULLETIN UNIVERSITY OF WASHINGTON
General Series No. 926
August, 1958

Published monthly at Seattle, Washington, by the University of Washington. 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

All fees must be paid at the time of registration.

AUTUMN QUARTER, 1958

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<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>Sept. 17</td>
<td>Instruction begins, Third Year Students (8 a.m.)</td>
</tr>
<tr>
<td>Oct. 1</td>
<td>Instruction begins, First, Second and Fourth Year Students (8 a.m.)</td>
</tr>
<tr>
<td>Nov. 11</td>
<td>State Admission Day holiday</td>
</tr>
<tr>
<td>Nov. 16-Dec. 1</td>
<td>Thanksgiving recess</td>
</tr>
<tr>
<td>Dec. 15-Dec. 19</td>
<td>Examinations</td>
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<td>Dec. 19-Friday</td>
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WINTER QUARTER, 1959

<table>
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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Jan. 5</td>
<td>Instruction begins, All Four Classes (8 a.m.)</td>
</tr>
<tr>
<td>Feb. 23</td>
<td>Washington's Birthday and Founder's Day holiday</td>
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<tr>
<td>Mar. 16-Mar. 20</td>
<td>Examinations</td>
</tr>
<tr>
<td>Mar. 20-Friday</td>
<td>Instruction ends</td>
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SPRING QUARTER, 1959

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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Mar. 30</td>
<td>Instruction begins, All Four Classes (8 a.m.)</td>
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<tr>
<td>May 30</td>
<td>Memorial Day holiday</td>
</tr>
<tr>
<td>June 8-June 12</td>
<td>Examinations</td>
</tr>
<tr>
<td>June 12-Friday</td>
<td>Instruction ends</td>
</tr>
<tr>
<td>June 13-Saturday</td>
<td>Commencement</td>
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SUMMER QUARTER, 1959 — For Graduate Students

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<th>Date</th>
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<tbody>
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<td>June 22</td>
<td>Instruction begins</td>
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<tr>
<td>Sept. 4-Friday</td>
<td>Instruction ends</td>
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AUTUMN QUARTER, 1959

<table>
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<tr>
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<tbody>
<tr>
<td>Sept. 16</td>
<td>Instruction begins, Third Year Students (8 a.m.)</td>
</tr>
<tr>
<td>Sept. 30</td>
<td>Instruction begins, All Four Classes (8 a.m.)</td>
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<tr>
<td>Nov. 11</td>
<td>State Admission Day holiday</td>
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<tr>
<td>Nov. 25-Nov. 30</td>
<td>Thanksgiving recess</td>
</tr>
<tr>
<td>Dec. 14-Dec. 18</td>
<td>Examinations</td>
</tr>
<tr>
<td>Dec. 18-Friday</td>
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<tbody>
<tr>
<td>Jan. 4</td>
<td>Instruction begins, All Four Classes (8 a.m.)</td>
</tr>
<tr>
<td>Feb. 22</td>
<td>Washington's Birthday and Founder's Day holiday</td>
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<tr>
<td>Mar. 14-Mar. 18</td>
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<td>Mar. 18-Friday</td>
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SPRING QUARTER, 1960

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<td>Mar. 28</td>
<td>Instruction begins, All Four Classes (8 a.m.)</td>
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<tr>
<td>May 30</td>
<td>Memorial Day holiday</td>
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<tr>
<td>June 8-June 10</td>
<td>Examinations</td>
</tr>
<tr>
<td>June 10-Friday</td>
<td>Instruction ends</td>
</tr>
<tr>
<td>June 11-Saturday</td>
<td>Commencement</td>
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SUMMER QUARTER, 1960 — For Graduate Students

<table>
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<tbody>
<tr>
<td>June 20</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>Sept. 5-Friday</td>
<td>Instruction ends</td>
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ADMINISTRATION

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Joseph Drumheller
Mrs. J. Herbert Gardner
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Assistant to the President
Registrar
Comptroller and Treasurer
Business Manager
Dean of Students
Dean of the School of Dentistry

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Dean of the School of Dentistry
Acting Dean of the Graduate School
Professor of Chemistry; Executive Officer
Dean of the College of Pharmacy
University Health Officer
Dean of the School of Nursing
Dean of the College of Arts and Sciences

MARY ADAMS, Secretary

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Saul Schluger, D.D.S.
Esther M. Wilkins, B.S., R.D.H., D.M.D.

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Assistant Dean
Director of Graduate Dental Education
Director of Department of Dental Hygiene

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T. W. Penfold, D.V.M.
Jessie Phillips, B.F.A.
LeRoy S. Rambeck, B.A.
Seymour M. Standish

Acting Librarian, Division of Health Sciences
Assistant Business Manager, Division of Health Sciences
Manager of Dental Supplies
Chief Dental Photographer and Television Coordinator
Administrative Assistant, Division of Health Sciences
Hospital Buyer
Administrative Assistant, School of Dentistry
Veterinarian
Director of Medical Illustration, Division of Health Sciences
Hospital Administrator
Assistant to the Chairman, Division of Health Sciences
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

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

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

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.S., 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

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., 1949, 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
FACULTY

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

ORAL DIAGNOSIS

BOURASSA, Edward A., 1951
Senior Consultant in Oral Roentgenology
D.M.D., 1925, Oregon

BUSEMAN, Ralph H., 1957
Instructor in Oral Diagnosis

COX, Herschel A., Jr., 1956
Clinical Assistant in Oral Diagnosis

DEGERING, Charles Irvin, 1950
Assistant Professor of Oral Diagnosis and Treatment Planning

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

ORAL PATHOLOGY

SREEBNEY, Leo M., 1957
Associate Professor of Oral Pathology; Executive Officer of the Department of Oral Pathology

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

GEHRI, 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

IVESION, 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

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

ORTHODONTICS

BISHOP, Everard Allen, 1949
Clinical Associate in Orthodontics

BOLTON, Wayne A., 1954
Clinical Assistant in Orthodontics

ERICKSON, Leslie C., 1958
Clinical Assistant in Orthodontics

FRASER, Emery James, 1949
Senior Consultant in Orthodontics
D.D.S., 1924, Northwestern

KAHN, Kenneth S., 1950
Clinical Assistant in Orthodontics

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

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

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

PEDODONTICS

BAIRD, Frank P., 1953
Clinical Assistant in Pedodontics

BLANCHER, Robert B., 1957
Clinical Assistant in Pedodontics
D.D.S., 1950, Washington

BOWLER, Frank T., 1947
Clinical Assistant in Pedodontics
D.M.D., 1945, Oregon
COLEMAN, Clarence L., 1949  
Clinical Associate in Pedodontics  
Ph.C., 1932, D.M.D., 1946, Oregon  

FRICKE, Harold H., 1956  
Clinical Assistant in Pedodontics  

HOFFMAN, Olin E., 1950  
Clinical Associate in Pedodontics  
M.P.H., 1943, Michigan; D.D.S., 1921, Iowa  

JINKS, Gordon MacMillan, 1950  
Clinical Associate in Pedodontics  
D.D.S., 1946, Toronto  

LAW, David Barclay, 1947  
Assistant Professor of Pedodontics;  
Executive Officer of the Department of Pedodontics  
B.S.D., 1946, Toronto; D.D.S., 1948, Michigan  

LEWIS, Thompson M., 1955  
Assistant Professor of Pedodontics  

MICHENS, 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 Associate 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  

BRAYSHAW, Col. Horace A., 1957  
Lecturer in Periodontics and Endodontics  
D.D.S., 1933, Minnesota  

BURRELL, Frank C., 1952  
Clinical Assistant in Periodontics and Endodontics  

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  

GALLAGHER, J. Wilfred, 1949  
Clinical Associate in Periodontics and Endodontics  
D.D.S., 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  

THE SCHOOL OF DENTISTRY

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  

SCHLUGER, Saul, 1958  
Professor of Periodontics  
D.D.S., 1953, Louisville  

SOBOTTKA, Hugh C., 1957  
Clinical Assistant in Periodontics and Endodontics  

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., 1948, D.D.S., 1940, Nebraska  

TEEL, W. Stephen, 1954  
Clinical Assistant in Periodontics and Endodontics  

TIMBERLAKE, Wayne J., 1957  
Clinical Assistant in Periodontics and Endodontics  
B.S., 1954, Washington  

WALTERS, John Jr., 1957  
Clinical Assistant in Periodontics and Endodontics  

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.S., 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, 1953  
Assistant 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

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

LAMBERCHT, 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

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

STICKELS, Claudette M., 1955
Instructor in Dental Hygiene

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


SCHOOL OF DENTISTRY


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).


GRADUATE DENTAL ADMISSIONS COMMITTEE: A. W. Moore, Chairman; B. E. Anderson, M. J. Hickey, D. B. Law, B. S. Kraus, Leo Sreebny.


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 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.

<table>
<thead>
<tr>
<th>QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101, 102, 103 (Composition)</td>
</tr>
<tr>
<td>Chemistry 100 or 110 and 150, 160, and 170 (General and Qualitative Analysis)</td>
</tr>
<tr>
<td>Chemistry 231, 232, 241, 242 (Organic)</td>
</tr>
<tr>
<td>Physics 101, 102, 103 and 107, 108, 109 (General and Lab.)</td>
</tr>
<tr>
<td>Zoology 111, 112 (General)</td>
</tr>
<tr>
<td>Zoology 456 (Vertebrate Embryology)</td>
</tr>
<tr>
<td>or 453-454 (Comparative Anatomy of Chordates)</td>
</tr>
</tbody>
</table>

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 predental requirements, induction into military service, or failure to pass the physical examination required of all students at the time of registration.

STUDENT ACHIEVEMENT AND PROMOTION

The School of Dentistry uses the University grade-point system: A=4, B=3, C=2, D=1, E=0. Calculation of the grade-point average is made by multiplying the grade point received in a course by the number of credits earned in the course, totaling these values, and dividing by the total number of credits earned.

Students are notified of their grades at the end of each quarter.

A student who has less than a 2.00 grade-point average in the courses for which he is registered during any given quarter is referred to the Executive Committee of the School. If the work in a course is incomplete or inadequate, a grade of I may be given. This Incomplete must be removed before September 15 if the student is to advance into the next year’s class.

E signifies that the work is of failing grade. Students who receive an E in one major subject may be permitted to take additional work and a re-examination, if permission is granted by the instructor in the course, the Dean, and the Executive Committee. If the additional work and re-examination are satisfactory, the student’s grade may be raised from E to D and promotion may be granted if the remainder of the work justifies it. If students receive E in more than one major subject in one year, they may not make up these deficiencies. The Dean’s Office notifies students of E grades.

At the end of each academic year the Executive Committee of the School of Dentistry evaluates the accomplishments of the student during the year and determines his fitness for promotion. When promotion is not recommended, the student is subject to dismissal from the School. The Dental School reserves the right to dismiss any student from the School for any reason it deems sufficient. Scholastic standing is not the only requirement for promotion. Students are advanced only when their general attitude, scholastic progress, and personal attributes are considered satisfactory.

TUITION AND FEES

All tuition and fees are payable at the time of registration. A table of charges for dentistry and dental hygiene students is on page 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, 203A 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.

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CLASS SCHEDULES
The School of Dentistry operates on the quarter system of the University. There are three eleven-week quarters in the school year. See pages 26-29.
## Tuition and Fees for Students of Dentistry and Dental Hygiene

### Autumn Quarter

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<tr>
<th>Class</th>
<th>Tuition</th>
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### Winter Quarter

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### Spring Quarter

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### Summer Quarter

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*Subject to change.
# FIRST YEAR SCHEDULE

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<td>Anat. 330 (Micro. Anat.)</td>
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## Spring Quarter

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### SECOND YEAR SCHEDULE

#### Autumn Quarter

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<td>3:30-4:20</td>
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<td>Prostodontics Lab.</td>
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#### Winter Quarter

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<tr>
<td>11-11:50</td>
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<td></td>
<td>Path. 231 (General Path.)</td>
<td>Pedo. 201</td>
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<tr>
<td>1:30-2:20</td>
<td>Fixed Partial Dentures 232</td>
<td>Pathology Lab.</td>
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<td>Path. 231</td>
<td>Fixed Partial Dentures 232</td>
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<tr>
<td>2:30-3:20</td>
<td>Fixed Partial Dentures Lab.</td>
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<td>Pathology Lab.</td>
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<tr>
<td>8-8:50</td>
<td>Pharmacol. 234 (Gen. Pharm.)</td>
<td>Oper. Dent. 233</td>
<td>Pedo. 216</td>
<td>Oper. Dent. 233</td>
<td>Endo. 232</td>
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<tr>
<td>1:30-2:20</td>
<td>Fixed Partial Dentures 233</td>
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<td>Pharmacol. 234 1:00</td>
<td>Pharmacol. 234 1:00</td>
<td>Fixed Partial Dentures 233</td>
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### THIRD YEAR SCHEDULE

#### Autumn Quarter

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<tr>
<td>8-8:50</td>
<td>Prostho. 300</td>
<td>Oper. Dent. 300</td>
<td>O.D.T.P. 300</td>
<td>Oral Surgery 300</td>
<td>Free</td>
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<tr>
<td>9-9:50</td>
<td>Perio. 300</td>
<td>Pedo. 300</td>
<td>Endo. 304</td>
<td>Fixed Partial Dentures 300</td>
<td>Perio. 300</td>
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<tr>
<td>10-12:30</td>
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<td>CLINIC</td>
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#### Winter Quarter

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<tr>
<td>8-8:50</td>
<td>Prostho. 301</td>
<td>Oper. Dent. 301</td>
<td>Free</td>
<td>Fixed Partial Dentures 301</td>
<td>Free</td>
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<td>10-12:30</td>
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<tr>
<td>1:30-2:30</td>
<td>Oral Path. 331</td>
<td>CLINIC (Oper. Block 1:00)</td>
<td>Oral Path. 331</td>
<td>CLINIC</td>
<td>CLINIC (Oper. Block 1:00)</td>
</tr>
<tr>
<td>2:30-4:30</td>
<td>Oral Pathology Lab. 2:30-5:00</td>
<td>CLINIC</td>
<td>Oral Pathology Lab. 2:30-5:00</td>
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#### Spring Quarter

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<td>8-8:50</td>
<td>Prostho. 300</td>
<td>Oper. Dent. 300</td>
<td>O.D.T.P. 300</td>
<td>Oral Surgery 300</td>
<td>Free</td>
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<tr>
<td>9-9:50</td>
<td>Perio. 300</td>
<td>Pedo. 300</td>
<td>Endo. 304</td>
<td>Fixed Partial Dentures 300</td>
<td>Perio. 300</td>
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FOURTH YEAR SCHEDULE

Autumn Quarter

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<th>Hours</th>
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<tbody>
<tr>
<td>8-8:50</td>
<td>Dent. Sci. &amp; Lit. 403</td>
<td>Orthodontics 400</td>
<td>Oral Surgery 400</td>
<td>Dental Sci. &amp; Lit. 431</td>
<td>O.D.T.P. 400</td>
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<tr>
<td></td>
<td>(Jurisprudence)</td>
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<td></td>
<td>(Dent. Ethics &amp; Office Mgmt.)</td>
<td>Fixed Partial Dentures 400</td>
</tr>
<tr>
<td>9-9:50</td>
<td>Conjoint (Dent.) 400</td>
<td>Prostho. 400</td>
<td>Oper. Dent. 400</td>
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Winter Quarter

|     | Oral Surgery 401                | Oral Surgery 403                | Orthodontics 401                | O.D.T.P. 401                       | Dental Sci. & Lit. 432            |
|     | (Maxillofacial Surgery)         | (Maxillofacial Surgery)         |                                 |                                   | (Dent. Ethics & Office Mgmt.)     |
|     |                                 |                                 |                                 |                                   | Fixed Partial Dentures 400        |
| 8-8:50|Dent. Sci. & Lit. 401            | Prostho. 402                    | Oper. Dent. 401                 | Dental Sci. & Lit. 401             | F.P.D. 401                        |
|     | (Applied Dental Science)        |                                 |                                 | (Applied Dental Science)          |                                   |
| 9-9:50|                               |                                 |                                 |                                   |                                   |
| 10-12:30|CLINIC                          | CLINIC                          | CLINIC                          | CLINIC                            | CLINIC                            |
| 2-4:30|                               |                                 |                                 |                                   |                                   |

Spring Quarter

|     | Periodontics 400                | Oral Surgery 404                | Oral Surgery 402                | Conjoint (Dent.) 402               | Endodontics 400                    |
|     | (Maxillofacial Surgery)         | (Maxillofacial Surgery)         |                                 | (Applied Ther. & Prescrib.)        |                                   |
| 8-8:50|                               |                                 |                                 |                                   |                                   |
|     | (Dent. Ethics & Office Mgmt.)  |                                 |                                 |                                   |                                   |
| 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 undergraduate dental students who are interested in undertaking research. The research may be on a part-time basis during the academic year or full time during the summer quarter. The grants are made upon the recommendation of the department heads concerned and the Dean. Funds for this purpose are provided on an annual basis by the Division of 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) Jonsen

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.
THE DEPARTMENTAL PROGRAMS

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, 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.
THE SCHOOL OF DENTISTRY

N300, N301 Dental Medicine (0,0)  Staff of the Schools of Dentistry and Medicine
Symptomatic conditions and diseases, with special reference to their oral manifestations or implications. Consideration of some aspects of dermatology and syphilology, diabetes, the blood dyscrasies, 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 AdvancedFixedPartialDentures (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) Oslund, 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; alveolotomy; 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 appliances 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.

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 technics applicable to primary and mixed dentitions; cavity preparations in primary teeth, construction of a functional space maintainer, and restoration of a fractured incisor.

300, 301 Pedodontics (1,1) Law

Emotional development of the child and its implications in pedodontic procedures. Space maintenance, the interception of incipient malocclusion, and clinical management of oral habits.

346 Clinical Pedodontics (3) Staff

Diagnosis and examination of the child patient. Restorative procedures in primary and mixed dentitions, with special emphasis on application of the rubber dam.

400 Pedodontics and Public Health Dentistry (1) Hoffman

The child, in the dental health program. Organization of dental health programs on local, state, and national levels. The role of the dentist in community public health planning. Public health legislation and its implications to the dental profession.

446 Advanced Clinical Pedodontics (3) Staff

Diagnosis and treatment planning, with emphasis upon preventive dentistry. Complete operative procedures, including vital pulp therapy, construction of space maintainers, bite planes, and restoration of fractured anterior teeth.

COURSES FOR GRADUATES ONLY

500, 501, 502, 503, 504 Pedodontics Seminar (2,2,2,2,2) Law

Seminar on problems of tooth formation, development, calcification, and eruption in the child. Management of clinical problems of tooth development; operative procedures, pulp therapy, treatment planning, and the consideration of emotional factors in pedodontic practice.

546, 547, 548, 549, 550 Clinical Pedodontics (*,*,*,*,*) Staff

Advanced clinical practice. Assignment of selected cases, with student responsibility for complete examination, diagnosis, and treatment planning including completion of the case. The use of appliances to effect limited tooth movement in cases of space closure and the application of the Broadbent-Bolton cephalometer in diagnosis and treatment.

600 Research (*) Staff

Prerequisite, permission.

Thesis (*) Staff

An investigative program carried out under the direction of a member of the Department staff by the candidate for the degree of Master of Science in Dentistry. The problem may be in one of the basic sciences or may have a clinical application.

PERIODONTICS AND ENDODONTICS

Executive Officer: JOHN I. INGLE, B410 Health Sciences Building

In this Department, students are taught the basic knowledge and technics necessary in diagnosing and treating diseases of the supporting structures and pulp of the teeth.
In addition to the courses for undergraduate dental students, the Department of Periodontics and Endodotics 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 ENDO Dodge

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 Technique (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) Schlager, Staff
The clinical diagnosis and treatment of periodontal disease.

549, 550, 551 Clinical Periodontics (3,4,4) Schlager, 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) Schlager, 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) Schlager, 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) Schlager, Staff
A weekly seminar to discuss controversial treatment problems and difficult diagnostic cases.

585, 586, 587 Treatment Planning Seminar (2,2,2) Schlager, 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 (*) Schlager, Staff
An investigative program in one of the basic sciences under the direction of the departmental faculty. Prerequisite, permission.

Thesis (*) Schlager, 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

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 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 ostectomized 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 predental 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>English 101, 102, 103</td>
<td>9</td>
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<tr>
<td>Biology 101J-102F</td>
<td>10</td>
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<tr>
<td>Chemistry 100 or 110</td>
<td>4 or 3</td>
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<td>Chemistry 120</td>
<td>5</td>
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<td>Health Education 110</td>
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<td>Physics 170</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 100</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 110</td>
<td>5</td>
</tr>
<tr>
<td>Speech 120</td>
<td>5</td>
</tr>
</tbody>
</table>
THE DEPARTMENTAL PROGRAMS

Electives in Humanities ..........................................................10
Electives in Social Sciences (Soc. 110 may be counted in this) ...........20
Other electives of student's choice ...........................................10 or 11
Physical Education Activity courses ........................................3

Students who are taking their preprofessional training at the University of Washington follow the two-year predental hygiene program offered in the College of Arts and Sciences (see the College of Arts and Sciences Bulletin). Students in other institutions should check the course descriptions given in the bulletin, compare the above listed courses with those given in their schools, and seek the advice of the Registrar for course equivalents. It is recommended that students who anticipate transferring to the University of Washington request an evaluation of the credits obtained during their first year of study. This may be accomplished by writing directly to the Department of Dental Hygiene.

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 predental 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 predental 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); 484 (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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Dental Procedures (3)</td>
<td></td>
<td>Stickels, School of Dentistry Staff</td>
<td>Lectures and demonstrations in dental procedures, with emphasis on the role of auxiliary personnel.</td>
</tr>
<tr>
<td>331</td>
<td>Dental Anatomy (4)</td>
<td></td>
<td>Hodson</td>
<td>Morphology of permanent and primary teeth; sketching and carving of essential units.</td>
</tr>
</tbody>
</table>
THE DEPARTMENTAL PROGRAMS

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; mathematical 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 physiologic, psychologic, 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, prosthetics, 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.
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**

1. **416 Scientific Methodology in Dental Research (3)** Kraus  

2. **417 Scientific Methodology in Dental Research (3)** Kraus  

3. **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)

4. **510 Applied Osteology and Myology of the Head and Neck (2)** Kraus, Mooor, 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)

5. **511 Roentgenographic Cephalometry (2)** Bolton, Moore  
   Basic principles, history, and techniques of roentgenographic cephalometry. (Department of Orthodontics)

6. **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. Pre-requisite, 512 for 513. (Department of Orthodontics)

7. **514 Genetics and Its Applications to Dental Problems (2)** Kraus  

8. **515 Evolution of the Human Cranio-facial Complex (2)** Kraus  

9. **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.

10. **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)

11. **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)

12. **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)

13. **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)

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.
BECKER, George Albert, Twin Falls, Idaho
BRUNA, Robert L., Mica College of William and Mary
BURD, 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 Clary, Reno University of Nevada
DWORKAK, 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
FILON, 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
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

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
MARTTALA, Warren Harvey, Seattle University of Washington
MCALPINE, Robert Bruce, Vancouver, B. C. University of British Columbia
McCOY, John Douglas, Hoquiam University of Washington
McEVEY, Robert Albert, Hoquiam University of Washington
MEYER, John Bishop, Dillon, Montana Montana State
MILLER, Dale Edward, Sunnyside University of Washington
NIESNER, Duane Edward, Puyallup Pacific Lutheran College
NODVEDT, Richard O., Tacoma B.A., Pacific Lutheran College
PATTERSON, Walter Royal, Seattle B.S., University of Washington
PEDDYCORDE, 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
RUF, 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
TADEO, 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 Harrigfield, Boise University of Idaho

BOYDEN, Ralph William, Jr., Mountlake Terrace B.S., University of Idaho
DODGE, Lawrence John, East Stanwood B.S., Washington State College
CARLSON, Arthur Lee, Seattle University of Washington
ROSTER OF STUDENTS

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

EIGERMAN, Kenneth Warren, Spokane
B.A., Washington State College

GALUTIA, George, James

GILL, James Louis, Seattle
University of Washington

GILL, James Louis, Seattle
University of Washington

GU, Vermin

GILLE, 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

HAGELE, George Carver, Seattle
University of Washington

HORCHEROVER, 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

JOHNSON, 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

KLAGER, Martin S., Seattle
B.S., University of Pittsburgh

KYLINGSTAD, Vernon Jack, Butte, Montana
University of Washington

LARSON, Duane Burke, Longview
B.A., University of Washington

LEDGERMAN, Donald Newton, Seattle
University of Washington

LEED, Darrel Dean, Provo, Utah
B.S., Brigham Young University

LEITHE, Charles Chris, Spokane
University of Washington

LOTZKAR, Martin, Seattle
University of Washington

MONS, 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

STEWARD, Donald William, Spokane
Central Washington College of Education

STRANDWOLD, Silvan Otto, Jr., Hoquiam
University of Washington

THOMPSON, Jerry Lee, Cowiche
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

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
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
RAASANEN, Richard Alan, Aberdeen
University of Washington
RAWSON, Daryl Stanley, Sunnyside
Central Washington College of Education
REDD, Keith Eugene, Yakima
University of Washington
SANDER, Allens Lewis, Anchorage, Alaska
B.S., Midland College
M.S., Massachusetts Institute of Technology
SAYLER, Hugh Donald, Longview
University of Washington
SCHUYER, 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
STEWARD, 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
ULMER, Bruce Frederick, Bremerton
University of Washington
WILCOX, Robert Earl, Seattle
University of Washington
WILSON, Theron Duane, Olympia
University of Washington
WODD, Don Carlos, Jr., Fort Angeles
B.S., University of California
WRIGHT, Wellesley Horton, Seattle
University of Washington
ROSTER OF STUDENTS

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

BIRDEBOUGH, Harold, Seattle
University of Washington

BLACK, George Erwin, Kennewick
B.S., University of Washington

BLOSS, Albert Paul, Seattle
B.A., University of Washington

BLOOM, Richard Alan,

BIRDLEBOUGH, Ernest, Seattle
Central Washington College of Education

BOLLINGER, Ronald George, Seattle
B.A., University of Washington

BROOKS, John Elton, Ogden, Utah
B.S., Utah State College

BRIGGS, Garth Thorey, Pocatello, Idaho
B.S., University of Idaho

BRUMMITT, William Joseph, Seattle
University of Washington

BRYANT, James Trevor, Jr., Seattle
University of Washington

CARSON, Robert Edwin, Bremerton
University of Washington

CONTINENTAL, Elio, Jr., Seattle
B.A., University of Washington

DAVIS, Joel Kimball, Idaho Falls, Idaho
B.S., University of Idaho

DAVIES, Johnnie, Idaho Falls, Idaho
B.S., University of Idaho

DAY, John, Boise
B.S., University of Idaho

DEAN, David E., Seattle
B.S., University of Washington

DEGUARDIAN, James, Idahol
B.S., University of Idaho

DUFFIE, Ralph Kenneth, Lancaster, Ohio
B.S., University of Washington

DUNN, James Franklin, Coeur d'Alene, Idaho
B.S., University of Washington

ERICKSON, Jack Kenneth, Arlington
University of Washington

FRALEY, George Thomas, Seattle
University of Washington

GUTHRIE, Frank Burns, Seattle
University of Washington

HARRISON, 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

LADDINGTON, 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.S., Brigham Young University

MENDEL, Robert August, Seattle
University of Washington

MOHORI, George Donald, Chehalis
University of Washington

NAKAMURA, Ken Kunihiko, Seattle
B.S., University of Washington

NASH, Brent Isaac, Weston, Idaho
B.A., University of Washington

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

RASMUSSEN, Reginald Robert, Seattle
University of Washington

REID, Bryan Embree, Victoria, B.C.
University of Washington

RICE, Frank Carold, Seattle
University of Washington

ROTH, Theodore Frank, Seattle
University of Washington

SIMONIAN, 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, Klackitat
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

CLEMENIT, 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, Oakdale Washington State College

HAVENCROFT, Robert John, Seattle University of Washington

HAWKESLEY, Robert Locke, Seattle University of Washington

HAZASHI, Tom Yoshishira, 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

HUNGER, 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

---

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

FREI, Richard H., North Hollywood, California D.D.S., University of Southern California

---

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

RADER, Ryle August, Jr., Everett University of Washington

RICKETS, 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 Luge, Seattle University of Washington

STRAND, Harvey Allen, Idaho Falls, Idaho B.S., Idaho State College

THOMPSON, William Joseph, Seattle University of Washington

VAN DERSCHELDEN, 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

---

HICKEY, David G., Milwaukee, Wisconsin B.S., University of Wisconsin

D.D.S., Marquette 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.S. 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

PHIL, 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

Pedsodontics

LAMBRECHT, James, Milwaukee, Wisconsin  
D.D.S., Marquette University

Rostorative

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

INOUYE, 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. (I.I)

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

STEARNS, Beverly Jean, Seattle
Graceland College, Iowa

SUTHERLAND, Joan, Victoria, B.C.
Victoria College
University of British Columbia
ROSTER OF STUDENTS

GRADUATES IN DENTAL HYGIENE

CLASS OF 1958

Degree of Bachelor of Science Conferred June 14, 1958

BAKER, Rena Elizabeth, Seattle
University of Washington

BATES, Marie Pearl, Moses Lake
University of Washington

BOYANER, Carolyn, Vancouver, B.C.
University of British Columbia
University of Washington

BROOKS, Lois Gross, Seattle
University of Washington

CAPELUTO, Marlene, Seattle
University of Washington

DENNIS, Joan Marie, Puyallup
University of Washington

HEGGIE, Marylyn Ann, Seattle
University of Washington

HOUSEL, Lenore Annette, Seattle
University of Washington

KOCHER, Linda Louise, Aberdeen
Grays Harbor College

LANGSLET, Jana Lynn,
Klamath Falls, Oregon
R.D.H., University of Oregon

PEER, Jean Carol, Fallon, Nevada
University of Washington

ROSEBERG, Greta Haagensen, 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

CHONZENA, Mona Irene, Anacortes
Washington State College

CONGDON, Roberta Ann, Tacoma
University of Washington

GAGE, Carolyn Chartrand, Coeur d'Alene, Idaho

HAMLIN, Susan Emma, Seattle
University of Idaho

HARVEY, Susan Harrison, Seattle
University of Washington

HOMMA, Kumiko, Seattle
University of Washington

MASTON, June Hazel, Seattle
University of Washington

MORGANTHALER, Mary Lynn, Everett
University of Washington

O'CONNOR, Sharon Frances, Seattle
University of Washington

PARKER, Carol Freese, Bremerton
Olympic College

SMITH, Madeleine Roop, Seattle
Seattle Pacific College

SMITH, Nancy Kenfield, Mercer Island
Whitman College

STICKEL, Claudette Marlene, Seattle
University of Washington

STOLLER, Barbara Ann, Richland
Whitman College

B.A., Washington State College

TRONQUET, Alice Ann, Seattle
University of Washington

CLASS OF 1956

Degree of Bachelor of Science Conferred June 9, 1956

ANDERSON, Jan Wright, Seattle
University of Washington

BEESON, Beverly Elaine, Edmonds
Seattle University

DONALDSON, Sally Ellen, Seattle
University of Washington

DUNN, Muriel May, Seattle
University of Washington

HILLMAN, Lona Lee, Seattle
University of Washington

PIHA, Rae, Seattle
University of Washington

PIHA, Rae, Seattle
University of Washington

RASANEN, Irene Ann, Aberdeen
University of Washington

ROSS, Sharon Ann, Seattle
University of Washington

RYAN, Margaret Mary, Seattle
University of Washington

SMITH, Nancy Kenfield, Mercer Island
Whitman College

STICKELS, Claudette Marlene, Seattle
University of Washington

STOLLER, Barbara Ann, Richland
Whitman College

B.A., Washington State College

TRONQUET, Alice Ann, Seattle
University of Washington
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

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.
CALENDAR

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

AUTUMN QUARTER, 1957

REGISTRATION PERIOD

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 9-Oct. 1</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 13-Oct. 1</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 16-Sept. 27</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 16-Oct. 1</td>
<td>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.)</td>
</tr>
</tbody>
</table>

ACADEMIC PERIOD

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 30-Monday</td>
<td>Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.</td>
</tr>
<tr>
<td>Oct. 2-Wednesday</td>
<td>Instruction begins (8 a.m.) for all other students</td>
</tr>
<tr>
<td>Oct. 8-Tuesday</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>Nov. 11-Monday</td>
<td>State Admission Day holiday</td>
</tr>
<tr>
<td>Nov. 27-Wednesday</td>
<td>Last day to submit applications for advanced credit examinations</td>
</tr>
<tr>
<td>Nov. 27-Dec. 2</td>
<td>Thanksgiving recess (6 p.m. to 8 a.m.)</td>
</tr>
<tr>
<td>Dec. 14-Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Dec. 16-Monday</td>
<td>Final examinations begin</td>
</tr>
<tr>
<td>Dec. 20-Friday</td>
<td>Final examinations and Quarter end</td>
</tr>
</tbody>
</table>

WINTER QUARTER, 1958

REGISTRATION PERIOD

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov. 25-Dec. 13</td>
<td>Registration for students in residence Autumn Quarter, 1957. (Registration appointments will be issued on presentation of ASUW cards beginning October 25.)</td>
</tr>
<tr>
<td>Jan. 2-Jan. 3</td>
<td>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.)</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 6–Mon.</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>Mon. 10–Fri.</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>Feb. 22–Sat.</td>
<td>Washington's Birthday and Founder's Day holiday</td>
</tr>
<tr>
<td>Feb. 28–Fri.</td>
<td>Last day to submit applications for advanced credit examinations</td>
</tr>
<tr>
<td>Mar. 15–Sat.</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Mar. 17–Mon.</td>
<td>Final examinations begin</td>
</tr>
<tr>
<td>Mar. 21–Fri.</td>
<td>Final examinations and Quarter end</td>
</tr>
</tbody>
</table>

**SPRING QUARTER, 1958**

**REGISTRATION PERIOD**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 26–Mar. 14</td>
<td>Registration for students in residence Winter Quarter, 1958. <em>(Registration appointments will be issued on presentation of ASUW cards beginning January 24.)</em></td>
</tr>
<tr>
<td>Mar. 26–Mar. 28</td>
<td>Registration for former students not in residence Winter Quarter, 1958. <em>(Registration appointments may be obtained by writing to or applying at the Registrar's Office beginning January 24.)</em></td>
</tr>
<tr>
<td>Mar. 26–Mar. 28</td>
<td>Registration for new students. <em>(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.)</em></td>
</tr>
</tbody>
</table>

**ACADEMIC PERIOD**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 31–Mon.</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>Apr. 4–Fri.</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>May 9–Fri.</td>
<td>Last day to submit applications for advanced credit examinations</td>
</tr>
<tr>
<td>May 23–Fri.</td>
<td>Governor's Day</td>
</tr>
<tr>
<td>May 24–Sat.</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>May 30–Fri.</td>
<td>Memorial Day holiday</td>
</tr>
<tr>
<td>June 8–Sun.</td>
<td>Baccalaureate Sunday</td>
</tr>
<tr>
<td>June 9–Mon.</td>
<td>Final examinations begin</td>
</tr>
<tr>
<td>June 13–Fri.</td>
<td>Final examinations and Quarter end</td>
</tr>
<tr>
<td>June 14–Sat.</td>
<td>Commencement</td>
</tr>
</tbody>
</table>

**SUMMER QUARTER, 1958**

**REGISTRATION PERIOD**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 4–June 6</td>
<td>Registration for all students. <em>(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)</em></td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 23—Monday</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>June 24—Tuesday</td>
<td>Last day to add a course for the first term</td>
</tr>
<tr>
<td>June 27—Friday</td>
<td>Last day to add a course for the full quarter</td>
</tr>
<tr>
<td>July 3—Thursday</td>
<td>Last day to submit applications for advanced credit examinations for first term</td>
</tr>
<tr>
<td>July 4—Friday</td>
<td>Independence Day holiday</td>
</tr>
<tr>
<td>July 19—Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>July 23—Wednesday</td>
<td>Final examinations and first term end</td>
</tr>
<tr>
<td>July 24—Thursday</td>
<td>Second term begins</td>
</tr>
<tr>
<td>July 25—Friday</td>
<td>Last day to add a course for the second term</td>
</tr>
<tr>
<td>Aug. 1—Friday</td>
<td>Last day to submit applications for advanced credit examinations for second term</td>
</tr>
<tr>
<td>Aug. 16—Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Aug. 22—Friday</td>
<td>Final examinations and second term end</td>
</tr>
</tbody>
</table>

**AUTUMN QUARTER, 1958**

**REGISTRATION PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 8-Sept. 30</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 12-Sept. 30</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 15-Sept. 26</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 15-Sept. 30</td>
<td>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.)</td>
</tr>
</tbody>
</table>

**ACADEMIC PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 29—Monday</td>
<td>Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing.</td>
</tr>
<tr>
<td>Oct. 1—Wednesday</td>
<td>Instruction begins (8 a.m.) for all other students</td>
</tr>
<tr>
<td>Oct. 7—Tuesday</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>Nov. 11—Tuesday</td>
<td>State Admission Day holiday</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 3—June 5</td>
<td>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.)</td>
</tr>
<tr>
<td>June 15—June 19</td>
<td>Registration for all students.</td>
</tr>
</tbody>
</table>

ACADEMIC PERIOD

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 22—Monday</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>June 23—Tuesday</td>
<td>Last day to add a course for the first term</td>
</tr>
<tr>
<td>June 26—Friday</td>
<td>Last day to add a course for the full quarter</td>
</tr>
<tr>
<td>July 3—Friday</td>
<td>Last day to submit applications for advanced credit exams for first term</td>
</tr>
<tr>
<td>July 4—Saturday</td>
<td>Independence Day holiday</td>
</tr>
<tr>
<td>July 18—Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>July 22—Wednesday</td>
<td>Final examinations and first term end</td>
</tr>
<tr>
<td>July 23—Thursday</td>
<td>Second term begins</td>
</tr>
<tr>
<td>July 24—Friday</td>
<td>Last day to add a course for the second term</td>
</tr>
<tr>
<td>July 31—Friday</td>
<td>Last day to submit applications for advanced credit exams for second term</td>
</tr>
<tr>
<td>Aug. 15—Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Aug. 21—Friday</td>
<td>Final examinations and second term end</td>
</tr>
</tbody>
</table>

AUTUMN QUARTER, 1959

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 30—Wednesday</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>Dec. 18—Friday</td>
<td>Quarter ends</td>
</tr>
</tbody>
</table>

For more detailed information consult the Registrar's Office.
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

HELEN E. HOAGLAND, Secretary

OFFICERS OF ADMINISTRATION

Henry Schmitz, Ph.D.  President of the University
Ethelyn Toner, B.A.  Registrar
Nelson A. Wahlstrom, B.B.A.  Comptroller and Treasurer
Ernest M. Conrad, B.B.A.  Business Manager
Donald K. Anderson, B.A.  Dean of Students
Francis Fountain Powers, Ph.D.  Dean of the College of Education
Ella Wesa Redfern, B.A.  Assistant to the Dean

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

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

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

Draper, Edgar Marian, 1925 (1936), Professor of Curriculum; Director of In-Service Teacher Training

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

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
Mitchell, James Robert, 1957, Part-Time Lecturer in Education
Powers, Francis Fountain, 1928 (1940), Professor of Educational Psychology; Dean of the College of Education
Salyer, Rufus Coleman, Jr., 1953 (1956), Assistant Professor of Education; Director of College of Education Bureau of Teacher Service and Placement
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; Professor Emeritus of Education
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, 1937-58)
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
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.
I have a blue boat.

Have you a blue boat?

Have you something blue?

What is it?

Is it big and blue?
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 units† (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
- Elementary algebra 1 unit
- Plane geometry or second-year algebra 1 unit
- One foreign language* 2 units
- Social science 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.

† 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, IB 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, IB 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.

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 coursework 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
GENERAL INFORMATION

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

Transcript Fee
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. Humanities

- Architecture
- Art
- Classics
- Drama
- English
- Far Eastern languages and literature
- General and comparative literature
- Germanic languages and literature
- Humanities 101, 102, 103, 201, 202, 203
- Journalism
- Liberal arts
- Librarianship
- Music
- Radio-Television
- Romance languages and literature
- Scandinavian languages and literature
- Slavic languages and literature
- Speech

II. Social Sciences

- Anthropology
- Economics
- Far Eastern Institute courses
- Geography
- History
- Home economics
- Philosophy
- Physical education
- Political science
- Psychology
- Social science 101, 102, 103, 201, 202, 203
- Sociology

III. Sciences

- Anatomy 301
- Astronomy
- Biochemistry
- Biology
- Botany
- Chemistry
- Conjoint 317-318
- Fisheries
- Geology
- Mathematics
- Meteorology and climatology
- Microbiology
- Oceanography 101
- Pharmacy 115
- Physical science 101, 102
- Physics
- Zoology

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.
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.

<table>
<thead>
<tr>
<th>Fine and Applied Arts</th>
<th>Health and Physical Education</th>
<th>Language Arts</th>
<th>Sciences and Mathematics</th>
<th>Social Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art Education</td>
<td>Education</td>
<td>Drama</td>
<td>English</td>
<td>Civics</td>
</tr>
<tr>
<td>Business Education</td>
<td>Education</td>
<td>French</td>
<td>Biology</td>
<td>Economics</td>
</tr>
<tr>
<td>Home Economics</td>
<td>Education</td>
<td>German</td>
<td>Chemistry</td>
<td>Far Eastern</td>
</tr>
<tr>
<td>Industrial Education</td>
<td>Education</td>
<td>Journalism</td>
<td>Geology</td>
<td>(second area only)</td>
</tr>
<tr>
<td>Music</td>
<td>Education</td>
<td>Latin</td>
<td>Mathematics</td>
<td>Geography</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Librarianship</td>
<td>Physics</td>
<td>History</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sociology</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. General Education including the following or their equivalents (required in both elementary and secondary emphases):

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101, 102, 103</td>
<td>9</td>
</tr>
<tr>
<td>Physical Education Activities</td>
<td>3</td>
</tr>
<tr>
<td>Health Education 110 or 175</td>
<td>2</td>
</tr>
<tr>
<td>Speech 100 Basic Speech Improvement</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 100 General Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Education 402 Child Study and Development</td>
<td>3</td>
</tr>
<tr>
<td>or Psychology 306 Child Psychology (by permission)</td>
<td>5</td>
</tr>
<tr>
<td>Music 107 Survey of Music or substitute (secondary emphasis)</td>
<td>2-5</td>
</tr>
<tr>
<td>or Education 377X-377Y Music for Elementary Teachers (elementary emphasis)</td>
<td>2-5</td>
</tr>
<tr>
<td>Art 100 Introduction to Art or substitute (secondary emphasis)</td>
<td>2-5</td>
</tr>
<tr>
<td>or Education 376 and 389 Art in the Elementary School, Industrial Education for Elementary Teachers (elementary emphasis)</td>
<td>10</td>
</tr>
<tr>
<td>Public Health 461 School and Community Health Programs</td>
<td>5</td>
</tr>
<tr>
<td>History 464 History of Washington and the Pacific Northwest</td>
<td>5</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama 437 Creative Dramaties with Children</td>
<td>3</td>
</tr>
<tr>
<td>Geography 100 Introductory Human Geography</td>
<td>5</td>
</tr>
<tr>
<td>History 241 Survey of the History of the United States</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics 300 Nutrition</td>
<td>2</td>
</tr>
<tr>
<td>Librarianship 451 Children's Books or 452 Storytelling</td>
<td>3</td>
</tr>
<tr>
<td>Sociology 110 Survey of Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 352 The Family</td>
<td>5</td>
</tr>
<tr>
<td>or Home Economics 356 Family Relationships</td>
<td>3</td>
</tr>
</tbody>
</table>

E. Professional Education Courses in the following sequence:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 209 Educational Psychology. Prerequisites, Psychology 100, a course in child development, and sophomore standing</td>
<td>3</td>
</tr>
<tr>
<td>Education 370 Introduction to Teaching Procedures (including 2 credits in laboratory experiences). Prerequisite, 209</td>
<td>5</td>
</tr>
<tr>
<td>Education 370E Elementary School Methods (including 2 credits in laboratory experiences). Prerequisite, 370</td>
<td>5</td>
</tr>
<tr>
<td>Education 315, 377X or 377Y Principles of Education (including curriculum study)</td>
<td>3</td>
</tr>
<tr>
<td>Education 372E, 372X or 372S Professional Laboratory Experiences (taken on level different from directed teaching). Prerequisites, 370 and junior standing</td>
<td>3</td>
</tr>
<tr>
<td>Education 379 Fundamentals of Reading Instruction. Prerequisite, 370E, or taken concurrently</td>
<td>5</td>
</tr>
<tr>
<td>Education 390 Evaluation in Education. Prerequisite, 370</td>
<td>3</td>
</tr>
<tr>
<td>Education 373 Washington State Manual</td>
<td>2</td>
</tr>
<tr>
<td>Special Methods for High School Teaching (prerequisite, 370), or 378C, 378D Physical Education for the Elementary School and 379 Arithmetic for Elementary Teachers</td>
<td>2-9</td>
</tr>
<tr>
<td>Education 371K or 371L Directed Teaching—Kindergarten or Elementary School. Prerequisites, 374, 376, 377X-377Y, and 378C, 378D</td>
<td>8</td>
</tr>
<tr>
<td>or Education 371X or 371S Directed Teaching—Junior or Senior High School. Prerequisites, 370E and Special Methods</td>
<td>8</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 105, 106, 107 Drawing</td>
<td>9</td>
</tr>
<tr>
<td>Art 109, 110, 111 Design</td>
<td>9</td>
</tr>
<tr>
<td>Art 129 Appreciation of Design</td>
<td>2</td>
</tr>
<tr>
<td>Art 201 Elementary Interior Design</td>
<td>3</td>
</tr>
<tr>
<td>Art 212, 213, 214 History of Western Art through the Renaissance</td>
<td>6</td>
</tr>
<tr>
<td>Art 253, 254, 255 Two- and Three-Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>Art 256 Painting</td>
<td>3</td>
</tr>
<tr>
<td>Art 258 Water Color</td>
<td>3</td>
</tr>
<tr>
<td>Art 261 Elementary Interior Design</td>
<td>2</td>
</tr>
<tr>
<td>Art 272 Sculpture</td>
<td>3</td>
</tr>
<tr>
<td>Art 290 or 291 or 292 Art Education (craft)</td>
<td>6</td>
</tr>
<tr>
<td>Art 300 Design in Leather</td>
<td>2</td>
</tr>
<tr>
<td>Art 302 Bookbinding</td>
<td>2</td>
</tr>
<tr>
<td>Art 350 Introduction to Printmaking</td>
<td>3</td>
</tr>
<tr>
<td>or Art 357 Metal Design</td>
<td>3</td>
</tr>
<tr>
<td>or Art 358 Jewelry Design</td>
<td>3</td>
</tr>
<tr>
<td>Art 360 or 361 or 362 Life</td>
<td>3</td>
</tr>
<tr>
<td>Art 367 Commercial Design</td>
<td>3</td>
</tr>
<tr>
<td>Art 463 or 464 or 465 Composition</td>
<td>3</td>
</tr>
<tr>
<td>Humanities 102 The Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

The following courses are suggested for the thirteenth quarter. They may be taken either before or after teaching experience.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 262 Essentials of Interior Design</td>
<td>2</td>
</tr>
<tr>
<td>Art 273 Sculpture</td>
<td>3</td>
</tr>
<tr>
<td>Art 320 History of Modern Sculpture</td>
<td>2</td>
</tr>
<tr>
<td>Art 340 Design for Printed Fabrics</td>
<td>3</td>
</tr>
<tr>
<td>Art 357 Metal Design</td>
<td>3</td>
</tr>
<tr>
<td>Art 358 Jewelry Design</td>
<td>3</td>
</tr>
<tr>
<td>Art 359 Enameling</td>
<td>3</td>
</tr>
<tr>
<td>Art 450 Advanced Printmaking</td>
<td>10</td>
</tr>
<tr>
<td>Art 464 Composition</td>
<td>3</td>
</tr>
<tr>
<td>Art 467 Commercial Design</td>
<td>5</td>
</tr>
</tbody>
</table>

BASIC ACADEMIC FIELD. The requirements are 40 credits in art and 5 credits in education, including the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 105, 106, 107 Drawing</td>
<td>9</td>
</tr>
<tr>
<td>Art 109, 110, 111 Design</td>
<td>9</td>
</tr>
<tr>
<td>Art 201, 212, 213, 214 History of Western Art through the Renaissance</td>
<td>5</td>
</tr>
<tr>
<td>Art 253, 254, 255 Two- and Three-Dimensional Design (3,3,3)</td>
<td>to total 6</td>
</tr>
<tr>
<td>Art 256 Painting</td>
<td>3</td>
</tr>
<tr>
<td>Art 258 Water Color</td>
<td>3</td>
</tr>
<tr>
<td>Art 290 or 291 or 292 Art Education (craft)</td>
<td>2</td>
</tr>
<tr>
<td>Art 302 Bookbinding</td>
<td>2</td>
</tr>
<tr>
<td>Education 376 Art in the Elementary School</td>
<td>5</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretarial Training 10 Typewriting</td>
<td>1</td>
</tr>
<tr>
<td>Secretarial Training 111 Secretarial Training (Intermediate Typewriting)</td>
<td>2</td>
</tr>
<tr>
<td>Secretarial Training 112 Secretarial Training (Advanced Typewriting)</td>
<td>2</td>
</tr>
<tr>
<td>Secretarial Training 115 Office Machines</td>
<td>3</td>
</tr>
<tr>
<td>Secretarial Training 120-121 Gregg Shorthand</td>
<td>6</td>
</tr>
<tr>
<td>Secretarial Training 122 Advanced Gregg Shorthand</td>
<td>3</td>
</tr>
</tbody>
</table>
### THE PROGRAMS IN EDUCATION

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretarial Training 320 Secretarial Practice</td>
<td>5</td>
</tr>
<tr>
<td>General Business 101 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 150 Fundamentals of Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 151 Fundamentals of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Business Law 201 Business Law</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 301 Principles of Marketing</td>
<td>5</td>
</tr>
</tbody>
</table>

**BASIC ACADEMIC FIELD.** The requirements are 36 credits\(^a\), including the following. Upon consultation with the Department, this requirement may be reduced because of previous training in shorthand or typewriting.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretarial Training 10 Typewriting</td>
<td>1</td>
</tr>
<tr>
<td>Secretarial Training 111 Secretarial Training (Intermediate Typewriting)</td>
<td>2</td>
</tr>
<tr>
<td>Secretarial Training 112 Secretarial Training (Advanced Typewriting)</td>
<td>2</td>
</tr>
<tr>
<td>Secretarial Training 20-121 Gregg Shorthand</td>
<td>6</td>
</tr>
<tr>
<td>Secretarial Training 122 Advanced Gregg Shorthand</td>
<td>3</td>
</tr>
<tr>
<td>Secretarial Training 320 Secretarial Practice</td>
<td>5</td>
</tr>
<tr>
<td>General Business 101 Introduction to Business</td>
<td>5</td>
</tr>
<tr>
<td>Accounting 150 Fundamentals of Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 151 Fundamentals of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Business Law 201 Business Law</td>
<td>5</td>
</tr>
</tbody>
</table>

**SECOND AREA OF CONCENTRATION.** The requirements are 26 credits\(^a\), including the following. Upon consultation with the Department, this requirement may be reduced because of previous training in shorthand or typewriting.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretarial Training 10 Typewriting</td>
<td>1</td>
</tr>
<tr>
<td>Secretarial Training 111 Secretarial Training (Intermediate Typewriting)</td>
<td>2</td>
</tr>
<tr>
<td>Secretarial Training 112 Secretarial Training (Advanced Typewriting)</td>
<td>2</td>
</tr>
<tr>
<td>Secretarial Training 122 Advanced Gregg Shorthand</td>
<td>6</td>
</tr>
<tr>
<td>Secretarial Training 320 Secretarial Practice</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 150 Fundamentals of Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 151 Fundamentals of Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^a\) Also required are (see professional education course requirements, page 37):

- Education 324 Teachers' Course in Business Education: Bookkeeping and General Business: 2
- Accounting 150 Fundamentals of Accounting: 5

**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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 101 Introduction to Home Economics (not required of transfer students)</td>
<td>1</td>
</tr>
<tr>
<td>Home Economics 115 Food Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 125 Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 134 Clothing Construction and Selection</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Home Economics 215 Meal Planning and Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 234 Costume Design and Construction</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 248 The House, Its Equipment, and Management</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 307 Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 315 Advanced Food Selection and Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 338 Clothing for the Family</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 347 Home Furnishing</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics 348 Home-Management House (reservation required)</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 354 Family Economics and Finances</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 437 Child Nutrition and Care</td>
<td>3</td>
</tr>
</tbody>
</table>
| Home Economics elective selected from 407 Advanced Nutrition (3), 434 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 102 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.
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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 110 Food and Nutrition</td>
<td>5</td>
</tr>
<tr>
<td>or Home Economics 115 Food Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 125 Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 134 Clothing Construction and Selection</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Home Economics 248 The House, Its Equipment, and Management</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 300 Nutrition</td>
<td>2</td>
</tr>
</tbody>
</table>

The requirements for specialization in textiles, clothing, and art are the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 125 Textiles</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 134 Clothing Construction and Selection</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Home Economics 234 Costume Design and Construction</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 347 Home Furnishing</td>
<td>5</td>
</tr>
</tbody>
</table>

Suggested electives in Home Economics include:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 321 Needlecraft</td>
<td>2</td>
</tr>
<tr>
<td>Home Economics 322 Needlecraft</td>
<td>2</td>
</tr>
<tr>
<td>Home Economics 329 Hand Weaving</td>
<td>2</td>
</tr>
<tr>
<td>Home Economics 334 Costume Design and Construction</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 338 Clothing for the Family</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 342, 433 History of Costume and Textiles</td>
<td>8</td>
</tr>
<tr>
<td>Home Economics 434 Costume Design and Construction</td>
<td>3</td>
</tr>
</tbody>
</table>

The requirements for specialization in foods, nutrition, and health are the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 101 Introduction to Home Economics (not required of transfer students)</td>
<td>1</td>
</tr>
<tr>
<td>Home Economics 110 Food and Nutrition</td>
<td>5</td>
</tr>
<tr>
<td>or Home Economics 115 Food Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 215 Meal Planning and Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 350 Managing Family Finances</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 457 Child Nutrition and Care</td>
<td>3</td>
</tr>
</tbody>
</table>

The requirements for specialization in family relationships and child welfare are the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 110 Food and Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>or Home Economics 115 Food Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 350 Managing Family Finances</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 356 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 457 Child Nutrition and Care</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 320 Directed Observation of Child Behavior in the Nursery School</td>
<td>2</td>
</tr>
</tbody>
</table>

INDUSTRIAL EDUCATION

FIRST AREA OF CONCENTRATION. The requirements are 41 credits, including the following, and any recommended courses to complete the area.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 180 Mechanical Drawing for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 181 Mechanical Drawing for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 182 General Shop for Industrial Education Teachers</td>
<td>5</td>
</tr>
<tr>
<td>Education 280 Fundamentals of Woodwork for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 281 General Metalwork for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 282 Tools and Materials for Industrial Education Teachers</td>
<td>2</td>
</tr>
<tr>
<td>Education 382-384 Advanced Woodwork for Industrial Education Teachers</td>
<td>4</td>
</tr>
<tr>
<td>Education 386 Home Planning for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 388 Selection and Organization of Industrial Education Subject Matter</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical Engineering 201 Metal Casting</td>
<td>1</td>
</tr>
</tbody>
</table>
**THE PROGRAMS IN EDUCATION**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering 202 Welding</td>
<td>1</td>
</tr>
<tr>
<td>Mechanical Engineering 312 Machine Tool Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>Architecture 105 The House</td>
<td>2</td>
</tr>
<tr>
<td>Art 253 Two- and Three-Dimensional Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 180 Mechanical Drawing for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 181 Mechanical Drawing for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 182 General Shop for Industrial Education Teachers</td>
<td>5</td>
</tr>
<tr>
<td>Education 280 Fundamentals of Woodwork for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 281 General Metalwork for Industrial Education Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 388 Selection and Organization of Industrial Education Subject Matter</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical Engineering 201 Metal Casting</td>
<td>1</td>
</tr>
<tr>
<td>Mechanical Engineering 312 Machine Tool Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

**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 ................. 6
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 202, 203, 207, 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.
THE PROGRAMS IN EDUCATION

PREPROFESSIONAL COURSES

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

COURSES

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 ................. 5
(included in general education requirements)
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 322 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

46-45

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

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 ................. 5
(included in general education requirements)

24

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

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
### 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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Education 291 Personal and General Hygiene</td>
<td>3</td>
</tr>
<tr>
<td>Health Education 292 First Aid and Safety</td>
<td>3</td>
</tr>
<tr>
<td>Health Education 453 Methods and Materials in Health Teaching</td>
<td>3</td>
</tr>
<tr>
<td>Public Health 421, 422, 423 Principles of Public Health I, II, III, IV</td>
<td>9</td>
</tr>
<tr>
<td>Public Health 461 School and Community Health Programs (included in general education requirements)</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics 300 Nutrition</td>
<td>2</td>
</tr>
</tbody>
</table>

### PHYSICAL EDUCATION FOR MEN

**FIRST AREA OF CONCENTRATION.** The requirements are a total of 99 credits, including the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Education 291 Personal and General Hygiene</td>
<td>3</td>
</tr>
<tr>
<td>Health Education 292 First Aid and Safety</td>
<td>3</td>
</tr>
<tr>
<td>Health Education 465 The School Health Education Program</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHYSICAL EDUCATION</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 161 Skills and Materials in Aquatics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 162 Skills and Materials in Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 163 Skills and Materials in Team Sports</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 190 Introduction to Physical and Health Education</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 194 Skills and Materials in Boxing and Wrestling</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 265 Skills and Materials in Low-Organized Games</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 266 Skills and Materials in Individual Sports</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 293 Physiology of Muscular Exercise</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 309 The School Dance Program</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 322 Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 340 Administration of Intramural Sports</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 345 Principles of Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 358 Methods of Teaching Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 361 Methods of Teaching Boxing and Wrestling</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 363 Methods of Teaching Sports</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 364 Methods of Teaching Aquatics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 447 Tests and Measurements</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 450 The School Physical Education Program</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 493 Problems in Athletics</td>
<td>3</td>
</tr>
<tr>
<td>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)</td>
<td>6</td>
</tr>
</tbody>
</table>

**RECREATION EDUCATION**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation Education 294 Introduction to Recreation</td>
<td>2</td>
</tr>
<tr>
<td>Recreation Education 324 Recreation Programs</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELATED COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy 301 General Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 100 General Psychology (included in general education requirements)</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 110 Survey of Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Speech 100 Basic Speech Improvement (included in general education requirements)</td>
<td>5</td>
</tr>
</tbody>
</table>
THE PROGRAMS IN EDUCATION

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 101J-102J General Biology</td>
<td>10</td>
</tr>
<tr>
<td>or Zoology 111, 112 General Zoology</td>
<td>10</td>
</tr>
<tr>
<td>Zoology 118 Survey of Physiology</td>
<td>5</td>
</tr>
<tr>
<td>or Zoology 208 Elementary Human Physiology</td>
<td>5</td>
</tr>
<tr>
<td>or Zoology 358 Vertebrate Physiology</td>
<td>6</td>
</tr>
</tbody>
</table>

**Basic Academic Field.** The requirements are a total of 50 credits, including the following:

**Health Education**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Education 292 First Aid and Safety</td>
<td>3</td>
</tr>
</tbody>
</table>

**Physical Education**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 161 Skills and Materials in Aquatics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 162 Skills and Materials in Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 163 Skills and Materials in Team Sports</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 190 Introduction to Physical and Health Education</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 264 Skills and Materials in Boxing and Wrestling</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 265 Skills and Materials in Low-Organized Games</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 266 Skills and Materials in Individual Sports</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 293 Physiology of Muscular Exercise</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 309 The School Dance Program</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 322 Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 340 Administration of Intramural Sports</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 345 Principles of Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 358 Methods of Teaching Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 361 Methods of Teaching Boxing and Wrestling</td>
<td>2</td>
</tr>
<tr>
<td>or Physical Education 364 Methods of Teaching Aquatics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 363 Methods of Teaching Sports</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 370 Coaching of Football</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 371 Coaching of Basketball</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 450 The School Physical Education Program</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 493 Problems in Athletics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recreation Education**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation Education 324 Recreation Programs</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Area of Concentration.** The requirements are 27 credits, including the following:

**Physical Education**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 161 Skills and Materials in Aquatics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 162 Skills and Materials in Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 163 Skills and Materials in Team Sports</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 264 Skills and Materials in Boxing and Wrestling</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 265 Skills and Materials in Low-Organized Games</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 266 Skills and Materials in Individual Sports</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 345 Principles of Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 358 Methods of Teaching Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>or Physical Education 361 Methods of Teaching Boxing and Wrestling</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 363 Methods of Teaching Sports</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 364 Methods of Teaching Aquatics</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 370 Coaching of Football</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 371 Coaching of Basketball</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 450 The School Physical Education Program</td>
<td>3</td>
</tr>
</tbody>
</table>

**Related Courses**

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoology 118 Survey of Physiology</td>
<td>5</td>
</tr>
<tr>
<td>or Zoology 208 Elementary Human Physiology</td>
<td>5</td>
</tr>
<tr>
<td>or Zoology 358 Vertebrate Physiology</td>
<td>6</td>
</tr>
</tbody>
</table>

**Physical Education for Women**

**First Area of Concentration.** Students who plan to complete a first area of concentration will follow the program listed below:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Education 110 Health Education</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 115 Archery</td>
<td>1</td>
</tr>
<tr>
<td>Physical Education 121 Bowling</td>
<td>1</td>
</tr>
<tr>
<td>Physical Education 157 Canoeing</td>
<td>1</td>
</tr>
<tr>
<td>Physical Education 181, 182, 183, 283 Physical Education Backgrounds</td>
<td>4</td>
</tr>
<tr>
<td>Physical Education 190 Introduction to Physical and Health Education</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 281 or 284 Physical Education Backgrounds</td>
<td>1</td>
</tr>
<tr>
<td>English 101, 102, 103 Composition</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 100 General (or one year high school chemistry)</td>
<td>5</td>
</tr>
</tbody>
</table>
The College of Education

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 118L. 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 Aquatics ......................... 3
Physical Education 364. Methods and Materials in Teaching Aquatics ......................... 3
Physical Education 366. Coaching (two quarters) ........................................... 0
Physical Education 435. Methods and Materials in Teaching Folk, Tap, and Clog Dancing .... 2
Physical Education 450. The School Physical Education Program ................................ 2
Physical Education 480. Principles of Movement ............................................ 3
Electives and professional education requirements ............................................. 26

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 345. Adapted Activities .................................................. 2
Physical Education 450. The School Physical Education Program ................................ 2
Physical Education 446. 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
Anatomy 301. General Anatomy ................................................................. 4
Zoology 118 and 118L. Survey of Physiology and Elementary Physiology Laboratory ........ 6

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 304, or 305 or 306. Officiating .................................... 2
Recreation Education 344. Organization and Administration of Camp Programs ............. 3

THIRD YEAR
Physical Education 304, 305, 306. Officiating (two courses) ................................ 4

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

46
recommended courses to complete the area, chosen in consultation with an adviser.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Education 292 First Aid and Safety</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 181, 182, 183 Physical Education Backgrounds</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 309 The School Dance Program</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 312 Elementary School Athletic Program</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 345 Principles of Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education 363 Methods and Materials in Teaching Sports</td>
<td>3</td>
</tr>
<tr>
<td>Zoology 116 Survey of Physiology</td>
<td>5</td>
</tr>
<tr>
<td>or Zoology 208 Elementary Human Physiology</td>
<td>5</td>
</tr>
<tr>
<td>or Zoology 358 Vertebrate Physiology</td>
<td>6</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama 101, 102 Introduction to the Theatre</td>
<td>4</td>
</tr>
<tr>
<td>Drama 146, 147, 148 Theatre Speech</td>
<td>9</td>
</tr>
<tr>
<td>Drama 208, 232, 233 Acting</td>
<td>9</td>
</tr>
<tr>
<td>Drama 403 Scene Construction</td>
<td>3</td>
</tr>
<tr>
<td>Drama 404 Scene Design</td>
<td>3</td>
</tr>
<tr>
<td>Drama 405 Historic Costume for the Stage</td>
<td>3</td>
</tr>
<tr>
<td>Drama 406 Make-up</td>
<td>3</td>
</tr>
<tr>
<td>Drama 414 Stage Lighting</td>
<td>3</td>
</tr>
<tr>
<td>Drama 421 or 423 Advanced Acting</td>
<td>3</td>
</tr>
<tr>
<td>Drama 422 Advanced Acting</td>
<td>3</td>
</tr>
<tr>
<td>Drama 427, 428, 429 History of the Theatre</td>
<td>6</td>
</tr>
<tr>
<td>Drama 431, 452, 453 Representative Plays</td>
<td>9</td>
</tr>
<tr>
<td>Drama 481 or 482 or 483 Directing</td>
<td>3</td>
</tr>
<tr>
<td>Drama 497 Theatre Organization and Management</td>
<td>2</td>
</tr>
<tr>
<td>English electives selected from 264 Literary Backgrounds (5), 265 Literary Backgrounds (5), 370 Shakespeare (5), 371 Shakespeare (5), 372 Shakespeare (5)</td>
<td>to total 20</td>
</tr>
</tbody>
</table>

**BASIC ACADEMIC FIELD.** The requirements are 40 credits, including the following, and any recommended courses to complete the field.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama 101, 102 Introduction to the Theatre</td>
<td>4</td>
</tr>
<tr>
<td>Drama 146, 147, 148 Theatre Speech</td>
<td>6</td>
</tr>
<tr>
<td>Drama 251, 252 Acting</td>
<td>6</td>
</tr>
<tr>
<td>Drama 434, 436 Children’s Theatre</td>
<td>6</td>
</tr>
<tr>
<td>Drama 437, 438, 439 Creative Dramatics with Children</td>
<td>3</td>
</tr>
<tr>
<td>Drama 499 Undergraduate Research</td>
<td>6</td>
</tr>
<tr>
<td>Drama electives (approved by School of Drama)</td>
<td>6</td>
</tr>
</tbody>
</table>

**SECOND AREA OF CONCENTRATION.** The requirements are 33 credits, including the following, and any recommended courses to complete the area.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama 101, 102 Introduction to the Theatre</td>
<td>4</td>
</tr>
<tr>
<td>Drama 146, 147, 148 Theatre Speech</td>
<td>9</td>
</tr>
<tr>
<td>Drama 251, 252 Acting</td>
<td>6</td>
</tr>
<tr>
<td>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)</td>
<td>to total 6</td>
</tr>
<tr>
<td>Drama electives selected from 427 History of the Theatre (2), 428 History of the Theatre (2), 431 Representative Plays (3), 452 Representative Plays (3), 453 Representative Plays (3)</td>
<td>to total 6</td>
</tr>
<tr>
<td>Drama 497 Theatre Organization and Management</td>
<td>2</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 258 Introduction to Fiction</td>
<td>5</td>
</tr>
<tr>
<td>English 264 Literary Backgrounds</td>
<td>5</td>
</tr>
<tr>
<td>or English 370 Shakespeare</td>
<td>5</td>
</tr>
<tr>
<td>English 362 or 363 American Literature</td>
<td>5</td>
</tr>
<tr>
<td>or English 466 Modern American Literature</td>
<td>5</td>
</tr>
<tr>
<td>English 377 Early Nineteenth-Century Literature</td>
<td>5</td>
</tr>
<tr>
<td>or English 374 Late Nineteenth-Century Literature</td>
<td>5</td>
</tr>
</tbody>
</table>
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) ........................................ 5  
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 the 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 follow­ 
ing, 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 follow­ 
ing, and any recommended courses to complete the area.

COURSES  CREDITS
Speech 240  Oral Interpretation ................................................ 5  
English 387  English Grammar .................................................. 5  
or English 417  History of the English Language .......................... 5  
Advanced writing ....................................................................... 3  
Literature electives, including Shakespeare and nineteenth-century 
English and American literature .................................................. 5  

The other area requires 24 credits, including the following, and any recom­ 
mended 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) ......................................................... 10-15
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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>French 201, 202, 203 Intermediate (or a third high school year)</td>
<td>9</td>
</tr>
<tr>
<td>French 301, 302, 303 Advanced Composition</td>
<td>6</td>
</tr>
<tr>
<td>French 327 or 328 or 329 Advanced Conversation or French 330 Conversational French</td>
<td>2 or 2.5</td>
</tr>
<tr>
<td>French 358 Advanced Syntax</td>
<td>2</td>
</tr>
<tr>
<td>French 409 Advanced Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>Electives in Romance Department courses numbered above 400, with some additional directed reading</td>
<td>12</td>
</tr>
<tr>
<td>Romance 401 Introduction to Romance Linguistics</td>
<td>2</td>
</tr>
<tr>
<td>Education 329 Teachers' Course in French (included in professional education requirements)</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>German 207 Second-Year Grammar Review</td>
<td>3</td>
</tr>
<tr>
<td>German 230 Conversation</td>
<td>3</td>
</tr>
<tr>
<td>German 300 Phonetics</td>
<td>2</td>
</tr>
<tr>
<td>German 301, 302, 303 Grammar and Conversation</td>
<td>6</td>
</tr>
<tr>
<td>German 401, 402, 403 Grammar and Composition</td>
<td>6</td>
</tr>
<tr>
<td>Education 330 Teachers' Course in German (included in professional education requirements)</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>German 207 Second-Year Grammar Review</td>
<td>3</td>
</tr>
<tr>
<td>German 300 Phonetics</td>
<td>2</td>
</tr>
<tr>
<td>German 301, 302, 303 Grammar and Conversation</td>
<td>6</td>
</tr>
<tr>
<td>German 401, 402, 403 Grammar and Composition</td>
<td>6</td>
</tr>
<tr>
<td>Education 330 Teachers' Course in German</td>
<td>2</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising 226 Introduction to Advertising</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 200 News Writing</td>
<td>5</td>
</tr>
</tbody>
</table>
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 (2), Journalism 318, 319 Reporting (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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising 226 Introduction to Advertising</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 200 News Writing</td>
<td>5</td>
</tr>
<tr>
<td>Journalism 300 Laboratory Work on University Daily</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 301 Copy Editing</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 375J Teachers' Course in Journalism</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 381 Graphic Arts and Typography</td>
<td>3</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classics 430 Greek and Roman Mythology</td>
<td>3</td>
</tr>
<tr>
<td>Classics 440 Greek and Roman Critics in English</td>
<td>3</td>
</tr>
<tr>
<td>History 201-202 Ancient History</td>
<td>10</td>
</tr>
<tr>
<td>History 403 The Roman Republic</td>
<td>3</td>
</tr>
<tr>
<td>History 404 The Roman Empire</td>
<td>3</td>
</tr>
<tr>
<td>Philosophy 320 History of Ancient and Medieval Philosophy</td>
<td>5</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin 309 Advanced Grammar and Composition</td>
<td>1-4</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Librarianship 451 Children's Books</td>
<td>3</td>
</tr>
<tr>
<td>Librarianship 460 School Library Administration</td>
<td>3</td>
</tr>
<tr>
<td>Librarianship 461 School Library Materials</td>
<td>3</td>
</tr>
<tr>
<td>Librarianship 462 Reading of Young People</td>
<td>3</td>
</tr>
<tr>
<td>Librarianship 463 Elementary Classification and Cataloging</td>
<td>4</td>
</tr>
<tr>
<td>Librarianship 464 Elements of Technical Processes</td>
<td>3</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish 201, 202, 203 Intermediate</td>
<td>9</td>
</tr>
<tr>
<td>or a third high school year</td>
<td></td>
</tr>
<tr>
<td>Spanish 301, 302, 303 Advanced</td>
<td>9</td>
</tr>
<tr>
<td>Composition and Conversation</td>
<td></td>
</tr>
<tr>
<td>Spanish 304, 305, 306 Survey of</td>
<td>9</td>
</tr>
<tr>
<td>Spanish Literature</td>
<td></td>
</tr>
<tr>
<td>Spanish 327 or 328 or 329 Advanced</td>
<td>2</td>
</tr>
<tr>
<td>Conversation</td>
<td></td>
</tr>
<tr>
<td>or Spanish 330 Advanced Spanish</td>
<td>4</td>
</tr>
<tr>
<td>Improvement</td>
<td></td>
</tr>
<tr>
<td>Spanish 409 Phonetics, Pronunciation</td>
<td>3</td>
</tr>
<tr>
<td>and Intonation</td>
<td></td>
</tr>
<tr>
<td>Electives in Romance Department</td>
<td>11</td>
</tr>
<tr>
<td>courses numbered 400, with some</td>
<td></td>
</tr>
<tr>
<td>additional directed reading</td>
<td></td>
</tr>
<tr>
<td>Spanish 401 Introduction to</td>
<td>2</td>
</tr>
<tr>
<td>Romance Linguistics</td>
<td></td>
</tr>
<tr>
<td>Education 343 Teachers' Course in</td>
<td>2</td>
</tr>
<tr>
<td>Spanish (included in professional</td>
<td></td>
</tr>
<tr>
<td>education requirements)</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech 100 Basic Speech Improvement</td>
<td>5</td>
</tr>
<tr>
<td>Speech 120 Introduction to Public</td>
<td>5</td>
</tr>
<tr>
<td>Speaking</td>
<td></td>
</tr>
<tr>
<td>Speech 230 Essentials of Argument</td>
<td>5</td>
</tr>
<tr>
<td>Speech 240 Oral Interpretation</td>
<td>5</td>
</tr>
<tr>
<td>Speech 310 Voice Science</td>
<td>5</td>
</tr>
<tr>
<td>Speech 332 Principles of Group</td>
<td>3 or</td>
</tr>
<tr>
<td>Discussion (3 credits can be earned</td>
<td>5</td>
</tr>
<tr>
<td>in extension; 5 in residence)</td>
<td></td>
</tr>
<tr>
<td>Speech 352 Introduction to the</td>
<td>2</td>
</tr>
<tr>
<td>Teaching of Speech</td>
<td></td>
</tr>
<tr>
<td>Speech 470 Speech Correction</td>
<td>3 or</td>
</tr>
<tr>
<td>(3 credits can be earned in extension; 5 in residence)</td>
<td></td>
</tr>
<tr>
<td>Speech 470TEachers' Course in Speech</td>
<td>3 or</td>
</tr>
<tr>
<td>(included in professional education</td>
<td>5</td>
</tr>
<tr>
<td>requirements)</td>
<td></td>
</tr>
<tr>
<td>At least 2 credits from:</td>
<td></td>
</tr>
<tr>
<td>Speech 339 Public Discussion</td>
<td>1-3</td>
</tr>
<tr>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>Speech 349 Oral Interpretation</td>
<td>1-3</td>
</tr>
<tr>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>or (by special permission) Radio-TV</td>
<td>2-5</td>
</tr>
<tr>
<td>350 Laboratory Work on KUOW</td>
<td></td>
</tr>
<tr>
<td>or Radio-TV 465 Television Workshop</td>
<td>4</td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
</tr>
<tr>
<td>In case of individual need:</td>
<td></td>
</tr>
<tr>
<td>Speech 110 Voice Improvement</td>
<td>2</td>
</tr>
<tr>
<td>and Speech 111 Articulation</td>
<td>2</td>
</tr>
<tr>
<td>Improvement</td>
<td></td>
</tr>
<tr>
<td>Education 326 Teachers' Course in</td>
<td>5</td>
</tr>
<tr>
<td>English (included in professional</td>
<td></td>
</tr>
<tr>
<td>education requirements)</td>
<td></td>
</tr>
<tr>
<td>Drama 426 High School Play</td>
<td>3</td>
</tr>
<tr>
<td>Production</td>
<td></td>
</tr>
<tr>
<td>Approved American and/or English</td>
<td>13</td>
</tr>
<tr>
<td>literature courses</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech 100 Basic Speech Improvement</td>
<td>5</td>
</tr>
<tr>
<td>Speech 120 Introduction to Public</td>
<td>5</td>
</tr>
<tr>
<td>Speaking</td>
<td></td>
</tr>
<tr>
<td>Speech 240 Oral Interpretation</td>
<td>5</td>
</tr>
<tr>
<td>Speech 310 Voice Science</td>
<td>5</td>
</tr>
</tbody>
</table>
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 2-3
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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech 332 Principles of Group Discussion (3 credits can be earned in extension; 5 in residence)</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Speech 352 Introduction to the Teaching of Speech</td>
<td>2</td>
</tr>
<tr>
<td>Speech 359 Speech in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>Speech 470 Speech Correction (3 credits can be earned in extension; 5 in residence)</td>
<td>3 or 5</td>
</tr>
</tbody>
</table>

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 extemporaneous speaking and oral reading. The requirements are 45 credits, including the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech 332 Principles of Group Discussion (3 credits can be earned in extension; 5 in residence)</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Speech 352 Introduction to the Teaching of Speech</td>
<td>2</td>
</tr>
<tr>
<td>Speech 470 Speech Correction (3 credits can be earned in extension; 5 in residence)</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Speech 471 Speech Correction</td>
<td>5</td>
</tr>
<tr>
<td>Speech 473 Diagnostic Methods in Speech Correction</td>
<td>5</td>
</tr>
<tr>
<td>Speech 474 Clinical Practice in Speech Correction</td>
<td>8</td>
</tr>
<tr>
<td>and/or Speech 484 Clinical Practice in Aural Rehabilitation</td>
<td>8</td>
</tr>
<tr>
<td>Speech 480 Introduction to Hearing (3 credits can be earned in extension; 5 in residence)</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Speech 481 Principles and Methods of Aural Rehabilitation</td>
<td>5</td>
</tr>
<tr>
<td>Speech 487 Audiology</td>
<td>2</td>
</tr>
</tbody>
</table>

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 493, 494 Invertebrate Zoology (10), 456 Vertebrate Embryology (5), and Biology 473 Limnology (5).

**BASIC ACADEMIC FIELD.** The requirements are 45 credits, including the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany 111, 112, 113 Elementary Botany</td>
<td>15</td>
</tr>
<tr>
<td>Botany 111, 112 General Zoology</td>
<td>10</td>
</tr>
</tbody>
</table>

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 (2), 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).

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 100 or 110 General Chemistry</td>
<td>4 or 3</td>
</tr>
<tr>
<td>Chemistry 150 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 160 General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 112 Qualitative Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 221 Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry 231 Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 232 Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 241 Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry 242 Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry 355 Physical Chemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 100 or 110 General Chemistry</td>
<td>4 or 3</td>
</tr>
<tr>
<td>Chemistry 150 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 160 General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 170 Qualitative Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 221 Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry 231 Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 232 Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 241 Organic Chemistry Laboratory</td>
<td>2</td>
</tr>
</tbody>
</table>

GEODESY

FIRST AREA OF CONCENTRATION. The requirements are 36 credits, including the following, and any recommended courses to complete the area.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology 205 Rocks and Minerals</td>
<td>5</td>
</tr>
<tr>
<td>Geology 206 Elements of Physiography</td>
<td>5</td>
</tr>
<tr>
<td>Geology 207 Historical Geology</td>
<td>5</td>
</tr>
<tr>
<td>Geology 412 Physiography of the United States</td>
<td>5</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology 101 Survey of Geology</td>
<td>5</td>
</tr>
<tr>
<td>Geology 205 Rocks and Minerals</td>
<td>5</td>
</tr>
<tr>
<td>Geology 206 Elements of Physiography</td>
<td>5</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 105 College Algebra</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 120 Introduction to Mathematical Thinking</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics 153 Analytic Geometry and Calculus</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 251 Analytic Geometry and Calculus</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 252 Analytic Geometry and Calculus</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 253 Analytic Geometry and Calculus</td>
<td>3</td>
</tr>
<tr>
<td>Approved electives, including 5 credits in advanced algebra and 5 credits in advanced geometry</td>
<td>20</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 105 College Algebra</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 120 Introduction to Mathematical Thinking</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics 153 Analytic Geometry and Calculus</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 251 Analytic Geometry and Calculus</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 252 Analytic Geometry and Calculus</td>
<td>5</td>
</tr>
<tr>
<td>Approved electives</td>
<td>11</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 105 College Algebra</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics 120 Introduction to Mathematical Thinking</td>
<td>2</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 121, 122, 123 General Physics</td>
<td>9</td>
</tr>
<tr>
<td>Physics 131, 132, 133 General Physics Laboratory</td>
<td>6</td>
</tr>
<tr>
<td>Physics 221, 222 Mechanics</td>
<td>6</td>
</tr>
<tr>
<td>Physics 225, 226 Electric Circuits</td>
<td>8</td>
</tr>
<tr>
<td>Physics 320 Introduction to Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>Physics 323 Introduction to Nuclear Physics</td>
<td>3</td>
</tr>
<tr>
<td>Physics 371, 372 Properties of Matter</td>
<td>6</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 121, 122, 123 General Physics</td>
<td>9</td>
</tr>
<tr>
<td>Physics 131, 132, 133 General Physics Laboratory</td>
<td>6</td>
</tr>
<tr>
<td>Physics 221 Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>Physics 225 Electric Circuits</td>
<td>4</td>
</tr>
<tr>
<td>Physics 320 Introduction to Modern Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science 201 Modern Government</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 360 The American Constitutional System</td>
<td>3</td>
</tr>
<tr>
<td>Political Science 376 State and Local Government and Administration</td>
<td>5</td>
</tr>
<tr>
<td>Economics 160 American Economic History</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 110 Survey of Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Political science electives</td>
<td>13</td>
</tr>
<tr>
<td>Economics or sociology electives</td>
<td>5</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science 201 Modern Government</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 360 The American Constitutional System</td>
<td>3</td>
</tr>
<tr>
<td>Economics 160 American Economic History</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 110 Survey of Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Political science electives</td>
<td>13</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 200 Introduction to Economics</td>
<td>5</td>
</tr>
<tr>
<td>Economics 201 Principles of Economics</td>
<td>5</td>
</tr>
<tr>
<td>Economics 301 National Income Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Economics 302 Intermediate Economics</td>
<td>5</td>
</tr>
<tr>
<td>Economics 312 Current Economic Problems</td>
<td>5</td>
</tr>
<tr>
<td>Accounting 150 Fundamentals of Accounting</td>
<td>4</td>
</tr>
</tbody>
</table>
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 specializa-
tion 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 ...................................... 3
or Far Eastern 310 The Far East in the Modern World ................................... 3
Far Eastern 140 Chinese Civilization ............................................................ 5
or Far Eastern 242 Korean Civilization ......................................................... 3
or Far Eastern 243 Russian Civilization ....................................................... 5
or Far Eastern 396J History of Japanese Civilization ...................................... 5
or Far Eastern 314J Peoples of Central and Northern Asia .................................. 5
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 238 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 follow-
ning, 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 238 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 224 Historical Geography of America .......................................... 3
Geography 370 Conservation of Natural Resources ........................................ 5
One additional geography course on the 400-level ...................................... 3
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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>History 101 Medieval European History</td>
<td>5</td>
</tr>
<tr>
<td>and History 102 Modern European History</td>
<td>5</td>
</tr>
<tr>
<td>or Social Science 101 History of Civilization: The Great Cultural Traditions</td>
<td>5</td>
</tr>
<tr>
<td>or Social Science 102 History of Civilization: The Western Tradition in World Civilization.</td>
<td>5</td>
</tr>
<tr>
<td>or Social Science 103 History of Civilization: The Contemporary World</td>
<td>5</td>
</tr>
<tr>
<td>History 201-202 Ancient History</td>
<td>10</td>
</tr>
<tr>
<td>History 241 Survey of the History of the United States</td>
<td>5</td>
</tr>
<tr>
<td>History 464 History of Washington and the Pacific Northwest</td>
<td>5</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>History 101 Medieval European History</td>
<td>5</td>
</tr>
<tr>
<td>and History 102 Modern European History</td>
<td>5</td>
</tr>
<tr>
<td>or Social Science 101 History of Civilization: The Great Cultural Traditions</td>
<td>5</td>
</tr>
<tr>
<td>or Social Science 102 History of Civilization: The Western Tradition in World Civilization.</td>
<td>5</td>
</tr>
<tr>
<td>or Social Science 103 History of Civilization: The Contemporary World</td>
<td>5</td>
</tr>
<tr>
<td>History 241 Survey of the History of the United States</td>
<td>5</td>
</tr>
<tr>
<td>History 464 History of Washington and the Pacific Northwest</td>
<td>5</td>
</tr>
</tbody>
</table>

**POLITICAL SCIENCE**

**FIRST AREA OF CONCENTRATION.** The requirements are 40 credits, including the following, and any recommended courses to complete the area.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science 201 Modern Government</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 202 American Government and Politics</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 321 American Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td>or Political Science 336 National Power and International Politics</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 351 The American Democracy</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 360 The American Constitutional System</td>
<td>2 of 3</td>
</tr>
<tr>
<td>Political Science 450 Political Parties and Elections</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 445 Comparative Political Institutions</td>
<td>5</td>
</tr>
<tr>
<td>Political Science 376 State and Local Government and Administration</td>
<td>5</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology 100 General Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 200 Advanced General Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 301 Statistical Methods</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 400 Psychology of Learning</td>
<td>5</td>
</tr>
<tr>
<td>or Psychology 416 Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td>or Psychology 427 Conditioning</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 406 Experimental Psychology</td>
<td>5</td>
</tr>
<tr>
<td>or Psychology 426 Animal Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>or Psychology 441 Perception</td>
<td>5</td>
</tr>
<tr>
<td>or Psychology 484 Laboratory in Child Behavior</td>
<td>5</td>
</tr>
<tr>
<td>or Psychology 499 Undergraduate Research</td>
<td>3</td>
</tr>
<tr>
<td>Psychology electives selected from 305 Abnormal Psychology (5), 306 Child Psychology (5), 307 Psychology of Adolescence (3), 309 Psychology of Exceptional Children (3)</td>
<td>to total 11-13</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology 100 General Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 305 Abnormal Psychology</td>
<td>5</td>
</tr>
<tr>
<td>or Psychology 309 Psychology of Exceptional Children</td>
<td>3</td>
</tr>
</tbody>
</table>

SOCIOLOGY

FIRST AREA OF CONCENTRATION. The requirements are 40 credits, including the following:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociology 110 Survey of Sociology</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 310 General Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 223 Social Statistics</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 230 Introduction to Human Ecology</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 331 Population Problems</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 430 Human Ecology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 240 Group Behavior</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 450 Contemporary American Institutions</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 352 The Family</td>
<td>5</td>
</tr>
<tr>
<td>Sociology electives chosen after consultation regarding the special field of interest</td>
<td>15</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociology 110 Survey of Sociology</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 310 General Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 352 The Family</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 331 Population Problems</td>
<td>5</td>
</tr>
<tr>
<td>or Sociology 430 Human Ecology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology electives chosen after consultation regarding the special field of interest</td>
<td>17</td>
</tr>
</tbody>
</table>

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):

<table>
<thead>
<tr>
<th>COURSES</th>
<th>QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 370 Introduction to Teaching Procedures</td>
<td>5</td>
</tr>
<tr>
<td>Education 372X or S Professional Laboratory Experiences (on the secondary school level)</td>
<td>3</td>
</tr>
<tr>
<td>Special Methods in the First Broad Area of Concentration for Secondary School Teaching</td>
<td>2-5</td>
</tr>
</tbody>
</table>

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 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.

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:

<table>
<thead>
<tr>
<th>COURSES</th>
<th>QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 370E Elementary School Methods</td>
<td>5</td>
</tr>
<tr>
<td>Education 374 Fundamentals of Reading Instruction</td>
<td>5</td>
</tr>
<tr>
<td>Education 402 Child Study and Development or Psychology 306 Child Psychology</td>
<td>3.5</td>
</tr>
<tr>
<td>Education 372E Professional Laboratory Experiences (on the elementary level)</td>
<td>3</td>
</tr>
<tr>
<td>Electives from the following or other approved courses in elementary education:</td>
<td></td>
</tr>
<tr>
<td>Education 376 Art in the Elementary School</td>
<td>5</td>
</tr>
<tr>
<td>Education 377X-Y Music for Elementary Teachers</td>
<td>6</td>
</tr>
<tr>
<td>Education 378C,D Physical Education for the Elementary School</td>
<td>6</td>
</tr>
<tr>
<td>Education 379 Arithmetic for Elementary Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Education 475S Improvement of Teaching: Science</td>
<td>3</td>
</tr>
</tbody>
</table>

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) Fea, 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)**
Prerequisites, 209 and 370, and either German 303 or permission.

331 **Teachers' Course in History (2)**
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 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. Prerequisites, 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.

3715 **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, 3725 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) Foa
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.

375 Teachers' Course in Journalism (3) Brier

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. Labora-
tory 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) Horno, 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) Horno, Peek
Special methods and practice for teaching the program relating to posture and body me-
chanics, activities for the handicapped child, fundamentals of rhythm, the place of singing
games, dramatic and creative rhythms, simple and intermediate folk dances, and the pro-
gram 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 sharp-
ening 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 upholstering. 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 speci-
fications 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 pro-
gram, with emphasis upon constructive 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 applica-
tions 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) Foa
Consideration of the major topics in the general field of educational psychology with em-
phasis 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) Salyer
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.

409 AJ 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.

409 BJ 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, community, and the influence of various school situations upon the formation of adjustment patterns. Prerequisite, permission.

410 Educational Sociology (3) Josup
A systematic view of the larger social factors and relationships underlying the school as an institution. Fetal 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.

415 D 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) Staff
Principles and methods of directing the continued educational growth of adults. Prerequisite, permission.

420 Theory and Technique of Kindergarten and Primary Teaching (3) Mac Donald
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 and in the diagnosis 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 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) Corluy
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, 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.

475J 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.

476A Materials and Methods of Teaching Typewriting (2 1/2)  
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 (2 1/2)  
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 (2 1/2, 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 (2 1/2)  
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 (2 1/2)  
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 (2 1/2)  
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)  
Jossup  
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)  
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)  
Jossup  
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. 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.
**Research (*)**

Prerequisites, 591 and permission of instructor and director of graduate studies in education. Instructor and field must be designated in registration.

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**Thesis (*)**

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 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

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  Mineral Engineering
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3
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. (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.)

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 28-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. (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 26, 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 26, 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.  
*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

**MAR. 21—FRIDAY**  
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 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 26, 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 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 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.)
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, President
HAROLD S. SHEFELMAN, Vice-President
MRS. J. HERBERT GARDNER
CHARLES M. HARRIS
JOHN L. KING
WINLOCK W. MILLER
LLOYD L. WIEHL

HAROLD S. SHEFELMAN,
La Conner
MRS. J. HERBERT GARDNER,
Entiat
CHARLES M. HARRIS,
Seattle
JOHN L. KING,
Seattle
WINLOCK W. MILLER,
Seattle
LLOYD L. WIEHL,
Yakima

HELEN E. HOAGLAND, Secretary

OFFICERS OF ADMINISTRATION

HENRY SCHMITZ, Ph.D.
HAROLD P. EVEREST, M.A.
ETHELYN TONER, B.A.
NELSON A. WAHLSTROM, B.B.A.
DONALD K. ANDERSON, B.A.
HAROLD E. WESSMAN, Ph.D.
JAMES W. SOUTHER, M.A.

President of the University
Vice-President of the University
Registrar
Comptroller and Business Manager
Dean of Students
Dean of the College of Engineering
Assistant Dean

COLLEGE OF ENGINEERING EXECUTIVE COMMITTEE, 1956-1957

DEAN H. E. WESSMAN, Chairman
J. W. SOUTHER, Secretary
V. M. GANZER, Aeronautical Engineering
R. W. MOULTON, Chemical Engineering
R. B. VAN HORN, Civil Engineering
A. V. EASTMAN, Electrical Engineering
E. R. WILCOX, General Engineering
S. W. CHAPMAN, Humanistic-Social Studies
B. T. McMinn, Mechanical Engineering
F. B. FARQUHARSON, Engineering Experiment Station
E. C. ROBERTS, R. C. WEIKEL, J. A. HIGBEE, Members at Large

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, Assistant Professor of Aeronautical Engineering
B.S. in C.E., 1954, California; M.S. in C.E., California; Ph.D. in C.E., 1956, California

Eastman, Fred Scoville, 1927 (1943), Professor of Aeronautical Engineering
B.S. in E.E., 1925, Washington; M.S., 1929, Massachusetts Institute of Technology

Ganzer, Victor Martin, 1947 (1953), Professor of Aeronautical Engineering; Executive Officer of the Department of Aeronautical Engineering
B.A. in Math., 1933, Augustana College (Illinois); B.S. in A.E., 1941, Washington

Joppa, Robert Glenn, 1945 (1957), Associate Professor of Aeronautical Engineering
B.S. in A.E., 1945, M.S. in A.E., 1951, Washington

Martin, Harold Clifford, 1948 (1952), Professor of Aeronautical Engineering
B.S. in M.E., 1934, M.S., 1937, New York; Ph.D., 1950, California Institute of Technology

Street, Robert Elliott, 1948 (1955), Professor of Aeronautical Engineering
B.S. in Physics, 1933, Rensselaer Polytechnic Institute; M.A., 1934, Ph.D., 1939, Harvard

Weikel, Raymond Chester, 1948 (1954), Associate Professor of Aeronautical Engineering
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

Johanson, Lennart Nobel, 1951 (1956), Associate Professor of Chemical Engineering
B.S., 1942, Utah; M.S., 1943, Ph.D., 1948, Wisconsin

McCarthy, Joseph LePage, 1952 (1955), 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

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

Chenoweth, Harry Holt, 1946 (1957), Associate Professor of Civil Engineering

Chittenden, Hiram Martin, 1923 (1949), Associate Professor of Topographic Surveying

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, 1908 (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

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

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

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

Sergey, 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

Strauss, 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

Vasarhelyi, Dezsoe, 1949 (1956), Associate Professor of Civil Engineering
B.A., 1928, Ref. Collegium Kolozsvar; 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

Bettin, 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

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

Eastman, Austin Vitruvius, 1924 (1942), Professor of Electrical Engineering; Executive Officer of the Department of Electrical Engineering
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

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

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

Hoard, George Lisle, 1920 (1941), Professor of Electrical Engineering

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

Kieburtz, 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

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

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

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

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

GENERAL ENGINEERING
Alexander, Daniel Edward, 1954 (1956), Assistant Professor of General Engineering
Bartlett, Francis Grindall, 1956, Assistant Professor of General Engineering

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

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, Darland 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

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

Shaffer, Harry Winfield, 1957, Instructor in General Engineering

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

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

Skeels, Dell Roy, 1946 (1957), Associate Professor of Humanistic-Social Studies

Souther, James Walter, 1948 (1957), Associate Professor of Humanistic-Social Studies;
Assistant Dean

Trimble, Louis Preston, 1956, Instructor in Humanistic-Social Studies

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

Frey, 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

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

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
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 

Mills, Blake David, Jr., 1946 (1947), Professor of Mechanical Engineering 
Massachusetts Institute of Technology 

Morrison, James Bryan, 1946 (1955), Associate Professor of Mechanical Engineering 

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 

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 

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 

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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  
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


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
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 torsiograph, 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 dilotometry, 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 principal 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 units conforming to the following subject matter requirements:

- Elementary algebra 1 unit Chemistry 1 unit
- Advanced algebra ½ unit English* 3 units
- Plane geometry 1 unit Other academic subjects 3 units
- Trigonometry ½ unit Electives** 5 units
- Physics 1 unit

*Effective 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.

**The elective units may be entirely vocational or entirely academic, or a combination of both.

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 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 ½ 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 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 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 pre­
diction 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 Trigo­
nometry) 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 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 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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident students, per quarter</td>
<td>$25.00</td>
</tr>
<tr>
<td>Nonresident students, per quarter</td>
<td>75.00</td>
</tr>
<tr>
<td>Auditors, per quarter</td>
<td>12.00</td>
</tr>
</tbody>
</table>

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, 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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time resident students</td>
<td>27.50</td>
</tr>
<tr>
<td>Part-time resident students (registered for 6 credits or less, exclusive of ROTC)</td>
<td>10.00</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Membership, per quarter</th>
<th>8.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional for auditors and part-time students.</td>
<td></td>
</tr>
<tr>
<td>Athletic admission ticket (optional for ASUW members), per year</td>
<td>3.00-5.00</td>
</tr>
<tr>
<td>Autumn, Winter, and Spring Quarters, $5.00; Winter and Spring Quarters, $3.00; Spring Quarter, $3.00.</td>
<td></td>
</tr>
</tbody>
</table>

**Military Uniform Deposit, per year**

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.

<table>
<thead>
<tr>
<th>Military Uniform Deposit</th>
<th>25.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per year</td>
<td></td>
</tr>
</tbody>
</table>

**Breakage Ticket Deposit**

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

<table>
<thead>
<tr>
<th>Breakage Ticket Deposit</th>
<th>3.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per quarter</td>
<td></td>
</tr>
</tbody>
</table>

**Locker Fee, per quarter**

Required of men students taking physical education activities.

<table>
<thead>
<tr>
<th>Locker Fee</th>
<th>1.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per quarter</td>
<td></td>
</tr>
</tbody>
</table>

**Grade Sheet Fee**

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

<table>
<thead>
<tr>
<th>Grade Sheet Fee</th>
<th>.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per quarter</td>
<td></td>
</tr>
</tbody>
</table>

**Transcript Fee**

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

<table>
<thead>
<tr>
<th>Transcript Fee</th>
<th>.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per quarter</td>
<td></td>
</tr>
</tbody>
</table>

**Graduation Fee**

<table>
<thead>
<tr>
<th>Graduation Fee</th>
<th>10.00</th>
</tr>
</thead>
</table>

**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**

<table>
<thead>
<tr>
<th>Tuition, Incidental, and ASUW Membership Fees</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time resident student</td>
<td>$183.00</td>
</tr>
<tr>
<td>Full-time nonresident student</td>
<td>408.00</td>
</tr>
<tr>
<td>Athletic Admission Ticket (optional)</td>
<td>3.00-5.00</td>
</tr>
<tr>
<td>Accident Insurance (optional)</td>
<td>(Approximately) 3.75</td>
</tr>
<tr>
<td>Special Fees and Deposits</td>
<td>38.50</td>
</tr>
</tbody>
</table>

Military uniform deposit, breakage ticket, and locker fees.
GENERAL INFORMATION

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 a fraternity or sorority 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.

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.

Honors 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.

HOOKER 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 senior student in civil engineering or mechanical engineering.

LIVINGSTON WERNER 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, $1,620. Awarded to graduate student.

Technical Association of Pulp and Paper Industry Fellowship in Chemical Engineering, $750. 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 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
- 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
- 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 designa-
tion) 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 engineer-
ing 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 admis-
sion 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 fresh-
men 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.
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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen. Engr. 100</td>
<td>Orientation</td>
<td>1</td>
</tr>
<tr>
<td>Gen. Engr. 101 Drawing</td>
<td>101</td>
<td>3</td>
</tr>
<tr>
<td>Gen. Engr. 111 Problems</td>
<td>111</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 110 General</td>
<td>110</td>
<td>4</td>
</tr>
<tr>
<td>Math. 105 College Algebra</td>
<td>105</td>
<td>3</td>
</tr>
<tr>
<td>Phys. Educ. activity</td>
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<td>1</td>
</tr>
<tr>
<td>ROTC</td>
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<td>2-3</td>
</tr>
<tr>
<td></td>
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<td><strong>16-19</strong></td>
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#### SECOND QUARTER CREDITS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>Gen. Engr. 102 Drawing</td>
<td>102</td>
<td>3</td>
</tr>
<tr>
<td>Gen. Engr. 112 Problems</td>
<td>112</td>
<td>3</td>
</tr>
<tr>
<td>Math. 153 Analytic</td>
<td>153</td>
<td>4</td>
</tr>
<tr>
<td>Geom. &amp; Calc.</td>
<td>170</td>
<td>5</td>
</tr>
<tr>
<td>Phys. Educ. activity</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ROTC</td>
<td></td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16-19</strong></td>
</tr>
</tbody>
</table>

#### THIRD QUARTER CREDITS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen. Engr. 103 Applied</td>
<td>103</td>
<td>3</td>
</tr>
<tr>
<td>Descriptive Geom.</td>
<td>103</td>
<td>3</td>
</tr>
<tr>
<td>Surveying</td>
<td>121</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 160 General</td>
<td>160</td>
<td>3</td>
</tr>
<tr>
<td>Math. 251 Analytic</td>
<td>251</td>
<td>5</td>
</tr>
<tr>
<td>Phys. Educ. 175 Health</td>
<td>175</td>
<td>2</td>
</tr>
<tr>
<td>Phys. Educ. activity</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ROTC</td>
<td></td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>17-20</strong></td>
</tr>
</tbody>
</table>

### 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 surveys 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

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).

<table>
<thead>
<tr>
<th>FIRST QUARTER CREDITS</th>
<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.-S. S. 265 Tech. of Commun. ............................ 3</td>
<td>Civil Engr. 291 Dynamics .......................... 3</td>
<td>Civil Engr. 292 Mechanics of Matis. .................. 3</td>
</tr>
<tr>
<td>ROTC ............................................... 2-3</td>
<td>Physics 218 Engr. Physics .......................... 4</td>
<td>ROTC ............................................... 2-3</td>
</tr>
<tr>
<td>.......................... 16-19 ..........................</td>
<td>.......................... 15-18 ..........................</td>
<td>.......................... 16-19 ..........................</td>
</tr>
</tbody>
</table>

## 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-N392 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.
AERONAUTICAL ENGINEERING

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.

507 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-N522 Seminar (0-0-1) Staff

530 Theory of Elastic Structures (3) Martin, Wolkel
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, Stroot

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 (*)

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).

First Year

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Engr. 271 Intro.</td>
<td>1</td>
</tr>
<tr>
<td>Chem. 221 Quant. Anal.</td>
<td>5</td>
</tr>
<tr>
<td>Math. 252 Analytic Geom. &amp; Calc.</td>
<td>5</td>
</tr>
<tr>
<td>Physics 217 Engr. Physics</td>
<td>2-3</td>
</tr>
<tr>
<td>ROTC</td>
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<td>15-18</td>
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</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Second Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Engr. 272 Intro.</td>
<td>1</td>
</tr>
<tr>
<td>Chem. 355 Physical</td>
<td>4</td>
</tr>
<tr>
<td>H.-S.S. 264 Tech. of Comm.</td>
<td>3</td>
</tr>
<tr>
<td>Math. 253 Analytic Geom. &amp; Calc.</td>
<td>3</td>
</tr>
<tr>
<td>Mech. 203 Metal Mach.</td>
<td>1</td>
</tr>
<tr>
<td>Physics 218 Engr. Physics</td>
<td>4</td>
</tr>
<tr>
<td>ROTC</td>
<td>2-3</td>
</tr>
<tr>
<td>16-19</td>
<td></td>
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</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>Third Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Engr. 331</td>
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</tr>
<tr>
<td>Chem. 337 Organic Chem.</td>
<td>3</td>
</tr>
<tr>
<td>H.-S.S. 332 Hum.-Soc. St.</td>
<td>3</td>
</tr>
<tr>
<td>Physics 320 Intro. to Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>Tech. Electives</td>
<td>3</td>
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<tr>
<td>16</td>
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</table>

Fourth Year

<table>
<thead>
<tr>
<th>Fourth Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Engr. 472 Unit</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 482 Organic</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 498 Senior Investigations</td>
<td>2</td>
</tr>
<tr>
<td>Bus. Law 307 Bus. Law</td>
<td>3</td>
</tr>
<tr>
<td>Tech. Electives</td>
<td>16</td>
</tr>
<tr>
<td>15</td>
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</tbody>
</table>

* 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) Calculation techniques; industrial analysis experiments; plant visits. Prerequisite, sophomore standing or permission.

381 Field Trip (0) 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.

382 Field Trip (0) 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) 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) 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) 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) 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) 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) A continuation of 427. Drying and absorption operations are studied. Chemical reaction kinetics and transport principles are applied to reactor design. Prerequisite, 472.

474 Unit Operations Laboratory (2) The laboratory experiments cover primarily the subject matter of 470. Prerequisite, 470.
### COURSES FOR GRADUATES ONLY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>520</td>
<td>Graduate Seminar (1-5)</td>
<td>Staff</td>
</tr>
<tr>
<td>570</td>
<td>Introduction to Transport Properties (3)</td>
<td>Babb</td>
</tr>
<tr>
<td></td>
<td>**Derivation of general differential equations for transport of heat, mass,</td>
<td></td>
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<tr>
<td></td>
<td>and momentum; kinetic theory of fluids and its application to transport</td>
<td></td>
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<tr>
<td></td>
<td>phenomena based on molecular motion; methods for estimating transport</td>
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<td></td>
<td>coefficients in fluids.</td>
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<tr>
<td>571</td>
<td>Heat Transfer (3)</td>
<td>David</td>
</tr>
<tr>
<td></td>
<td>**Steady and unsteady state conduction with emphasis on numerical methods.</td>
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<tr>
<td></td>
<td>Radiation; design theory background and application to furnace design;</td>
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<td></td>
<td>convection; introductory concepts; methods for predicting coefficients;</td>
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<td></td>
<td>recent developments in theory; heat-exchanger design.</td>
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<tr>
<td></td>
<td>Prerequisites, 570 and 575 or permission.</td>
<td></td>
</tr>
<tr>
<td>572</td>
<td>Distillation (3)</td>
<td>Johanson</td>
</tr>
<tr>
<td></td>
<td>**Application of fundamental principles to industrial problems in binary and</td>
<td></td>
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<tr>
<td></td>
<td>multicomponent distillation. Equilibrium and heat transfer; ideal and</td>
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<td></td>
<td>noneideal systems. Graphical and analytical calculation methods. Design,</td>
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<tr>
<td></td>
<td>control, and instrumentation of fractionating equipment. (Offered alternate</td>
<td></td>
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<tr>
<td></td>
<td>years; offered 1958-59.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prerequisites, 570 and 575 or permission.</td>
<td></td>
</tr>
<tr>
<td>573</td>
<td>Absorption and Extraction (3)</td>
<td>Babb</td>
</tr>
<tr>
<td></td>
<td>**Diffusion theory; transfer of material between phases; design of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>absorption equipment; multicomponent systems; performance of absorption</td>
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<tr>
<td></td>
<td>equipment; simultaneous absorption and chemical reaction; solvent</td>
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<tr>
<td></td>
<td>extraction. (Offered alternate years; offered 1957-58.)</td>
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</tr>
<tr>
<td></td>
<td>Prerequisites, 570 and 575 or permission.</td>
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</tr>
<tr>
<td>574</td>
<td>Fluid Flow</td>
<td>McCarthy</td>
</tr>
<tr>
<td></td>
<td>**Mechanism of fluid flow. Total energy balance and Bernoulli’s Theorem.</td>
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<tr>
<td></td>
<td>Integration of the differential equations for motion of a fluid. Poiseuille</td>
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<td></td>
<td>and Fanning, and other equations. Turbulent flow and boundary-layer</td>
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<tr>
<td></td>
<td>relationships. High velocity flow. Introductory design calculations.</td>
<td></td>
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<tr>
<td></td>
<td>Prerequisites, 570 and 575 or permission.</td>
<td></td>
</tr>
<tr>
<td>575</td>
<td>Advanced Chemical Engineering Thermodynamics (3)</td>
<td>McCarthy</td>
</tr>
<tr>
<td></td>
<td>**Applications to unit operations and to prediction of phase equilibria and</td>
<td></td>
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<tr>
<td></td>
<td>chemical equilibria.</td>
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</tr>
<tr>
<td>580</td>
<td>Nuclear Engineering (3)</td>
<td>Babb</td>
</tr>
<tr>
<td></td>
<td>**An advanced course in engineering analysis and design of nuclear reactor</td>
<td></td>
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<tr>
<td></td>
<td>systems. The course covers heat generation and distribution in nuclear</td>
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<tr>
<td></td>
<td>reactor systems; the removal and utilization of heat for power production;</td>
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<td></td>
<td>transient behavior of reactor systems; fuel cycles and processing of</td>
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<td></td>
<td>irradiated reactor fuels; shielding of nuclear radiations.</td>
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<tr>
<td></td>
<td>Prerequisites, 484 and Electrical Engineering 500.</td>
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</tr>
<tr>
<td>581</td>
<td>Kinetics and Catalysis (3)</td>
<td>Johanson</td>
</tr>
<tr>
<td></td>
<td>**Homogeneous and heterogeneous systems, with emphasis on chemical</td>
<td></td>
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<tr>
<td></td>
<td>engineering principles applied to industrial reactor design.</td>
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</tr>
<tr>
<td></td>
<td>Prerequisites, 571 and 575 or permission.</td>
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</tr>
<tr>
<td>582</td>
<td>Multistage Separation Processes (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>**Theoretical and practical study of special batch and continuous multistage</td>
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<tr>
<td></td>
<td>processes for separation of various substances, including isotopes, ion</td>
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<tr>
<td></td>
<td>exchange, chemical exchange, gas and thermal diffusion, chromatographic,</td>
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<tr>
<td></td>
<td>electroplating, and other processes are considered.</td>
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</tr>
</tbody>
</table>
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).
THE COLLEGE OF ENGINEERING

FIRST QUARTER CREDITS

Civil Engr. 293 Dynamics & Mechanics 3
Civil Engr. 342 Fluid Mechanics 5
Elect. Engr. 300 Elem. of Elect. Engr. 5
H.-S.S. 491 Hum.-Soc. St. 2
Total 15

SECOND QUARTER CREDITS

Civil Engr. 343 Hyd. Engr. 5
Civil Engr. 362 Matls. of Constr. 3
Civil Engr. 371 Struct. Theory 3
Geol. 310 Engineering 5
Total 18

THIRD QUARTER CREDITS

Civil Engr. 321 Roads 3
Civil Engr. 363 Matls. of Constr. 3
Civil Engr. 372 Struct. Theory 3
Civil Engr. 373 Struct. Theory 3
Mech. Engr. 325 Thermodynamics 3
Total 15

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; kinetcs, 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.

325 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, superelevation, 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, Moose, 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, Moose
 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.

345 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

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) Hennes, Meese
Mechanical properties of soils. Theoretical mechanics and engineering practice in the evaluation of lateral earth pressures, bearing capacity, and settlement of foundations. Underground exploration and sampling techniques. Prerequisite, 321.

467 Earthwork Engineering (3) Hennes, Meese
Further development of the principles of soil mechanics, with emphasis on problems involving plastic equilibrium and seepage forces. The stability of earth cuts and embankment. Seepage under and through dams. Flow net construction for the solution of groundwater problems. Underdrainage; quicksand; filter design. Soil compaction, in practice and in laboratory, for earth fill construction. Design and analysis of an earth dam. Prerequisite, 466.

468 Engineering Properties of Soils (3) Hennes, Meese
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.

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

475 Structural Design (3) Clanton, Miller, Rhodes, Sergev

476 Structural Design (3) Clanton, Rhodes, Sergev

477 Structural Design (3) Clanton, Millor, 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.
567 Advanced Soil Mechanics and Foundations (4) Hennes, Moese

569 Applied Soil Mechanics (3) Hennes, Moese
Soil mechanics in engineering practice; the application of theory to the analysis of footings, piling, retaining walls, tunnels, and other substrucures. 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) \textit{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) \textit{Sergev}

The study of buckling phenomena in columns, beams, plates, and tubes, with practical application.

574 Dynamics of Structures (3) \textit{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) \textit{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) \textit{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) \textit{Miller}


582 Advanced Structures (3) \textit{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) \textit{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) \textit{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) \textit{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) \textit{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) \textit{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) \textit{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 (*) \textit{Staff}

Special investigations by graduate students under the direction of staff members. Students should register for H, M, F, S, W, or T.

Thesis (*) \textit{Staff}

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**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).

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Elect. Engr. 231 Elect. Circuits I</td>
<td>5</td>
</tr>
<tr>
<td>Math. 252 Analytic Geom. &amp; Calc.</td>
<td>5</td>
</tr>
<tr>
<td>Physics 217 Engr. Physics</td>
<td>4</td>
</tr>
<tr>
<td>ROTC</td>
<td>2-3</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>14-17</strong></td>
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<tr>
<th>Second Year</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Elect. Engr. 232 Elect. Circuits Lab. I</td>
<td>1</td>
</tr>
<tr>
<td>Elect. Engr. 233 Elect. Circuits II</td>
<td>5</td>
</tr>
<tr>
<td>H.-S.S. 265 Tech. of Commun.</td>
<td>3</td>
</tr>
<tr>
<td>Math. 253 Analytic Geom. &amp; Calc.</td>
<td>3</td>
</tr>
<tr>
<td>Physics 219 Engr. Physics</td>
<td>4</td>
</tr>
<tr>
<td>ROTC</td>
<td>2-3</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>16-19</strong></td>
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<tr>
<th>Third Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elect. Engr. 311 Elect. Transients</td>
<td>4</td>
</tr>
<tr>
<td>Elect. Engr. 312 Elect. Transients Lab.</td>
<td>1</td>
</tr>
<tr>
<td>H.-S.S. 332 Hum.-Soc. St.</td>
<td>3</td>
</tr>
<tr>
<td>Mech. Engr. 340 Materials</td>
<td>3</td>
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<td><strong>Total:</strong></td>
<td><strong>14</strong></td>
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<tr>
<th>Fourth Year</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Elect. Engr. Electives</td>
<td>5</td>
</tr>
<tr>
<td>Bus. Law 307 Bus. Law.</td>
<td>3</td>
</tr>
<tr>
<td>Mech. Engr. 466 Mach. Design</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

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.

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 electronic 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; electromagnetic 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 clamps. 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 pulse-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, susceptibility 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, meth­
ods 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 com­
puters for solving electrical problems. Includes one three-hour laboratory per week. Pre­
requisite, 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. Prerequi­
tite, 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. Pre­
requisite, 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.

<table>
<thead>
<tr>
<th>FIRST QUARTER CREDITS</th>
<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
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<tbody>
<tr>
<td>Admin. 3</td>
<td>Mgmt. 5</td>
<td>Econ. 3</td>
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<tr>
<td>Tech. electives 4</td>
<td>Tech. electives 3</td>
<td>Tech. electives 6</td>
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<tr>
<td>15</td>
<td>16</td>
<td>14</td>
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</tbody>
</table>

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).
MECHANICAL ENGINEERING

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.
<table>
<thead>
<tr>
<th>COURSES FOR UNDERGRADUATES</th>
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<tbody>
<tr>
<td>201 Metal Casting (1)</td>
<td>Snyder, Zylstra</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>202 Welding (1)</td>
<td>Holt, Zylstra</td>
</tr>
<tr>
<td>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.</td>
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<tr>
<td>203 Metal Machining (1)</td>
<td>Anderson, Kenny</td>
</tr>
<tr>
<td>Introduction to basic machining methods used in industrial metal processing. Fundamental concepts of the use of machine tools, layout methods, and measuring tools. Laboratory.</td>
<td></td>
</tr>
<tr>
<td>220 Heat Engines (3)</td>
<td>Childs, Crain, Thomas</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>221 Mechanical Engineering Laboratory (3)</td>
<td>Crain, Firey, Meador, Shouman</td>
</tr>
<tr>
<td>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. Laboratory. Prerequisite, 220.</td>
<td></td>
</tr>
<tr>
<td>260 Mechanism (3)</td>
<td>Balise, Day, Fritz</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>305 Production Tooling (1)</td>
<td>Kenny, Zylstra</td>
</tr>
<tr>
<td>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.</td>
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<tr>
<td>306 Production Techniques (1)</td>
<td>Schaller, Snyder</td>
</tr>
<tr>
<td>Application of techniques in founding, welding, forging, stamping, and heat treating of engineering metals to manufacturing and production methods. Lecture. Prerequisite, 305.</td>
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<tr>
<td>307 Production Planning (1)</td>
<td>Schaller, Snyder</td>
</tr>
<tr>
<td>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.</td>
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</tr>
<tr>
<td>312 Machine Tool Fundamentals (3)</td>
<td>Kenny, Zylstra</td>
</tr>
<tr>
<td>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.</td>
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</tr>
<tr>
<td>320 Thermodynamics (5)</td>
<td>Childs, McMinn, Nordquist</td>
</tr>
<tr>
<td>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.</td>
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<tr>
<td>324 Experimental Thermodynamics (3)</td>
<td>Crain, Firey, McIntyre, Shouman</td>
</tr>
<tr>
<td>Experimental demonstration of the basic principles of thermodynamics, including study of measurements for heat and energy balances. Prerequisite, 320.</td>
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<tr>
<td>325 Thermodynamics for Nonmajors (3)</td>
<td>Childs, Nordquist, Shouman, Thomas</td>
</tr>
<tr>
<td>The general energy equation; second law; ideal and actual cycles; media; elements of power plants; elements of refrigeration; nozzles. Prerequisite, junior standing in engineering.</td>
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<tr>
<td>328 Elementary Thermodynamics (3)</td>
<td>Hendrickson</td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>329 Refrigeration (3)</td>
<td>Hendrickson</td>
</tr>
<tr>
<td>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.</td>
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<tr>
<td>340 Engineering Materials (3)</td>
<td>Balise, Day, Mills, Meador</td>
</tr>
<tr>
<td>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.</td>
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</tr>
<tr>
<td>341 Aircraft Materials (2)</td>
<td>Schaller</td>
</tr>
<tr>
<td>Selection, processing, and heat treatment of nonferrous and ferrous materials in aircraft construction. Lecture. Prerequisites, 201, 202, and 203.</td>
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<tr>
<td>342 Industrial Materials and Processes (3)</td>
<td>Mills</td>
</tr>
<tr>
<td>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. Classwork and field trips. Prerequisite, junior standing in industrial education or permission.</td>
<td></td>
</tr>
</tbody>
</table>
361, 362 Machine Design (3,3) Balise, Crain, Day, Kieling, 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 shifting, 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, Kieling, 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 design; 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 psychometry, 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, Fierey, 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, Kieling  
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  

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 interchange, 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) Waiblor
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, 441 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

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, re-generative, 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.

FIRST QUARTER CREDITS

| Cer. Engr. 201 Introduction                        | 2 |
| H.-S.S. 265 Tech. of Comm.                         | 3 |
| Math. 252 Analytic                                 | 5 |
| Mech. Engr. 202                                    | 1 |
| Physics 217 Engr. Phys.                            | 4 |
| ROTC                                                | 2-3 |
|                                                      | 15-18 |

SECOND QUARTER CREDITS

| Cer. Engr. 202 Raw                                  | 4 |
| H.-S.S. 270 General                                 | 3 |
| Math. 253 Analytic                                 | 2 |
| Geom. & Calc.                                      | 3 |
| Physics 218 Engr. Phys.                            | 4 |
| ROTC                                                | 2-3 |
|                                                      | 16-19 |

THIRD QUARTER CREDITS

| Cer. Engr. 204 J                                   | 3 |
| Cer. Engr. 208                                    | 3 |
| Cer. Engr. 203 Metal                               | 1 |
| Cer. Engr. 209                                    | 2-3 |
|                                                      | 17-20 |

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 Nonmetallics (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 Vitrology (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; electrodynamics; 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.

### METALLURGICAL ENGINEERING

**FIRST QUARTER CREDITS**
Met. Engr. 201J Intro. Mineral Industries ............ 1
Mech. Engr. 201 Metal Castings .................... 1
Chem. 221 Quant. Anal. .......................... 5
Math. 252 Analytic Geom. & Calc. ................ 5
Physics 217 Engr. Physics .......................... 4
ROTC ........................................ 2-3

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**SECOND QUARTER CREDITS**
Mech. Engr. 202 Welding ................................ 1
Civil Engr. 291 Dynamics ................................ 3
H.-S.S. 265 Tech. of Commun. .......................... 3
Math. 253 Analytic Geom. & Calc. ...................... 3
Physics 218 Engr. Physics ............................. 4
ROTC ........................................ 2-3

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**THIRD QUARTER CREDITS**
Met. Engr. 204J Stoichiometry .......................... 3
Geol. 221 Mineralogy .................................. 3
Math. 421 Diff. Equations ............................. 3
Physics 219 Engr. Physics ............................. 4
ROTC ........................................ 2-3

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**FIRST QUARTER CREDITS**
Met. Engr. 361 Physical .............................. 4
Chem. 355 Physical .................................. 4
Civil Engr. 292 Mechanics of Materials .............. 3
H.-S.S. 331 Hum.-Soc. St. ............................ 3

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**SECOND QUARTER CREDITS**
Met. Engr. 324 Chem. Metallurgy: Lab. ................. 1
Met. Engr. 362 Physical ................................ 3
Chem. 356 Physical .................................. 3
Min. Engr. 362 Mineral Dressing: Concentration .... 4
Physics 350 Heat, Thermo- & Kinetic Theory .......... 3

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**THIRD QUARTER CREDITS**
Met. Engr. 306 Excursion ................................ 1
Met. Engr. 498 Senior Investigations .................. 1
Met. Engr. 400 Vac. Tubes & Electronics .............. 5
H.-S.S. 333 Hum.-Soc. St. ............................ 3
Tech. Electives ...................................... 3
Electives .......................................... 3

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**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 QUARTER CREDITS**
Met. Engr. 412J X-ray .................................. 2
Met. Engr. 498 Senior Investigations .................. 2
Physics 320 Modern .................................... 3
Tech. Electives ...................................... 5

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### 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 metalllographic 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 Metallography Laboratory (1) Poloni, 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.
## Theory of Metals and Alloys

**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

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## 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.

#### First Year

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<td>Mineral Indust.</td>
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<td>Geology 205 Rocks and Minerals</td>
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<td>Math. 232 Analytic Geom. &amp; Calc.</td>
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<td>Physics 217 Eng. Physics 4</td>
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<td><strong>Second Quarter</strong></td>
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<tr>
<td>Mining Engr. 221 Drilling, Blasting, &amp; Tunneling</td>
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<td>Chem. 170 Qual. Anal.</td>
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<td>Math. 253 Analytic Geom. &amp; Calc.</td>
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<td>Physics 218 Eng. Physics 4</td>
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<tr>
<td><strong>Third Quarter</strong></td>
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<tr>
<td>Mining Engr. 322 Methods</td>
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<td>Mining Engr. 361 Mineral Dressing: Preparation</td>
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<td>Civil Engr. 291 Dynamics</td>
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<td>Geol. 323 Optical Mineralogy</td>
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<tr>
<td>Mining Engr. 331 Mapping</td>
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<td>Mining Engr. 425 Barodynamics</td>
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<td>Mining Engr. 433 Ventilation</td>
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<td>Mining Engr. 498 Senior Investigations</td>
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<tr>
<td>Civil Engr. 342 Fluid Mechanics</td>
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<td>H.-S.S. 332 Hum.-Soc. St</td>
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<td>Mining Engr. 325 Land Valuation</td>
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<td>Mining Engr. 362 Mineral Dressing: Concentration</td>
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<td>Elect. Engr. 300 Elements of Elect. Engr.</td>
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<td>Geol. 324 Petrography &amp; Petrology</td>
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<td><strong>Second Quarter</strong></td>
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<tr>
<td>Mining Engr. 4811 Mineral Indus. Econ.</td>
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<td>Mining Engr. 498 Senior Investigations</td>
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## Research and Thesis

Students have the option to undertake a research project or write a thesis under the guidance of a faculty member.

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## Second Year

### Credits

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### Mining Engineering

#### Geologic Engineering Option

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### 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

201 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. Communion, 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, electrodynamic forces in mining. Pressure burst and its control; stress around workings; fragmentation by induced forces: subsidence: extracting pillars and remnants; support of workings. Prerequisites, 322 and Civil Engineering 292, or permission.

425 Barodynamics (2) Pifer
Barodynamic forces in mining. Pressure burst and its control; stress around workings; fragmentation by induced forces: subsidence: extracting pillars and remnants; 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) Brion
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) Brion
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) Brion
Study of plant operations. Methods of laboratory investigation; advanced quantitative mineragraphy and research. Prerequisites, 462 and 465.

467 Mineral Dressing Design (2) Brion
General arrangement planning and design calculations for beneficiation plants on a project basis. Prerequisite, 466.

476 Coal Preparation (2) Brion
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) Brion
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

485 Industrial Minerals (3) Brion
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 (*) Brion
Special problems and research.

561 Advanced Mineral Dressing Preparation (*) Brion
Unit process studies in comminution, sizing, classifying, and auxiliary processes.

562 Advanced Mineral Dressing Laboratory (*) Brion
Experimental study of theoretical principles of preparation and concentration. Arranged concurrently with 561 and 563, or as required.

563 Advanced Mineral Dressing Theory (*) Brion
Physics and chemistry of beneficiation.

564 Advanced Mineral Dressing Design (*) Brion
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) Brian
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 112.)

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 115.)

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, 347 Physical Chemistry (4,3,3) Staff
Physical chemistry and chemical engineering majors and other qualified students. 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.
### THE DEPARTMENTAL PROGRAMS

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<td>The nature of the chemical bond, complex compounds. Prerequisite, 357.</td>
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<tr>
<td></td>
<td>Elementary concepts of quantum chemistry, statistical mechanics, thermodynamics, kinetic theory, and chemical kinetics. Prerequisite, 357 or permission.</td>
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</table>

### ECONOMICS

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>211</td>
<td>General Economics (3)</td>
<td>3</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>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.</td>
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</table>

### GEOLOGY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>206</td>
<td>Elements of Physiography (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Processes and agencies affecting the earth's surface; relationship of topography to structure, etc. Prerequisite, 101 or 205.</td>
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<tr>
<td>207</td>
<td>Historical Geology (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Origin and evolution of the earth, with emphasis on the general geological history of North America. Prerequisites, 205 and 206, or permission.</td>
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<tr>
<td>221</td>
<td>Mineralogy (3 or 5)</td>
<td>3 or 5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Determinative crystallography and blowpipe analysis. 3 credits can be obtained in extension, 3 or 5 credits in residence. Prerequisite, high school chemistry.</td>
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<tr>
<td>308</td>
<td>Structural Geology (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Interpretation of rock structures and their genesis. Prerequisites, 206, 207, and General Engineering 101, 102, 103.</td>
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<tr>
<td>310</td>
<td>Engineering Geology (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Elements of geology for civil engineers. Prerequisite, civil engineering major or permission.</td>
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<tr>
<td>323</td>
<td>Optical Mineralogy (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Petrographic microscope and recognition of common minerals in thin section. Prerequisites, 205 and 221.</td>
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<tr>
<td>361</td>
<td>Stratigraphy (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Sedimentation and facies; rock and time units; evaluation of boundaries; principles of correlation. Prerequisites, 205, 206, and 207; 330 and 432 recommended.</td>
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<tr>
<td>424</td>
<td>Petrography and Petrology (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Systematic study of rocks with the petrographic microscope. Prerequisite, 323.</td>
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<tr>
<td>425</td>
<td>Petrography and Petrology (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Metamorphic rocks, petrogenesis. Prerequisite, 424.</td>
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<tr>
<td>427</td>
<td>Ore Deposits (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Form, structure, mineralogy, petrology, and mode of origin. Prerequisites, 221 and 424.</td>
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### MATHEMATICS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>Intermediate Algebra and Trigonometry (3)</td>
<td>3</td>
<td>Staff</td>
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<tr>
<td></td>
<td>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 reenrolled 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.</td>
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<tr>
<td>104</td>
<td>Plane Trigonometry (3)</td>
<td>3</td>
<td>Staff</td>
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<tr>
<td></td>
<td>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 one year of plane geometry.</td>
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<tr>
<td>105</td>
<td>College Algebra (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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</tr>
<tr>
<td>153</td>
<td>Analytic Geometry and Calculus (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>251</td>
<td>Analytic Geometry and Calculus (5)</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td></td>
<td>Definite integrals, integration of simple algebraic functions, applications. Conic sections, polar coordinates, and differentiation of transcendental functions. Prerequisite, 153.</td>
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</tr>
<tr>
<td>252</td>
<td>Analytic Geometry and Calculus (5)</td>
<td>5</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Parametric equations, curvature, integration of algebraic and transcendental functions, applications. Improper integrals, indeterminate forms, infinite series. Prerequisite, 251.</td>
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</tbody>
</table>
Principles of Digital Computers and Coding (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.

Linear Algebra (5)  
Staff  
Matrices; determinants; groups of transformations; linear spaces; linear transformations and their invariants. Prerequisite, 253.

Advanced Calculus I (3)  
Staff  
Calculus of functions, infinite series, series expansions, gamma function, transformations of coordinates and Jacobians. Prerequisite, 253.

Advanced Calculus II (3)  
Staff  
Implicit function theorems, integrals in several dimensions, vector analysis, theorems of Stokes, Gauss, and Green. Prerequisite, 253; 417 recommended.

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.

Topics in Applied Analysis (3,3)  
Staff  
Elementary complex variables; Legendre functions, curvilinear coordinates, calculus of variations. Prerequisites, 417 or 423 for 427; 417 or 421 and 423 for 428; 428 for 429.

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.

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.

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 (Women) (2)  
Staff  
Health problems of freshman women. Required of all freshmen; exemption without credit by examination. See page 37.

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

Physical Education Activities (Men) (1 each)  
Staff  
101 through 255 Physical Education Activities (Men) (1 each)

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, 253, varsity wrestling.

Physical Education Activities (Women) (1 each)  
Staff  
111 through 270 Physical Education Activities (Women) (1 each)

111, adapted activities; 112, basic activities (general); 113-114, basic activities (applied); 115, aerobics; 116, 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; 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, skiing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 235, intermediate tennis; 248, intermediate folk and square dancing; 251, intermediate modern dance; 252, advanced running; 257, intermediate canoeing (fee, $2.50 per quarter); 263, intermediate swimming; 264, advanced swimming; 265, rhythmic swimming; 266, diving; 267, lifesaving.
THE DEPARTMENTAL PROGRAMS

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 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
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)**

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)**

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)**

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)**

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)**

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 65" 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Staff Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>111, 112, 113</td>
<td>Naval Orientation (3,3,3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Naval courtesy and customs; leadership; naval history; naval regulations; ship construction and characteristics; standard ship organization; orientation in undersea, amphibious, logistics, communications, security, intelligence, seamanship, and rules-of-the-road phases of the naval service.</td>
<td></td>
</tr>
<tr>
<td>211</td>
<td>Naval Weapons (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Principles of gun construction; ammunition components; gun assemblies; automatic guns; mines; introduction to fire control; aviation ordnance.</td>
<td></td>
</tr>
<tr>
<td>212</td>
<td>Fire Control (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Surface fire control; battery alignment; antiaircraft fire control.</td>
<td></td>
</tr>
<tr>
<td>213</td>
<td>Applied Naval Electronics (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Advanced fire control; radar, sonar; C.I.C.; shore bombardment; guided missiles; nuclear explosives; underwater ordnance; rockets.</td>
<td></td>
</tr>
</tbody>
</table>

**LINE**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Staff Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>311</td>
<td>Naval Engineering (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Marine engineering installations; boilers, power plants, auxiliary machinery, turbines, distillers, refrigeration plants.</td>
<td></td>
</tr>
<tr>
<td>312</td>
<td>Engineering and Navigation (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Combination of diesel engines and elements of stability with piloting aspects of navigation.</td>
<td></td>
</tr>
<tr>
<td>313</td>
<td>Navigation (2)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Nautical astronomy necessary for celestial navigation; daily work of the navigator at sea.</td>
<td></td>
</tr>
<tr>
<td>411</td>
<td>Naval Operations (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Naval operations and shiphandling; maneuvering board. (Formerly 400.)</td>
<td></td>
</tr>
<tr>
<td>412</td>
<td>Naval Operations and Administration (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Combination of diesel engines and elements of stability and naval administration.</td>
<td></td>
</tr>
<tr>
<td>413</td>
<td>Military Justice and Leadership (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Uniform code of military justice; practical application of leadership principles; duties and responsibilities of naval officers.</td>
<td></td>
</tr>
</tbody>
</table>

**MARINE CORPS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Staff Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>311M</td>
<td>Evolution of the Art of War (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>312M</td>
<td>Evolution of the Art of War (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>313M</td>
<td>Modern Basic Strategy and Tactics (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Tactics of the platoon and company; jungle warfare, river crossings; fortified positions. Strategy of the United States and Germany during World War II.</td>
<td></td>
</tr>
<tr>
<td>411M, 412M</td>
<td>Amphibious Warfare (3,3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>413M</td>
<td>Leadership and Uniform Code of Military Justice (3)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Military law; practical application of leadership principles; duties and responsibilities of marine officers.</td>
<td></td>
</tr>
</tbody>
</table>

**SUPPLY CORPS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Staff Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>311S</td>
<td>Introduction to Supply, Naval Finance, and Basic Naval Accounting (4)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Introduction to Supply Corps and accounting principles; national security organization; naval finance; appropriations; cost and fidelity accounting.</td>
<td></td>
</tr>
<tr>
<td>312S</td>
<td>Advanced Naval Accounting, Basic Supply Afloat (4)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Reports and returns; property and stores accounting; organization and administration of supply afloat; material identification, classification, and allowance.</td>
<td></td>
</tr>
<tr>
<td>313S</td>
<td>Supply Afloat, Intermediate (4)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Procedure and purchasing, receipt, surveys, and expenditure of special and regular naval materials.</td>
<td></td>
</tr>
<tr>
<td>411S</td>
<td>Advanced Supply Afloat and Basic Ships' Stores (4)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Records, reports, and returns for supply afloat, and ships' store operating procedure.</td>
<td></td>
</tr>
<tr>
<td>412S</td>
<td>Advanced Ships' Stores, Commissary, Clothing, and Small Stores (4)</td>
<td>Staff</td>
</tr>
<tr>
<td></td>
<td>Records, reports, and returns for ships' stores, commissary, clothing, and small stores.</td>
<td></td>
</tr>
</tbody>
</table>
**Bulletin, University of Washington** is the title of the series of official announcements describing the University's programs. The series includes three general bulletins; bulletins of the colleges and schools; two Summer Quarter announcements; the bulletin of the Center for Graduate Study at Hanford; and publications of the Division of Adult Education and Extension Services, the correspondence study and evening classes announcements.

**Introduction to the University**, one of the general bulletins, is especially prepared for new and prospective students. It lists all the University curricula, with their admission requirements, and presents information on other phases of student life, including services for students, student activities, and expenses. **University Rules and Regulations**, the second general bulletin, contains complete statements of University rules and scholastic requirements. It is designed for administrators and officials as well as registered students. **Handbook of Scholarships**, the third general bulletin, lists the various scholarships available.

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

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

**General Bulletins**

- Handbook of Scholarships
- Introduction to the University
- University Rules and Regulations (for registered students only)

**Bulletins of the Colleges and Schools**

- College of Architecture and Urban Planning
- College of Arts and Sciences
- College of Business Administration
- School of Dentistry
- College of Education
- College of Engineering
- College of Fisheries
- College of Forestry
- Graduate School
- School of Law
- School of Medicine
- School of Nursing
- College of Pharmacy
- School of Social Work

**Other Bulletins**

- Preliminary Summer Announcement
- Summer Quarter Announcement
- Center for Graduate Study at Hanford
- Correspondence Study
- Evening Classes

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BULLETIN UNIVERSITY OF WASHINGTON General Series No. 930 September, 1958

Published twice monthly August, September, October, and monthly for the remainder of the year at Seattle, Washington, by the University of Washington. 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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   Officers of Administration
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   Bachelor of Science in Fisheries
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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.
UNIVERSITY OF WASHINGTON

ACADEMIC PERIOD

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

AUTUMN QUARTER, 1959

REGISTRATION PERIOD

MAY 4-29  Advance Registration only for students in residence Spring Quarter, 1959. A service fee of $15.00 will be assessed any student eligible for Advance Registration who fails to participate and then applies for In-Person Registration for that quarter.

SEPT. 10-29  In-Person Registration for former students not in residence Spring Quarter, 1959, and those attending Spring Quarter, 1959, who failed to complete Advance Registration. Appointments or Permits to register may be obtained by writing to or calling at the Registrar's Office beginning June 8. Deadline for applying for Registration Appointment or Permit is September 15.

AUG. 31  Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

SEPT. 14-25  In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

SEPT. 14-29  In-Person Registration for new transfer students with at least full sophomore standing.

SEPT. 29  Last day to register for Autumn Quarter, 1959.

OCT. 1-6  Change of registration by appointment only.

ACADEMIC PERIOD

SEPT. 28—MONDAY  Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing

SEPT. 30—WEDNESDAY  Instruction begins (8 a.m.) for all other students

OCT. 6—TUESDAY  Last day to add a course

NOV. 2—MONDAY  Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1960, due at Registrar's Office
State Admission Day holiday
Last day to submit applications for advanced credit examinations
Thanksgiving recess (6 p.m. to 8 a.m.)
Advanced credit examinations
Final examinations
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 no later than December 11. 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 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.
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.

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

In-Person Registration for ALL new students.

Last day to register for Spring Quarter, 1960.

Change of registration by appointment only.

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

Quarter ends

Commencement

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:

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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

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 20–Monday</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>June 21–Tuesday</td>
<td>Last day to add a course for the first term</td>
</tr>
<tr>
<td>June 24–Friday</td>
<td>Last day to add a course for the full quarter</td>
</tr>
<tr>
<td>July 1–Friday</td>
<td>Last day to submit applications for advanced credit examinations for first term</td>
</tr>
<tr>
<td>July 4–Monday</td>
<td>Independence Day holiday</td>
</tr>
<tr>
<td>July 18–Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>July 20–Wednesday</td>
<td>Final examinations and first term end</td>
</tr>
<tr>
<td>July 21–Thursday</td>
<td>Second term begins</td>
</tr>
<tr>
<td>July 22–Friday</td>
<td>Last day to add a course for the second term</td>
</tr>
<tr>
<td>July 29–Friday</td>
<td>Last day to submit applications for advanced credit examinations for second term</td>
</tr>
<tr>
<td>Aug. 13–Saturday</td>
<td>Advanced credit examinations</td>
</tr>
<tr>
<td>Aug. 19–Friday</td>
<td>Final examinations and second term end</td>
</tr>
</tbody>
</table>

AUTUMN QUARTER, 1960

REGISTRATION PERIOD

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2–27</td>
<td>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.</td>
</tr>
<tr>
<td>Sept. 8–27</td>
<td>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.</td>
</tr>
<tr>
<td>Aug. 31</td>
<td>Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.</td>
</tr>
<tr>
<td>Sept. 12–23</td>
<td>In-Person Registration for new transfer students with at least full sophomore standing.</td>
</tr>
<tr>
<td>Sept. 12–27</td>
<td>In-Person Registration for new transfer students with at least full sophomore standing.</td>
</tr>
<tr>
<td>Sept. 27</td>
<td>Last day to register for Autumn Quarter, 1960.</td>
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<tr>
<td>Sept. 29–Oct. 4</td>
<td>Change of registration by appointment only.</td>
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<tr>
<td>Date</td>
<td>Event</td>
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<tr>
<td>Sept. 26—Monday</td>
<td>Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing</td>
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<td>Sept. 28—Wednesday</td>
<td>Instruction begins (8 a.m.) for all other students</td>
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<tr>
<td>Oct. 4—Tuesday</td>
<td>Last day to add a course</td>
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<tr>
<td>Nov. 1—Tuesday</td>
<td>Applications for bachelor's degrees and certificates to be conferred through Summer Quarter, 1961, due at Registrar's Office</td>
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<tr>
<td>Nov. 11—Friday</td>
<td>State Admission Day holiday</td>
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<tr>
<td>Nov. 18—Friday</td>
<td>Last day to submit applications for advanced credit examinations</td>
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<tr>
<td>Nov 23-28</td>
<td>Thanksgiving recess (6 p.m. to 8 a.m.)</td>
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<td>Dec. 10—Saturday</td>
<td>Advanced credit examinations</td>
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<td>Dec. 12-16</td>
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<td>Dec. 16—Friday</td>
<td>Quarter ends</td>
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ADMINISTRATION

BOARD OF REGENTS

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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 Howard, 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 Washing-
on 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 units (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 the required total. However, requirements for admission to the College of Fisheries are as follows:

- English 3 units
- One foreign language 2 units
- Algebra 1 unit
- Plane geometry 1 unit
- Social science 1 unit
- One laboratory science 1 unit
- (Physics is recommended)
- 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 UNACREDITED 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 bacherlor'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 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 pre­
diction 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 Trigo­
nometry) 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.
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 nonresident tuition.
This exemption is not granted to Summer Quarter students.

Incidental Fee, per quarter
Full-time resident students 37.50
Part-time resident students (registered for 6 credits or less, exclusive of ROTC) 15.00
Full-time nonresident students 82.50
Part-time nonresident students (registered for 6 credits or less, exclusive of ROTC) 50.00
Auditors do not pay an incidental fee; there are no other exemptions.

ASUW Fees
Membership, per quarter 8.50
Optional for auditors and part-time students.
Athletic admission ticket (optional for ASUW members) 3.00-5.00
Autumn, Winter, and Spring Quarters, $5.00; Winter and Spring Quarters, $3.00; Spring Quarter, $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 0.25
One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy.

Transcript Fee 0.50
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*

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Full-time resident student</td>
<td>$213.00</td>
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<tr>
<td>Full-time nonresident student</td>
<td>498.00</td>
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*Athletic Admission Ticket (optional)*

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<th>Amount</th>
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<tbody>
<tr>
<td>3.00-5.00</td>
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</table>

*Accident Insurance (optional)*

<table>
<thead>
<tr>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.60</td>
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</tbody>
</table>

*Special Fees and Deposits*

- Military uniform deposit, breakage ticket, and locker fees.
- 38.50

*Books and Supplies*

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<tr>
<th>Amount</th>
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<tbody>
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<td>75.00</td>
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*Board and Room*

<table>
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<tr>
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<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Room and meals in Men's Residence Halls</td>
<td>600.00</td>
</tr>
<tr>
<td>Room and meals in Women's Residence Halls</td>
<td>540.00-630.00</td>
</tr>
<tr>
<td>Room and meals in fraternity or sorority house</td>
<td>660.00-700.00</td>
</tr>
</tbody>
</table>

Initial cost of joining not included; this information may be obtained from the Interfraternity or Panhellenic Council.

*Personal Expenses*

<table>
<thead>
<tr>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>200.00</td>
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</table>

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.
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 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:**
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).
PROGRAMS IN FISHERIES

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. Ball
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
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) 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 techniques 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. Ball
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
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<td>302 Microbiology of Fisheries (5)</td>
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<td>Bacteria, yeasts, mold, and protozoans associated with fish; their characteristics and importance in the fisheries. Prerequisite, Zoology 111.</td>
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<td>303 Introduction to Invertebrate Fisheries (5)</td>
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<td>Taxonomy, morphology, and phylogeny of the invertebrate groups of importance to fisheries. Prerequisite, permission.</td>
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<td>426 Early Life History of Marine Fishes (5)</td>
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<td>453 Fresh-Water Fisheries Management: Biological (5)</td>
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<td>454 Communicable Diseases of Fishes (5)</td>
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<td>465 Problems in Fisheries Biology (6)</td>
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<td>480, 481 Introduction to Commercial Fishing Industry (4,4)</td>
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<td>482, 483 Analysis of Fisheries Products (2,2)</td>
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<td>484 Processing of Edible Fisheries Products (5)</td>
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<td>485 Fish By-Products and Spoilage (5)</td>
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<td>486 Research Problems in Fisheries Technology (5)</td>
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<td>495 Introduction to Fisheries Literature (2, maximum 6)</td>
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<td>501 On-the-Job Training (1-3, maximum 3 for M.S., 9 for Ph.D.)</td>
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<td>Guided on-the-job training in governmental or industrial fisheries organizations. Prerequisite, permission.</td>
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<td>503 Systematic Ichthyology (5)</td>
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<td>Principles and procedures of ichthyological taxonomy demonstrated by current problems and research. Prerequisites, 402 and permission.</td>
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<td>504 Principles of Technological Research in Fisheries (3)</td>
<td>LISTON</td>
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<td>A lecture and laboratory course designed to familiarize graduate students in fisheries with the methods used in technological research. Prerequisite, permission.</td>
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<td>505 Research Techniques in Shellfish Biology (5)</td>
<td>SPARKS</td>
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<td>A field and laboratory course dealing with research methods in the reproduction, growth, and mortality of oysters and clams.</td>
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<td>510 Fish Behavior (3)</td>
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<td>Behavior related to sensory-motor equipment. Design of experiments emphasized for studies ranging from naturalistic observation to controlled laboratory and field experiments. Prerequisite, permission.</td>
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<td>520 Graduate Seminar (2, maximum 6)</td>
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<td>Training in methods of searching fisheries literature.</td>
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<td>556 Age and Growth of Fishes (5)</td>
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<td>Principles of growth; methods of determining age and rates of growth in fresh-water and marine fishes. Prerequisites, 402, and Mathematics 383 or permission.</td>
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<td>557 Population Enumeration (5)</td>
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<td>Methods of enumerating animal populations; availability; dominant age groups; gear selectivity. Prerequisite, 356 or permission.</td>
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<td>558 Population Dynamics (5)</td>
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<td>Influence of natural and artificial factors on variation in abundance and yield from animal populations. Prerequisite, 557 or permission.</td>
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<td>604 Research (*, maximum 3 for M.S., 10 for Ph.D.)</td>
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<td>700 Thesis (*)</td>
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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 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 freshwater 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.) 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 481 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 101-102], 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.
有机化学实验室（2）
通常与232课程配套。准备和定性有机分析。先决条件，231,232（可能同时选修），和241。

有机化学（3）
化学和化工专业的学生和其它有资格的学生三到四学分的有机化学。结构，命名，反应和合成有机化合物。先决条件，170，可能同时选修。

有机化学（3）
继续335课程。先决条件，335。

有机化学（3）
继续336课程。先决条件，336。

有机化学实验室（2）
通常与335课程配套。有机合成。先决条件，335，可能同时选修。

有机化学实验室（2）
继续345课程。通常与336课程配套。先决条件，335，336和345，可能同时选修。

物理化学（4）
结构物理化学，原子和分子结构，气体，液体，固体，溶液，表面和胶体化学。先决条件，160，数学153，和大学物理。

物理化学（3）
溶液（电解质和非电解质）：热力学，同质和异质平衡。先决条件，355和数学251。

物理化学（3）
电化学和离子平衡；化学动力学和光化学。先决条件，356。

物理化学实验室（4）
先决条件，356或同时选修。

仪器分析（3）
Crittenden
介绍电子和光学分析方法。先决条件，221和358。

英语
101, 102, 103
写作（3,3,3）Leggett
有效表达的基础；收集，整理和评估写作材料。

远东和东斯拉夫语言和文学

日语
151, 152, 153
第一年阅读日语（5,5,5）McKinnon
阅读和翻译现代日语。先决条件，101-102或同意151，或这些系列可能同时选修与101-102，103; 151对152; 152对153。

351, 352, 353
阅读日语（5,5,5）McKinnon
阅读和翻译初级和中级材料。不向俄语专业的学生开放。不提供夏季课程。

俄语
101
俄语，A级（10）Gershevsky, Pahn
初级俄语。引入发音，拼写，阅读，语法，对话，练习和演练。学生获得六百词的词汇。

102-103
初级俄语（5-5）Novikow
引入发音，拼写，阅读，语法，对话，练习。学生获得六百词的词汇。

俄语
106
科学俄语学生（3）Gershevsky
介绍俄罗斯作为科学工具。阅读化学和物理等。仅向俄语专业学生开放。

107
科学俄语，A级（10）Gershevsky
介绍俄罗斯作为科学工具。仅向俄语专业学生开放。阅读化学和物理。仅向俄语专业学生开放。提供夏季课程。

森林学
350
森林管理（3）Brockman
森林和野生动物的关联；动物的习性。先决条件，初级，中级，和同意。

工程学
111
工程问题（3）Brown
介绍分析和解决简单工程问题的方法，特别是动力学和能量问题；介绍计算尺的使用；在系统基础上培训和研究。
Prerequisites, high school physics, advanced algebra, and trigonometry or concurrent with trigonometry.

**GEOLOGY**

101 Survey of Geology (5)  
Barksdale, Coombs, Mallory  
Prerequisite, high school chemistry.

102 Rocks and Minerals (5)  
Staff

**GERMANIC LANGUAGES AND LITERATURE**

110-111 First-year German (5-5)  
A beginning course devoted primarily to the reading objective. Not open to those who have taken 101-102.

121 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, 103 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, 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.

**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, Rooves, 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

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 equivalent has been completed.

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) I1lg, 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)  
Florey  
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)  
Ilg, 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
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ADMINISTRATION

BOARD OF REGENTS

Charles M. Harris, President
Winlock W. Miller, Vice-President
Grant Armstrong
Thomas Balmer
Donald G. Corbett
Charles F. Frankland
Mrs. J. Herbert Gardner

Helen Hoagland, Secretary

OFFICERS OF ADMINISTRATION

Henry Schmitz, Ph.D.
Harold P. Everest, M.A.
ETHELYN TONER, B.A.
Nelson A. Wahlstrom, B.B.A.
Donald K. Anderson, B.A.
Gordon D. Marckworth, M.F.

President of the University
Vice-President of the University
Registrar
Comptroller and Business Manager
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 Brantner, Jr., 1956, Resident Manager of the Charles Lathrop Pack Demonstration Forest
B.S.F., 1939, Washington; M.F., 1946, Yale

Mulligan, Brian O., 1946, Director of the Arboretum
N.D.H., 1933, England

Smith, Bernice L., 1955, Librarian
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. (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.)

June 17-June 21

REGISTRATION PERIOD

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. (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 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 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-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 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. (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 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. (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

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.

LECTURESHP

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.

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
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 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
Part-time resident students (registered for 6 credits or less, exclusive of ROTC) 10.00
Full-time nonresident students 52.50
**GENERAL INFORMATION**

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

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

**ASUW Fees**

<table>
<thead>
<tr>
<th>Membership, per quarter</th>
<th>8.50</th>
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<tbody>
<tr>
<td>Optional for auditors and part-time students.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Athletic admission ticket (optional for ASUW members), per year</th>
<th>3.00-5.00</th>
</tr>
</thead>
</table>

| Autumn, Winter, and Spring Quarters, $5.00; Winter and Spring Quarters, $3.00; Spring Quarter, $3.00 |

**Military Uniform Deposit, per year**

| 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. |

<table>
<thead>
<tr>
<th>Pack Forest Fee</th>
<th>10.00</th>
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<tbody>
<tr>
<td>Paid in Summer Quarter when course is taken at Pack Forest.</td>
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<table>
<thead>
<tr>
<th>Pack Forest Subsistence Fee</th>
<th>130.00</th>
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<tbody>
<tr>
<td>Approximate charge for meals during the quarter spent at Pack Forest.</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Breakage Ticket Deposit</th>
<th>3.00</th>
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<tbody>
<tr>
<td>Required in some laboratory courses; ticket is returnable for full or partial refund.</td>
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<thead>
<tr>
<th>Locker Fee, per quarter</th>
<th>1.50</th>
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<tr>
<td>Required of men students taking physical education activities.</td>
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</table>

<table>
<thead>
<tr>
<th>Grade Sheet Fee</th>
<th>.25</th>
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</thead>
<tbody>
<tr>
<td>One grade sheet is furnished each quarter without charge; the fee is charged for each additional copy.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Transcript Fee</th>
<th>.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>One transcript is furnished without charge; the fee is charged for each additional copy. Supplementary transcripts are 25 cents each.</td>
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</table>

<table>
<thead>
<tr>
<th>Graduation Fee</th>
<th>10.00</th>
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</thead>
</table>

**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

<table>
<thead>
<tr>
<th>Student Type</th>
<th>Fee</th>
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</thead>
<tbody>
<tr>
<td>Full-time resident student</td>
<td>$183.00</td>
</tr>
<tr>
<td>Full-time nonresident student</td>
<td>408.00</td>
</tr>
</tbody>
</table>

Athletic Admission Ticket (optional) 3.00-5.00
Accident Insurance (optional) 4.35

Special Fees and Deposits
Military uniform deposit, breakage ticket, and locker fees. 38.50

Books and Supplies 75.00

Board and Room
- Room and meals in Men's Residence Halls 540.00-630.00
- Room and meals in Women's Residence Halls 445.00-510.00
- Room and meals in student cooperative house 660.00-700.00
- Room and meals in fraternity or sorority house 500.00-550.00

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
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 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 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**

<table>
<thead>
<tr>
<th>Credit Units</th>
<th>First Quarter</th>
<th>Second Quarter</th>
<th>Third Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>For. 101 Development</td>
<td>For. 130 Elem. Forest Control</td>
<td>For. 160 Elem. Forest</td>
</tr>
<tr>
<td>3</td>
<td>Botany 114</td>
<td>Botany 115</td>
<td>Mensuration</td>
</tr>
<tr>
<td>3</td>
<td>English 101</td>
<td>Chemistry 111 or 115</td>
<td>Chemistry 112 or 116</td>
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<tr>
<td>3</td>
<td>Gen. Engr. 107</td>
<td>General</td>
<td>General</td>
</tr>
<tr>
<td>3</td>
<td>Drawing</td>
<td>Gen. Engr. 121</td>
<td>Math. 156 Algebra &amp; Calculus</td>
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<tr>
<td>3</td>
<td>Math. 104 Plane</td>
<td>Surveying</td>
<td>Phys. Educ. 175 Personal Health</td>
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<tr>
<td>1</td>
<td>Trig</td>
<td>Math. 155 Algebra &amp; Calculus</td>
<td>2</td>
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<tr>
<td></td>
<td>ROTC</td>
<td>ROTC</td>
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<td>18-19</td>
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**Summer Quarter**

*(Pack Forest)*

<table>
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<tr>
<th>Credit Units</th>
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<tr>
<td>5</td>
<td>For. 161 Mensuration Field Problems</td>
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<tr>
<td>5</td>
<td>For. 220 Intro. to Forest Ecology</td>
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</table>
### The Programs in Forestry

#### First Year

<table>
<thead>
<tr>
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<th>Credits</th>
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<tr>
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</tr>
<tr>
<td></td>
<td>For. 260 Mensuration</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>English 102 Composition</td>
<td>5</td>
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<tr>
<td></td>
<td>Physics 101 and 107</td>
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<td></td>
<td>ROTC</td>
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#### Second Year

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<tr>
<td></td>
<td>For. 206 Wood Technology</td>
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<tr>
<td></td>
<td>Botany 116 Forestry</td>
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</tr>
<tr>
<td></td>
<td>Economics 211 General</td>
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<tr>
<td></td>
<td>Physics 102 and 108</td>
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<td>ROTC</td>
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#### Third Year

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<tr>
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<td>For. 106 Dendrology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>For. 210 Elem. Forest Soils</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>For. 240 General Logging</td>
<td>2</td>
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<tr>
<td></td>
<td>For. 273 Major Forest</td>
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<tr>
<td></td>
<td>Physics 103 and 109</td>
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<tr>
<td></td>
<td>ROTC</td>
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#### Fourth Year

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

#### First Year

<table>
<thead>
<tr>
<th>Quarter</th>
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<tr>
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<td>For. 310 Gen. Forest Soils</td>
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<tr>
<td></td>
<td>For. 403 Timber Physics</td>
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<td></td>
<td>Botany 361 Forest</td>
<td>5</td>
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<tr>
<td></td>
<td>Pathology</td>
<td>5</td>
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#### Second Year

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<th>Quarter</th>
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<tbody>
<tr>
<td></td>
<td>For. 321 Silvics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>For. 372 Seasoning &amp; Preservation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>For. 465 Forest Photo</td>
<td>3</td>
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<tr>
<td></td>
<td>Zoology 204 Forestry</td>
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#### Third Year

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<th>Quarter</th>
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<tr>
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<td>For. 322 Silvicultural Methods</td>
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<tr>
<td></td>
<td>For. 430 Adv. Fire Control</td>
<td>3</td>
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<td>English 253 Factual</td>
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#### Fourth Year

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<tr>
<td></td>
<td>For. 335 Insect Control</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>For. 409 Forest Policy &amp; Administration</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>For. 460 Forest Management</td>
<td>5</td>
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### Curriculum in Logging Engineering

#### First Year

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<tr>
<td></td>
<td>For. 404 Timber Physics</td>
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<td></td>
<td>Botany 361 Forest</td>
<td>5</td>
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<tr>
<td></td>
<td>Pathology</td>
<td>5</td>
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<tr>
<td></td>
<td>Civil Engr. 212 Route Surveying</td>
<td>3</td>
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#### Second Year

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<tbody>
<tr>
<td></td>
<td>For. 321 Silvics</td>
<td>3</td>
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<tr>
<td></td>
<td>For. 372 Seasoning &amp; Preservation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>For. 440 Construction</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Civil Engr. 213 Location &amp; Earthwork</td>
<td>3</td>
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<td>Approved electives</td>
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#### Third Year

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<th>Course</th>
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<tbody>
<tr>
<td></td>
<td>For. 322 Silvicultural Methods</td>
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<td></td>
<td>For. 335 Insect Control</td>
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<td>Civil Engr. 315</td>
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<td>Photogrammetry</td>
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#### Fourth Year

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<tr>
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<td>For. 442 Logging Engr.</td>
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<td>For. 460 Forest Management</td>
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<tr>
<td></td>
<td>For. 446 Field Studies</td>
<td>3</td>
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<tr>
<td></td>
<td>For. 447 Field Studies</td>
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<tr>
<td></td>
<td>For. 448 Field Studies</td>
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<td>For. 449 Field Studies</td>
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38  THE  COLLEGE  OF  FORESTRY

CURRICULUM  IN  FOREST  PRODUCTS

Third Year

<table>
<thead>
<tr>
<th>FIRST QUARTER CREDITS</th>
<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
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<tbody>
<tr>
<td>For. 320 Silviculture  3</td>
<td>For. 307 Wood Structure 3</td>
<td>For. 370 Wood Preservation 3</td>
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<tr>
<td>For. 404 Timber Physics 5</td>
<td>For. 461 Forest Management 3</td>
<td>For. 371 Wood Preservation Lab. 2</td>
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<td>Approved electives 5</td>
<td>Approved electives 6</td>
<td>Botany 361 Forest Pathology 5</td>
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Fourth Year

<table>
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<tr>
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<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>For. 470 Forest Products Industries 5</td>
<td>For. 472 Plywood, Lamination &amp; Glues 5</td>
<td>For. 476 Wood Pulp 6</td>
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<tr>
<td>For. 481 Milling 5</td>
<td>For. 483 Kiln Drying 3</td>
<td>For. 482 Manufacturing Problems 5</td>
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<tr>
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<td>Approved electives 7</td>
<td>For. 484 Field Studies 2</td>
</tr>
<tr>
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</table>

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, suppression, detection, and suppression. Prerequisite, 101 or 301.

140 Forest Surveying (5)  Thomas
Plane surveying with special emphasis on forest topographic mapping, including establishment of ground control through the use of the compass, Abney level, transit, level, steel tape, trailer chain and tape and pacing. 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)  Gossel
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.
THE PROGRAMS IN FORESTRY

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) Gessel
Advanced study of physical, chemical, biological, and morphological characteristics of forest soils. Consideration of soil properties important to tree growth. Introduction to soil development and classification. Prerequisites, 210, 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) Gessel
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)  Markworth
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)  Pearson
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)  Pearson
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)  Pearson

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.
## THE PROGRAMS IN FORESTRY

### 482 Manufacturing Problems (5)
Thomas

Distribution and marketing of lumber, plywood, pulp, and other forest products; inter-regional and intra-industry competition; industry problems. Prerequisites, 470, 472, 476, and 481.

### 483 Theory and Practice of Kiln Drying (3)
Grondal

Wood-liquid relationships and hygrometry; application of gas laws. Problems in the design of dry kilns. Prerequisite, 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)

Staf

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)
Marchworth

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; 153 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 259 Physical Education Activities (Men) (1 each) Staff
106, basketball; 107, track; 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); 125, 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; 226, intermediate riding (fee); 230, ski racing (fee); 231, intermediate skiing (fee); 232, advanced skiing (fee); 233, 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.

ZOOTOLOGY

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)  Staff

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
THE PROGRAMS IN FORESTRY

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
120 Introduction to Public Speaking (5) Staff
327 Extempore Speaking (3) Staff

ZOOLOGY
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 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.
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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
Mar. 26-Mar. 28
Mar. 26-Mar. 28

Registration for students in residence Winter Quarter, 1958. (Registration appointments will be issued on presentation of ASUW cards beginning January 24.)
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.)
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
JUNE 16—JUNE 20

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
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

6
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. (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
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. (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.)
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

BOARD OF REGENTS

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HAROLD S. SHEFELMAN, Vice-President
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LLOYD L. WIEHL

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CHARLES M. HARRIS
JOHN L. KING
WINLOCK W. MILLER
LLOYD L. WIEHL

Seattle
Seattle
La Conner
Entiat
Seattle
Seattle
Yakima

HELEN HOAGLAND, Secretary

OFFICERS OF ADMINISTRATION

HENRY SCHMITZ, Ph.D.
HAROLD P. EVEREST, M. A.
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DONALD K. ANDERSON, B.A.
HENRY A. BURD, Ph.D., L.L.D., (Hon.)
HENRIETTA WILSON, M.A.

President of the University
Vice-President of the University
Registrar
Comptroller and Business Manager
Dean of Students
Acting Dean of the Graduate School
Assistant to the Dean

RESEARCH COMMITTEE OF THE GRADUATE SCHOOL

INITIATIVE 171 SECTION (MEDICINE AND BIOLOGY)

HENRY A. BURD, Chairman
RICHARD J. BLANDAU, Anatomy
HOWARD C. DOUGLAS, Microbiology
W. THOMAS EDMONDSON, Zoology
WADE VOLWILER, Medicine

Edwin G. Krebs, Biochemistry
Donald F. McDonald, Surgery
Bastian J. D. Meeuse, Botany
Frederic C. Moll, Pediatrics
T. C. Ruch, Physiology and Biophysics

WILLIAM T. SIMPSON, Chemistry

RESEARCH FUND OF THE GRADUATE SCHOOL SECTION

(ARTS, HUMANITIES, AND SOCIAL SCIENCES)

HENRY A. BURD, Chairman
SIDNEY S. CULBERT, Psychology
BOYER GONZALES, Art

George A. Lundberg, Sociology
Arnold Stein, English
Bayard O. Wheeler, General Business

EXECUTIVE COMMITTEE OF THE GRADUATE SCHOOL

HENRY A. BURD, Chairman
CARROLL E. REED, Germanics
KATHLEEN MUNRO, Music
JOHN H. MANLEY, Physics
VERNON A. MUND, Economics

Kermit O. Hanson, Accounting,
Finance, and Statistics
Joseph L. McCarthy, Chemical Engineering
Hans Neurath, Biochemistry

Elmer M. Plein, Pharmacy

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), Brensts
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

Anderson, Arthur G., Jr., 1946 (1957), Professor of Chemistry
A.B., 1940, Illinois; M.S., 1942, Ph.D., 1944, Michigan

Anderson, Berton Emmett, 1948 (1950), Associate Professor of Dental Science
and Literature; Assistant Dean of the School of Dentistry; Director of Post-
graduate Dental Education; Director of Admissions of School of Dentistry
D.M.D., 1925, Oregon

Anderson, 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

Anderson, Julia M., 1950, Assistant Professor of Nursing
B.S., 1951, Minnesota; R.N., 1936, Huntington Memorial School of Nursing, California;

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

Baily, Athol Romayne, 1949 (1955), Associate Professor of Industrial Education
B.S., 1931, Kansas State Teachers College; M.A., 1936, Ed.D., 1949, Missouri

Baldwin, 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

Balise, Theodore Joseph, 1947 (1955), Professor of Human Relations and Administration
B.A., 1939, Morningside College (Iowa); M.A., 1945, Ph.D., 1953, Washington

Barse, 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

Bartlett, James MacArthur, Jr., 1948, Assistant Professor of Music
B.A., 1945, Harvard; B.Mus., 1946, M.Mus., 1947, Yale

Bennett, Ross Allen, 1940 (1954), Professor of Mathematics
A.B., 1936, M.S., 1937, Michigan; Ph.D., 1940, Illinois

Benson, Humbert E., 1931 (1948), Professor of Communications
L.L.B., 1930, Minnesota; B.A., 1942, Washington

Berg, Kenneth Bernard, 1950 (1957), Professor of Accounting

Bergseth, Frederick Robert, 1947 (1957), Professor of Electrical Engineering

Bevis, Leura Dorothy, 1947 (1956), Associate Professor of Librarianship

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
L.L.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), Associate Professor of Physics
B.S., 1943, Yale; M.S., 1949, Ph.D., 1951, Illinois

Branow, 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

Brenos, Homer, Jr., 1948 (1956), Associate Professor of Elementary Education

Bostetter, Edward Everett, 1940 (1947), Associate Professor of English

Bower, 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

Brewer, Stanley Harold, 1946 (1956), Professor of Transportation

Brooks, Marion Ruth, 1947 (1955), Associate Professor of Physical Education
B.S., in M.E., 1950, Alberta; M.S. in Min.E., 1951, Columbia

Briggs, James Robert, 1952 (1955), Associate Professor of Business Administration

Brocket, 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

Brook, Marion Ruth, 1947 (1955), Associate Professor of Physical Education
B.S., 1933, M.S., 1936, Wisconsin; Ph.D., 1954, New York

Brown, Edward, 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

Bryan, 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

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 Courright, 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

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

Crain, Richard Willson, Sr., 1936 (1953), Associate Professor of Mechanical Engineering

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

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 Gottingen (Germany)
Decker, 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

Demmerly, 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

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

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

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

Paris, 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

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

Franzke, 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

Fuller, Steven D., 1946 (1955), Assistant Professor of Art

Gallagher, Maragol Good, 1944 (1953), Professor of Law; Law Librarian

Ganzer, Victor Martin, 1947 (1953), Professor of Aeronautical Engineering
B.A., 1933, Augustana College (Illinois); B.S. in A.E., 1941, Washington

Garfield, Viola Edmundson, 1937 (1955), Associate Professor of Anthropology
B.A., 1928, M.A., 1931, Washington; Ph.D., 1939, Columbia

Garrison, William Louis, 1950 (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 Business 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
Gray, Robert Simpson, 1939 (1951), Assistant Professor of Drama

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

Grinshteyn, Austin, 1949, Professor of Business Policy; Dean of the College of Business Administration

Gromen, 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

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

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, Donald 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

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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

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

Heinitz, Eva, 1948 (1956), Associate Professor of Music
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

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

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

Henry, Bernard Stauffer, 1931 (1941), Professor of Microbiology
B.S., 1925, M.A., 1926, Ph.D., 1931, California

Hensley, Merdeces Hoover, 1939 (1952), Lecturer in Art

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

Higgis, Paul McClellan, 1926 (1939), Assistant Professor of Physics
B.S., 1919, Washington

Hill, 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

18
Hill, W. Ryland, 1941 (1953), Professor of Electrical Engineering

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

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

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, 1948 (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

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

Ilg, 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

Jackson, William A. Douglas, 1955, Assistant Professor of Geography
B.A., 1946, M.A., 1949, Toronto; Ph.D., 1953, Maryland

Jacobs, Melville, 1928 (1952), Associate Professor of Music
B.A., 1922, M.A., 1923, Ph.D., 1931, California; Ph.D., 1937, Harvard

Jacobsohn, Boris Abbott, 1948 (1955), Associate Professor of Physics
B.S., 1938, A.M., 1939, Columbia; Ph.D., 1947, Chicago

Jacobsohn, Boris Abbott, 1948 (1955), Associate Professor of Physics
A.B., 1938, A.M., 1939, Columbia; Ph.D., 1947, Chicago

Jackson, William A. Douglas, 1955, Assistant Professor of Geography
B.A., 1946, M.A., 1949, Toronto; Ph.D., 1953, Maryland

Jackson, William A. Douglas, 1955, Assistant Professor of Geography
A.B., 1946, M.A., 1949, Toronto; Ph.D., 1953, Maryland

Jansen, Marius Berthus, 1950 (1955), Associate Professor of Japanese History

Jensen, Lyle Howard, 1949 (1957), Associate Professor of Anatomy
B.A., 1939, Walla Walla College; Ph.D., 1944, Washington

Jern, Robert Morton, 1948 (1955), Professor of Anthropology
B.A., 1948, 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

Jacobsohn, Boris Abbott, 1948 (1955), Associate Professor of Physics
A.B., 1938, A.M., 1939, Columbia; Ph.D., 1947, Chicago

Jansen, Marius Berthus, 1950 (1955), Associate Professor of Japanese History

Jepsen, John Hunnicutt, 1926 (1927), Associate Professor of Educational Sociology
A.B., 1920, Earlham College; M.A., 1924, Iowa

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

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

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

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

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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

Korng, Jacob, 1955 (1956), Assistant Professor of English
B.A., 1943, City College of New York; Ph.D., 1952, Columbia

Krebs, Edwin Gerhard, 1948 (1957), Professor of Biochemistry
A.B., 1940, Illinois; M.D., 1943, Washington University (St. Louis)

Krucekberg, 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

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

La Russo, Dominic Anthony, 1951 (1956), Assistant Professor of Speech

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

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

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

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, 1935 (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

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

Maki, John McGilvrey, 1939 (1956), Professor of Japanese Government and Politics

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

Marchward, 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
Mason, Alden C., 1946 (1957), Associate Professor of Art

Matchett, William, 1954 (1956), Assistant Professor of English

McAdams, Laura Elizabeth, 1941 (1951), Associate Professor of Home Economics
B.S., 1923, M.S., 1932, Kansas State

McCaflree, Kenneth Maurice, 1949 (1956), Associate Professor of Economics
B.A., 1940, Southwestern College (Kansas); M.A., 1942, Denver; Ph.D., 1950, Chicago

McCarthey, Joseph Le Page, 1941 (1952), Professor of Chemical Engineering
B.S. in Ch.E., 1934, Washington; M.S., 1936, Idaho; Ph.D., 1938, McGill

McCarthey, 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

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

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, 1928 (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

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

Mills, Blake David, Jr., 1946 (1947), Professor of Mechanical Engineering

Mills, Caswell Albert, 1942 (1954), Lecturer in Physical Education

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

Moseley, Spencer Altemont, 1948 (1954), Assistant Professor of Art

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, 1959 (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

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

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

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

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

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

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
Penington, Ruth Esther, 1928 (1951), Professor of Art

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

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
Ph.C., 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

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 (1950), 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

Reed, Richard John, 1954, Assistant Professor of Meteorology
B.S., 1945, California Institute of Technology; Sc.D., 1949, Massachusetts Institute of Technology

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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

Reiffel, 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

Reeves, George Spencer, 1935 (1948), Associate Professor of Physical Education
B.S., 1933, Oregon State; M.S., 1937, Oregon; M.P.H., 1952, California

ReiBer, 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

ReiBer, 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, Associate Professor of Zoology
B.A., 1934, Pomona; Ph.D., 1939, California

Reichberg, 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

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

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
Sandeman, 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

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 (1950), Professor of Physics
B.S.E., 1937, Michigan; M.A., 1940, Buffalo; Ph.D., 1945, California

Schmidt, Richard P., 1953 (1958), Assistant Professor of Surgery and Medicine
B.S., 1943, Kent State; M.D., 1945, Louisville

Schrag, Clarence Clyde, 1944 (1949), Assistant Professor of Sociology

Schrieber, Albert N., 1948 (1956), Professor of Production and Policy and Administration

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 Slavic Culture
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

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

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

Skachen, Julia Goodsell, 1948, 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

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

Sterl, 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

Sturtz, 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

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
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 

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 

Tsudin, Mary Stickels, 1942 (1955), Professor of Nursing; Dean of the School 
of Nursing 

Tsutakawa, George, 1946 (1957), Associate Professor of Art 

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 

Vargas-Barón, Anibal, 1949, Associate Professor of Spanish 
B.A., 1926, Asbury College; M.A., 1929, Ph.D., 1943, Washington

Vasahelyi, 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

Verrill, John Weedon, 1948 (1950), Associate Professor of Music 
B.Mus., 1929, Minneapolis College of Music; Certificate of Music, 1932, Liszt 
 Conservatory (Budapest); B.A., 1934, Minnesota

Vopni, Sylvia Freda, 1952 (1950), Assistant Professor of Education 

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

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

Welkel, 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

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

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., 1936, 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

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

Woolf, 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
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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.

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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

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.
Advanced Degree Fees, dentistry and surgery

<table>
<thead>
<tr>
<th>Category</th>
<th>Resident students, per quarter</th>
<th>Nonresident students, per quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident students, per quarter</td>
<td>100.00</td>
<td>165.00</td>
</tr>
<tr>
<td>Nonresident students, per quarter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time resident students</td>
<td>27.50</td>
</tr>
<tr>
<td>Part-time resident students (registered for 6 credits or less)</td>
<td>10.00</td>
</tr>
<tr>
<td>Full-time nonresident students</td>
<td>52.50</td>
</tr>
<tr>
<td>Part-time nonresident students (registered for 6 credits or less)</td>
<td>35.00</td>
</tr>
</tbody>
</table>

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

ASUW Fees

<table>
<thead>
<tr>
<th>Membership, per quarter</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership, per quarter</td>
<td>8.50</td>
</tr>
<tr>
<td>Optional for auditors, part-time students, and persons registered for thesis only or degree final only.</td>
<td></td>
</tr>
</tbody>
</table>

Athletic admission ticket (optional for ASUW members)

<table>
<thead>
<tr>
<th>Season</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn, Winter, and Spring Quarters</td>
<td>3.00-5.00</td>
</tr>
<tr>
<td>Spring Quarter</td>
<td>3.00</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master's degree candidates</td>
<td>2.00</td>
</tr>
<tr>
<td>Doctor's degree candidates</td>
<td>25.00</td>
</tr>
<tr>
<td>The fee covers the cost of binding manuscript copies for the University Library and the cost of microfilm publication.</td>
<td></td>
</tr>
</tbody>
</table>

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.

\[
\begin{align*}
\text{Tuition, Incidental, and ASUW Membership Fees} & \\
\text{Full-time resident student} & $183.00 \\
\text{Full-time nonresident student} & 408.00 \\
\text{Athletic Admission Ticket (optional)} & 3.00-5.00 \\
\text{Accident Insurance (optional)} & 3.75 \\
\text{Books and Supplies} & 75.00 \\
\text{Board and Room} & \\
\text{Room and meals in Men's Residence Halls} & 600.00 \\
\text{Room and meals in Women's Residence Halls} & 540.00-630.00 \\
\text{Personal Expenses} & 200.00
\end{align*}
\]

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-
THE GRADUATE PROGRAMS

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. WOODBURNE, 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>311</td>
<td>Indian Cultures of the Pacific Northwest (3)</td>
<td>Garfield</td>
</tr>
<tr>
<td>314J</td>
<td>Peoples of Central and Northern Asia (3)</td>
<td>Posch</td>
</tr>
<tr>
<td></td>
<td>Offered jointly with the Far Eastern and Russian Institute.</td>
<td></td>
</tr>
<tr>
<td>315</td>
<td>Peoples of the Far North (3)</td>
<td>Garfield</td>
</tr>
<tr>
<td>317</td>
<td>Ethnology of Southeast Asia (3)</td>
<td>Staff</td>
</tr>
<tr>
<td>320</td>
<td>Primitive Technology (5)</td>
<td>Greengo</td>
</tr>
</tbody>
</table>
350 Basis of Civilization (3)
370 Methods and Problems of Archaeology (5)
371 Analysis of Archaeological Data (5)
(Not offered 1957-58.)
380 Primate and Human Evolution (3)
390 Introduction to Anthropology (5)
417 Middle American Civilization (2)
418 Ethnology of Meso-America (3)
425 Applied Anthropology (3)
431 Primitive Literature (3)
432 Magic, Religion, and Philosophy (3)
433 Primitive Art (3)
434 Comparative Morals and Value Systems (3)
435, 436 Primitive and Peasant Economic Systems (3,3)
(436 not offered 1957-58.)
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)
Hulse
(Not offered 1957-58.)
450 Introduction to General Linguistics (5)
Jacobs, Reed
451 American Indian Languages (3)
Jacobs
460 History of Anthropological Theory (3)
Staff
480 Physical Anthropology: Anatomy (3)
Hulse
481 Physical Anthropology: Anthropometry (3)
Hulse
482 Physical Anthropology: Genetics (3)
Hulse
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)
Garfield
(Not offered 1957-58.)
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)
Jacobs, Spiro
(Not offered 1957-58.)
542 Personality Patterns in Japanese Culture (3)
Hulse
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
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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>307, 308, 309</td>
<td>Portrait Painting (3,3,3)</td>
<td>Brazeau</td>
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<tr>
<td>310, 311, 312</td>
<td>Interior Design (5,5,5)</td>
<td>Foote</td>
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<tr>
<td>316, 317, 318</td>
<td>Design for Industry (3,3,3)</td>
<td>Del Giudice</td>
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<tr>
<td>322, 323, 324</td>
<td>Sculpture (3,3,3)</td>
<td>Du Pen</td>
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<tr>
<td>332, 333, 334</td>
<td>Advanced Sculpture (3,3,3)</td>
<td>Du Pen</td>
</tr>
<tr>
<td>340</td>
<td>Design for Printed Fabrics (3)</td>
<td>Penington</td>
</tr>
<tr>
<td>357</td>
<td>Metal Design (3)</td>
<td>Penington</td>
</tr>
<tr>
<td>358</td>
<td>Jewelry Design (3)</td>
<td>Penington</td>
</tr>
<tr>
<td>359</td>
<td>Enameling (3)</td>
<td>Penington</td>
</tr>
<tr>
<td>360, 361, 362</td>
<td>Life (3,3,3)</td>
<td>Staff</td>
</tr>
</tbody>
</table>
366, 367, 368 Commercial Design (3,3,3)  
369, 370, 371 Costume Design (2,2,2)  
375, 376, 377 Advanced Painting (3,3,3)  
382 Art of India (3)  
   (Offered alternate years; offered 1958-59.)  
383 Art of China (3)  
   (Offered alternate years; offered 1958-59.)  
384 Art of Japan and Korea (3)  
   (Offered alternate years; offered 1958-59.)  
386 The Art of the Ancient Near East (3)  
   (Offered alternate years; offered 1957-58.)  
387 Islamic Art (3)  
   (Offered alternate years; offered 1957-58.)  
388 Medieval Art (3)  
   (Offered alternate years; offered 1957-58.)  
390 Oriental Ceramic Art (2)  
391 Origins of Modern Art (2)  
392 Art Since Cezanne (2)  
410 Illustration (5)  
423, 424, 425 Art History and Criticism (2,2,2)  
436, 437, 438 Sculpture Composition (5,5,5)  
445, 446, 447 Advanced Industrial Design (5,5,5)  
450, 451, 452 Advanced Printmaking (5,5,5)  
457, 458, 459 Advanced Metal and Jewelry (3,3,3)  
463, 464, 465 Composition (3,3,3)  
466, 467, 468 Commercial Design (5,5,5)  
472, 473, 474 Advanced Interior Design (5,5,5)  
479, 480, 481 Fashion Illustration (2,2,2)  
485, 486, 487 Advanced Ceramic Art (5,5,5)  
490 Art Education in the Schools (3)  
498 Individual Projects (3-5, maximum 15)  
500, 501, 502 Seminar in Art Education (3-5,3-5,3-5)  
507, 503, 509 Advanced Portrait Painting (3,3,3)  
510 Advanced Illustration (3 or 5)  
522, 523, 524 Advanced Sculpture (3 or 5, 3 or 5, 3 or 5)  
530, 531, 532 Advanced Design (3 or 5, 3 or 5, 3 or 5)  
550, 551, 552 Advanced Printmaking (3 or 5, 3 or 5, 3 or 5)  
553, 554, 555 Advanced Ceramic Art (3 or 5, 3 or 5, 3 or 5)  
560, 561, 562 Advanced Life Painting (3 or 5, 3 or 5, 3 or 5)  
563, 564, 565 Composition (3 or 5, 3 or 5, 3 or 5)  
600 Research (*)  
   Thesis (*)  

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)  
401L Cytology Laboratory (2)  
   Must be accompanied by 401.  
451 Genetics (3 or 5)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>452</td>
<td>Cytogenetics (3 or 5)</td>
<td>Roman</td>
</tr>
<tr>
<td>453</td>
<td>Topics in Genetics (2, maximum 6)</td>
<td>Roman, Stadler</td>
</tr>
<tr>
<td>454</td>
<td>Evolutionary Mechanisms (3)</td>
<td>Kruckeberg</td>
</tr>
<tr>
<td>472</td>
<td>Principles of Ecology (3)</td>
<td>Edmondson</td>
</tr>
<tr>
<td>472L</td>
<td>Ecology Laboratory (2)</td>
<td>Edmondson</td>
</tr>
<tr>
<td>473</td>
<td>Limnology (5)</td>
<td>Edmondson</td>
</tr>
<tr>
<td>501</td>
<td>Advanced Cytology (5)</td>
<td>Hsu</td>
</tr>
<tr>
<td>508</td>
<td>Cellular Physiology (3)</td>
<td>Whiteley</td>
</tr>
<tr>
<td>508L</td>
<td>Cellular Physiology Laboratory (2)</td>
<td>Whiteley</td>
</tr>
<tr>
<td>551</td>
<td>Genetics of Microorganisms (3)</td>
<td>Stadler</td>
</tr>
<tr>
<td>552</td>
<td>Genetics of Microorganisms Laboratory (3)</td>
<td>Stadler</td>
</tr>
<tr>
<td>573</td>
<td>Topics in Limnology (2)</td>
<td>Edmondson</td>
</tr>
</tbody>
</table>

### BOTANY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>331</td>
<td>Ornamental Plants (3)</td>
<td>Kruckeberg</td>
</tr>
<tr>
<td>332</td>
<td>Taxonomy Field Trip (*, maximum 12)</td>
<td>Staff</td>
</tr>
<tr>
<td>361</td>
<td>Forest Pathology (5)</td>
<td>Stuntz, Walker</td>
</tr>
<tr>
<td>371</td>
<td>Elementary Plant Physiology (5)</td>
<td>Meeuse</td>
</tr>
<tr>
<td>431, 432</td>
<td>Taxonomy (5,5)</td>
<td>Hitchcock</td>
</tr>
<tr>
<td>441, 442, 443</td>
<td>Morphology (5,5,5)</td>
<td>Blasor</td>
</tr>
<tr>
<td>444</td>
<td>Plant Anatomy (5)</td>
<td>Blasor</td>
</tr>
<tr>
<td>445</td>
<td>Algalogy (6)</td>
<td>Staff</td>
</tr>
<tr>
<td>461</td>
<td>Yeasts and Molds (5)</td>
<td>Stuntz</td>
</tr>
<tr>
<td>462, 463</td>
<td>Mycology (5,5)</td>
<td>Stuntz</td>
</tr>
<tr>
<td>471</td>
<td>Mineral Nutrition (5)</td>
<td>Walker</td>
</tr>
<tr>
<td>472</td>
<td>Plant Physiology (5)</td>
<td>Meeuse, Walker</td>
</tr>
<tr>
<td>473</td>
<td>Plant Physiology (5)</td>
<td>Meeuse</td>
</tr>
<tr>
<td>474</td>
<td>Plant Physiology (5)</td>
<td>Walker</td>
</tr>
<tr>
<td>475</td>
<td>Problems in Algal Physiology (6)</td>
<td>Meeuse</td>
</tr>
<tr>
<td>498</td>
<td>Special Problems in Botany (1-15)</td>
<td>Staff</td>
</tr>
<tr>
<td>520</td>
<td>Seminar (1)</td>
<td>Staff</td>
</tr>
<tr>
<td>521</td>
<td>Seminar in Plant Physiology (1, maximum 5)</td>
<td>Meeuse, Walker</td>
</tr>
<tr>
<td>522</td>
<td>Seminar in Morphology and Taxonomy (*, maximum 5)</td>
<td>Staff</td>
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<tr>
<td>600</td>
<td>Research (*)</td>
<td>Staff</td>
</tr>
<tr>
<td>Thesis (*)</td>
<td></td>
<td>Staff</td>
</tr>
</tbody>
</table>
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) Staff
451 Advanced Organic Chemistry (3) Staff

Advanced methods of preparation, separation, and purification of organic compounds. Prerequisite, 445 or permission.

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.
THE GRADUATE SCHOOL

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
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 552, or permission.

530, 551, 552 Advanced Physical Chemistry (3,3,3) Staff
Thermodynamics and statistical mechanics, atomic and molecular structure, kinetic theory, and chemical kinetics. Prerequisite, 337 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)
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)  
N391 Sight Reading (0)  
413 The Pre-Socratic Philosophers (3)  
        (Offered alternate years; offered 1958-59.)  
414 Plato (3)  
        (Offered alternate years; offered 1958-59.)  
415 Aristotle (3)  
        (Offered alternate years; offered 1958-59.)  
420 Greek Epic (3)  
        (Offered alternate years; offered 1957-58.)  
422 Herodotus and the Persian Wars (3)  
        (Offered alternate years; offered 1957-58.)  
424 Thucydides and the Peloponnesian War (3)  
        (Offered alternate years; offered 1957-58.)  
442, 443, 444 Greek Drama (3,3,3)  
        (Offered alternate years: offered 1957-58.)  
451 Lyric Poetry (3)  
        (Offered alternate years; offered 1958-59.)  
453 Pindar: The Epinician Odes (3)  
        (Offered alternate years; offered 1958-59.)  
455 Hellenistic Poetry (3)  
        (Offered alternate years; offered 1958-59.)  
490 Supervised Study (3-5, maximum 15)  
520 Seminar (3-5, maximum 15)  
600 Research (3-5, maximum 15)  
Thesis (*)

LATIN

309 Advanced Grammar and Composition (1, maximum 4)  
N391 Sight Reading (0)  
401 Medieval Latin (3)  
404 Comparative Grammar of Latin and Greek (3)  
412 Lucrèce (3)  
        (Offered alternate years; offered 1958-59.)  
413 Cicero's Philosophical Works (3)  
        (Offered alternate years; offered 1958-59.)  
414 Seneca (3)  
        (Offered alternate years; offered 1958-59.)  
422 Livy (3)  
        (Offered alternate years; offered 1958-59.)  
424 Tacitus (3)  
        (Offered alternate years; offered 1958-59.)  
426 Roman Biography (3)  
        (Offered alternate years; offered 1958-59.)  
430 Latin Novels (3)  
        (Offered alternate years; offered 1957-58.)  
442 Roman Drama (3)  
        (Offered alternate years; offered 1957-58.)
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 (*)

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)  
  Bonson

403 Problems in Public Relations (3)  
  Christian

406 Press and Society (3)  
  Smith

411 Introduction to Mass Communications Research (3)  
  Edelstein

414 History of Journalism (3)  
  Smith

415 Comparative Communications (3)  
  Staff
416 Press and World Affairs (3)  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)  Adams
(Opened Summer Quarter only.)
461 Television Production (3)  Ryan
465 Television Workshop Laboratory (2-4, maximum 8)  Ryan
475 Station Organization (3)  Adams
Prerequisite, permission.
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)  Hodges
410 History of Wigs and Wig Making (2)  Crider
411, 412, 413 Playwriting (3,3,3)  Hughes
414 Stage Lighting (3)  Conway, Lounsbury

McKenzie
Staff
Benson
Smith
Edelstein
Smith
McKenzie
McKenzie
Benson
Benson
Cranston
Cranston
Adams
Cranston
Ryan
Mally
Staff
Staff
Adams
Ryan
Ryan
Adams
Cranston
415 Advanced Stage Lighting (3)  
417, 418, 419 Advanced Theatre Workshop (2,2,2)  
420 History of Masks and Mask Making (2)  
421, 422, 423 Advanced Acting (3,3,3)  
426 High School Play Production (3)  
427, 428, 429 History of the Theatre (2,2,2)  
434, 435, 436 Children’s Theatre (3,3,3)  
437, 438, 439 Creative Dramatics with Children (3,3,3)  
451, 452, 453 Representative Plays (3,3,3)  
481, 482, 483 Directing (3,3,3)  
497 Theatre Organization and Management (2)  
509 Advanced Stage Costume Construction and Design (3)  
515 Scenic Projection (3)  
517 Advanced Stage Design (3)  
518 Technical Direction (3, maximum 9)  
519 Lighting Research and Development (3, maximum 9)  
551-552-553 Teaching of Acting (2-2-2)  
581 Advanced Directing (3)  
601, 602, 603 Research (5,5,5)  
Thesis (*)  

Staff
Staff
Davis
Harrington
Gray, Harrington
Conway
Carr
Haaga, Siks
Hughes
Harrington
Hughes
Crider
Conway
Lounsbury
Lounsbury
Harrington
Hughes
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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>National Income Analysis (5)</td>
<td>Cartwright, Crutchfield, Gordon</td>
</tr>
<tr>
<td>302</td>
<td>Intermediate Economics (5)</td>
<td>Mund, Worcester</td>
</tr>
<tr>
<td>306</td>
<td>Development of Economic Thought (5)</td>
<td>Gordon</td>
</tr>
<tr>
<td>404</td>
<td>Advanced Price Analysis (5)</td>
<td>Crutchfield</td>
</tr>
<tr>
<td>503</td>
<td>Economics of the Firm (3)</td>
<td>Worcester</td>
</tr>
<tr>
<td>505</td>
<td>Value and Distribution Theory (3)</td>
<td>Mund</td>
</tr>
<tr>
<td>506</td>
<td>Income and Employment Theory (3)</td>
<td>Cartwright</td>
</tr>
<tr>
<td>507</td>
<td>Neo-Classical Economics and Its Critics (3)</td>
<td>Gordon</td>
</tr>
<tr>
<td>510</td>
<td>Contemporary Developments in Income and Employment Theory (3)</td>
<td>Cartwright</td>
</tr>
<tr>
<td>511</td>
<td>Introduction to the Use of Mathematics in Economic Theory (3)</td>
<td>Gordon</td>
</tr>
<tr>
<td>512</td>
<td>Advanced Theory of the Firm (3)</td>
<td>Worcester</td>
</tr>
<tr>
<td>515</td>
<td>History of Economic Thought (3)</td>
<td>Gordon, North</td>
</tr>
</tbody>
</table>

**MONEY, BANKING, AND CYCLES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>320</td>
<td>Money and Banking (5)</td>
<td>Crutchfield</td>
</tr>
<tr>
<td>421</td>
<td>Money, Credit, and the Economy (5)</td>
<td>Crutchfield</td>
</tr>
<tr>
<td>422</td>
<td>Economic Cycles (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>521</td>
<td>Monetary Theory (3)</td>
<td>Crutchfield</td>
</tr>
<tr>
<td>522</td>
<td>Cycle Theory (3)</td>
<td>Staff</td>
</tr>
</tbody>
</table>

**GOVERNMENT REGULATION, PUBLIC UTILITIES, AND TRANSPORTATION**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>330</td>
<td>Government and Business (5)</td>
<td>Mund</td>
</tr>
<tr>
<td>336</td>
<td>Economics of Transportation I (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>432, 433</td>
<td>Economics of Public Utilities (5,5)</td>
<td>Hall</td>
</tr>
<tr>
<td>437</td>
<td>Economics of Transportation II (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>530</td>
<td>Public Control of Industry (3)</td>
<td>Mund</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Instructor(s)</td>
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<tr>
<td>532</td>
<td>Public Utilities (3)</td>
<td>Hall</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>536</td>
<td>Transportation (3)</td>
<td>Staff</td>
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<td></td>
<td>Economic aspects of current transportation problems. Prerequisite, permission.</td>
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<td></td>
<td><strong>LABOR ECONOMICS</strong></td>
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<tr>
<td>340</td>
<td>Labor in the Economy (5)</td>
<td>Buechol, Gillingham, Lampman, McCaffree</td>
</tr>
<tr>
<td>345</td>
<td>Social Security (5)</td>
<td>Lampman</td>
</tr>
<tr>
<td>441</td>
<td>Union-Management Relations (5)</td>
<td>Gillingham, Hopkins</td>
</tr>
<tr>
<td>442</td>
<td>American Labor History (5)</td>
<td>Gillingham</td>
</tr>
<tr>
<td>443</td>
<td>Advanced Labor Economics (5)</td>
<td>McCaffree</td>
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<tr>
<td>541</td>
<td>Theory of Trade-Unionism (3)</td>
<td>Gillingham</td>
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<tr>
<td></td>
<td>Prerequisite, permission.</td>
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<tr>
<td>542</td>
<td>Labor Economics (3)</td>
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<tr>
<td></td>
<td>Prerequisite, permission.</td>
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<tr>
<td>543</td>
<td>Labor Law (3)</td>
<td>Lampman</td>
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<tr>
<td></td>
<td>Selected problems of governmental regulations of the labor-management relationship. Prerequisite, permission.</td>
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<tr>
<td></td>
<td><strong>PUBLIC FINANCE AND TAXATION</strong></td>
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<tr>
<td>350</td>
<td>Public Finance and Taxation I (5)</td>
<td>Hall, Lampman</td>
</tr>
<tr>
<td>451</td>
<td>Public Finance and Taxation II (5)</td>
<td>Hall, Lampman</td>
</tr>
<tr>
<td>550</td>
<td>Public Finance (3)</td>
<td>Hall</td>
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<tr>
<td></td>
<td>Fiscal policy instrumentalities and comparative effects on income and employment; limitations of fiscal policy; review of current literature. Prerequisite, permission.</td>
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<tr>
<td>551</td>
<td>Public Finance (3)</td>
<td>Hall</td>
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<tr>
<td></td>
<td>Special problems in the fields of taxation and public debt; review of current literature. Prerequisite, permission.</td>
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<tr>
<td></td>
<td><strong>ECONOMIC HISTORY</strong></td>
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<tr>
<td>461</td>
<td>Economic History of Europe (5)</td>
<td>Morris</td>
</tr>
<tr>
<td>462</td>
<td>Development of American Commercial Capitalism (5)</td>
<td>North</td>
</tr>
<tr>
<td>463</td>
<td>Development of American Industrial Capitalism (5)</td>
<td>North</td>
</tr>
<tr>
<td>561</td>
<td>European Economic History (3)</td>
<td>Morris</td>
</tr>
<tr>
<td></td>
<td>Emphasis on the period since 1750. Prerequisite, permission.</td>
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<tr>
<td>562</td>
<td>American Economic History (3)</td>
<td>North</td>
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<tr>
<td></td>
<td>Emphasis on the theoretical issues involved in American economic development.</td>
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<td></td>
<td><strong>INTERNATIONAL TRADE</strong></td>
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<tr>
<td>370</td>
<td>Economic Principles of Foreign Trade (5)</td>
<td>Huber</td>
</tr>
<tr>
<td>471</td>
<td>International Economics (5)</td>
<td>Holzman</td>
</tr>
<tr>
<td>472</td>
<td>International Economic Problems (5)</td>
<td>Huber</td>
</tr>
<tr>
<td>571</td>
<td>International Trade Theory (3)</td>
<td>Huber</td>
</tr>
<tr>
<td></td>
<td>Modern developments in national income theory and welfare economics with relation to international trade. Prerequisite, permission.</td>
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<tr>
<td>572</td>
<td>International Economic Policies (3)</td>
<td>Holzman</td>
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<tr>
<td></td>
<td>Problems of foreign trade and exchange controls, and international monetary policies. Prerequisite, permission.</td>
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<td></td>
<td><strong>NATIONAL ECONOMIES</strong></td>
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<tr>
<td>390</td>
<td>Comparative Economic Systems (5)</td>
<td>Worcester</td>
</tr>
<tr>
<td>492</td>
<td>Economic Problems of the Far East (5)</td>
<td>Sheldon</td>
</tr>
<tr>
<td>493</td>
<td>Economic Problems of China (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>495</td>
<td>The Economy of Soviet Russia (5)</td>
<td>Holzman</td>
</tr>
<tr>
<td>595</td>
<td>Soviet Economics (3)</td>
<td>Holzman</td>
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<tr>
<td></td>
<td>Analysis of problems of economic measurement, economic development, optimum resource allocation, national income, and planning in the Soviet Union. Prerequisite, permission.</td>
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<td></td>
<td><strong>STATISTICS AND ECONOMETRICS</strong></td>
<td></td>
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<tr>
<td>481</td>
<td>Economic Statistical Analysis (5)</td>
<td>Zellner</td>
</tr>
<tr>
<td>580</td>
<td>Econometrics (3)</td>
<td>Zellner</td>
</tr>
<tr>
<td></td>
<td>Study of empirical significance of economic theory and related methodological problems.</td>
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</tr>
</tbody>
</table>
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 a 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 508 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. Candi­
dates 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 disserta­
tion 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 Gen­
eral 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) Adams
(Offers alternate years; offered 1958-59.)
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
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 Typos of Dramatic Literature (5,5)
(Offers 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) Adams
(Offers alternate years; offered 1957-58.)
447, 448, 449 The English Novel (5,5,5) W. Burns, Hall, Heilman, Winther
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

**Far Eastern and Russian Institute**

**Director: GEORGE E. TAYLOR, 406 Thomson Hall**
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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>303J</td>
<td>Asia (5)</td>
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<td>316</td>
<td>Civilization of Southeastern Asia (3)</td>
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<td>Survey of the Soviet Union (5)</td>
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<td>Japanese Foreign Policy in Asia (3)</td>
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<td>378</td>
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<td>422J</td>
<td>Early Russian History (5)</td>
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<td>424J</td>
<td>Russian Revolutionary Movement (5)</td>
<td>Offered jointly, in alternate years, with the Department of History; offered 1958-59.)</td>
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<tr>
<td>429</td>
<td>The Soviet Union and the Moslem World (5)</td>
<td>Offered alternate years; offered 1957-58.)</td>
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<tr>
<td>430</td>
<td>Survey of Mongol Culture (3)</td>
<td>Offered jointly with the Department of Geography.</td>
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<tr>
<td>431J</td>
<td>Islands of the Pacific (3)</td>
<td>Offered jointly with the Department of Geography.</td>
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<td>433J</td>
<td>The Soviet Union (5)</td>
<td>Offered jointly with the Department of Geography.</td>
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<tr>
<td>434J</td>
<td>Southeast Asia (5)</td>
<td>Offered jointly with the Department of Geography.</td>
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<tr>
<td>435J</td>
<td>China: Topical Analysis (3)</td>
<td>Offered jointly with the Department of Geography.</td>
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<td>436J</td>
<td>China: Regional Analysis (3)</td>
<td>Offered jointly with the Department of Geography.</td>
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<td>437J</td>
<td>Japan (5)</td>
<td>Offered jointly with the Department of Geography.</td>
</tr>
<tr>
<td>443</td>
<td>Chinese Social Institutions (5)</td>
<td>Offered jointly with the Department of Geography.</td>
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</tbody>
</table>
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) Murphey
Offered jointly with the Department of Geography.
507J Seminar: Soviet Union (3, maximum 6) Jackson
Offered jointly with the Department of Geography.
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.
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) Wilhelm
(Offered alternate years; offered 1958-59.)
430 Readings in Chinese Philosophical Texts (5) Shih
Prerequisite, permission
455, 456, 457 Chinese Literature (5,5,5) Wilhelm
(Offered alternate years; offered 1957-58.)
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
(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
(Offered alternate years; offered 1958-59.)
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

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) Staff
(Offered alternate years; offered 1958-59.)
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
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) 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.)

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 Conservation 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, Mcklesen
455 Modern Russian Poetry (3) Erlich
(Offered alternate years; offered 1957-58.)
458 Contemporary Russian Literary Criticism (3) Erlich
(Offered alternate years; offered 1958-59.)
475 Soviet Press Translations (5) Staff
455 History of Russian Standard Language (5) Mcklesen
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.)
Prequisites, 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
FISHERIES

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

(Relieved 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

(Relieved 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

(Relieved 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) Wolander

402 Phylogeny of Fishes (5) Wolander

403 Identification of Fishes (5) Wolander
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) 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) 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

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)  
301 Masterpieces of European Literature: Drama (5)  
302 Masterpieces of European Literature: Lyric (5)  
450, 451 Romanticism and the Nineteenth Century (5,5)  
480 The Symbolist Movement (5)  
510, 511 Studies in General and Comparative Literature (5, maximum 10, 5, maximum 10)  
Thesis (*)

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) Earle, Kakiuchi
Offered jointly with the Far Eastern and Russian Institute.
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) Earle
Offered jointly with the Far Eastern and Russian Institute.
433J The Soviet Union (5) Jackson
Offered jointly with the Far Eastern and Russian Institute.
434J Southeast Asia (5) Earl
Offered jointly with the Far Eastern and Russian Institute.
435J China: Topical Analysis (3) Staff
Offered jointly with the Far Eastern and Russian Institute.
436J China: Regional Analysis (3) Staff
Offered jointly with the Far Eastern and Russian Institute.
437J Japan (5) Kakiuchi
Offered jointly with the Far Eastern and Russian Institute.
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.

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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tr>
<td>361</td>
<td>Stratigraphy (5)</td>
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<tr>
<td>400</td>
<td>Advanced or Field Work in General Geology (*)</td>
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<td></td>
<td>(Offered Summer Quarter only.)</td>
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<tr>
<td>412</td>
<td>Physiography of the United States (5)</td>
<td>Mackin</td>
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<tr>
<td>414</td>
<td>Map Interpretation (5)</td>
<td>Mackin</td>
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<tr>
<td>424</td>
<td>Petrography and Petrology (5)</td>
<td>Coombs</td>
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<tr>
<td>425</td>
<td>Petrography and Petrology (5)</td>
<td>Misch</td>
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<td>426</td>
<td>Sedimentary Petrography (5)</td>
<td>Staff</td>
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<td>427</td>
<td>Ore Deposits (5)</td>
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<td>429</td>
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<td>432</td>
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<td>Micropaleontology (5)</td>
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<td>450</td>
<td>Elements of Seismology (5)</td>
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<td>480</td>
<td>History of Geology (3)</td>
<td>Barksdale</td>
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<td>481</td>
<td>Preparation of Geologic Reports and Publications (3)</td>
<td>Coombs</td>
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<tr>
<td>501</td>
<td>Advanced Petrography and Petrology of Igneous Rocks (*)</td>
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<tr>
<td>503</td>
<td>Advanced Petrography and Petrology of Sedimentary Rocks (*)</td>
<td>Coombs</td>
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<td>510</td>
<td>Advanced Studies in Physiography (*)</td>
<td>Mackin</td>
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<td>515</td>
<td>Fluvial Morphology (*, maximum 5)</td>
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<td>516</td>
<td>Glacial Geology (5)</td>
<td>Mackin</td>
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<td>520</td>
<td>Seminar (*)</td>
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<td>521</td>
<td>Metamorphic Minerals (5)</td>
<td>Misch</td>
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<td>522</td>
<td>Regional Metamorphism and Granitization (5)</td>
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<tr>
<td>523</td>
<td>Static Granitization (5)</td>
<td>Staff</td>
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<tr>
<td>530</td>
<td>Advanced Studies in Paleontology (*)</td>
<td>Mallory, Wheeler</td>
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<td>532</td>
<td>Stratigraphic Paleontology (3)</td>
<td>Wheeler</td>
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<td>540</td>
<td>Advanced Studies in Structural Geology (*)</td>
<td>Barksdale, Misch</td>
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<tr>
<td>545</td>
<td>Structure of Eurasia (5)</td>
<td>Misch</td>
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<td>546</td>
<td>Structure of the Pacific Rim (5)</td>
<td>Misch</td>
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<tr>
<td>550</td>
<td>Advanced Studies in Geophysics (*)</td>
<td>Neumann</td>
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<tr>
<td>555</td>
<td>Advanced Studies in Stratigraphy (*)</td>
<td>Mallory, Wheeler</td>
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<td>565</td>
<td>Paleozoic Stratigraphy (3)</td>
<td>Wheeler</td>
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<td>568</td>
<td>Mesozoic Stratigraphy (3)</td>
<td>Wheeler</td>
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<tr>
<td>570</td>
<td>Advanced Studies in Mineralogy, Petrography, and Petrology (*)</td>
<td>Coombs, Misch</td>
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<td>580</td>
<td>Advanced Studies in Economic Geology (*)</td>
<td>Coombs</td>
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<tr>
<td>600</td>
<td>Research (*)</td>
<td>Staff</td>
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<td></td>
<td>Thesis (*)</td>
<td>Staff</td>
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</tbody>
</table>

**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, 555, 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>310, 311</td>
<td>Introduction to the Classical Period (3,3)</td>
<td>3</td>
<td>Kahn, Sauerlander</td>
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<td>312</td>
<td>Introduction to the German Novelle (3)</td>
<td>3</td>
<td>Sauerlander</td>
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<td>401, 402, 403</td>
<td>Grammar and Composition (2,2,2)</td>
<td>3,2,2</td>
<td>Meyer, Roy, Vail</td>
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<td>404</td>
<td>History of the German Language (5)</td>
<td>5</td>
<td>Meyer</td>
<td>1957-58.</td>
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<td>418, 419</td>
<td>Naturalism, Expressionism, and Twentieth-Century Realism (3,3)</td>
<td>3,3</td>
<td>Roy</td>
<td>1958-59.</td>
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<td>422</td>
<td>Analysis of German Poetry (3)</td>
<td>3</td>
<td>Sommerfeld</td>
<td>1958-59.</td>
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<tr>
<td>431</td>
<td>Lessing's Life and Dramatic Works (3)</td>
<td>3</td>
<td>Vail</td>
<td>1959-60.</td>
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<td>433</td>
<td>Goethe: The Early Years (3)</td>
<td>3</td>
<td>Vail</td>
<td>1957-58.</td>
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<td>436</td>
<td>Goethe's Faust I (3)</td>
<td>3</td>
<td>Sommerfeld</td>
<td>1959-60.</td>
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</table>
437 Goethe’s Faust II (3)  
(Offered 1959-60.)  
Vail
438 Schiller’s Historical Dramas (3)  
(Offered 1958-59.)  
Kahn
4501 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.)  
Wilk'e
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
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**

<table>
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<th>Course</th>
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<tr>
<td>402</td>
<td>Alexander the Great and the Hellenistic Age (5)</td>
<td>Katz</td>
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<td>403</td>
<td>The Roman Republic (3)</td>
<td>Katz</td>
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<td>404</td>
<td>The Roman Empire (3)</td>
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**EUROPEAN HISTORY**

**Medieval Period**

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<tr>
<td>410</td>
<td>The Byzantine Empire (5)</td>
<td>Katz</td>
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<tr>
<td>411</td>
<td>Medieval Civilization (5)</td>
<td>Lucas</td>
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<td>412</td>
<td>Medieval Civilization (5)</td>
<td>Kaminsky, Lucas</td>
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<td>413</td>
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**Early Modern Period**

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<td>Culture of the Renaissance (5)</td>
<td>Lucas</td>
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<td>415</td>
<td>The Reformation (5)</td>
<td>Lucas</td>
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<td>416</td>
<td>Monarchy in Europe, 1250-1750 (5)</td>
<td>Giesey</td>
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<tr>
<td>422J</td>
<td>Early Russian History (5)</td>
<td>Treadgold</td>
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<tr>
<td>429</td>
<td>France from the Reformation to the French Revolution (5)</td>
<td>Lytle</td>
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**Modern Period**

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<tr>
<td>423J</td>
<td>Recent Russian History (5)</td>
<td>Treadgold</td>
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<td>424J</td>
<td>Russian Revolutionary Movement (5)</td>
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<td>427</td>
<td>History of Eastern Europe, 1918-55 (5)</td>
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<td>430</td>
<td>The French Revolution and Napoleonic Era, 1789-1815 (5)</td>
<td>Lytle</td>
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<td>431</td>
<td>Europe, 1814-70 (5)</td>
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<td>Europe, 1914-45 (5)</td>
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<td>Germany, 1648-1914 (5)</td>
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<td>Germany, 1914-45 (5)</td>
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**UNITED KINGDOM, BRITISH EMPIRE, AND COMMONWEALTH**

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<td>England in the Seventeenth Century (5)</td>
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<td>England in the Eighteenth Century (5)</td>
<td>Costigan</td>
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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.)  
Savelle

442 The Colonial Mind (5)  
(Offered every four years; offered 1958-59.)  
Savelle

443 The Intellectual History of the United States (5)  
(Offered every four years; offered 1957-58.)  
Savelle

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.)  
Savelle

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

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)  
Lytlo

534J Modern European History: Russia (3-6)  
Offered jointly with the Far Eastern and Russian Institute.  
Treadgold

541 American History: Early (3-6)  
Savelle

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 the Philosophy of History (3-6)-(3-6) Costigan
(Offered alternate years; offered 1957-58.)
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) Treadgold
(Offered jointly, in alternate years, with Far Eastern and Russian Institute; offered 1958-59.) Prerequisites, reading knowledge of Russian and permission.
551J-552J-553J Seminar in Japanese History (3-6)-(3-6)-(3-6) Johnson
Offered jointly with the Far Eastern and Russian Institute. Prerequisite, permission.
553J-554J-555J Seminar in American History: Early (3-6)-(3-6)-(3-6) Savelle
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
LINGUISTICS

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
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 J. Home furnishing
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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>374</td>
<td>Principles of Digital Computers and Coding (5)</td>
<td>Staff</td>
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<tr>
<td>382, 383</td>
<td>Statistical Inference in Applied Research (5,5)</td>
<td>Staff</td>
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<tr>
<td>401</td>
<td>Linear Algebra (5)</td>
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<tr>
<td>402, 403</td>
<td>Introduction to Modern Algebra (3,3)</td>
<td>Staff</td>
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<td>417, 418</td>
<td>Advanced Calculus I, II (3,3)</td>
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<tr>
<td>421, 422</td>
<td>Differential Equations (3,3)</td>
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<td>424, 425, 426</td>
<td>Fundamental Concepts of Analysis (3,3,3)</td>
<td>Staff</td>
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<td>427, 428, 429</td>
<td>Topics in Applied Analysis (3,3,3)</td>
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<td>441</td>
<td>Foundations of Geometry (3)</td>
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<td>442</td>
<td>Advanced Analytic Geometry (3)</td>
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<tr>
<td>443</td>
<td>Differential Geometry (3)</td>
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<tr>
<td>444</td>
<td>Advanced Euclidean Geometry (5)</td>
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<tr>
<td></td>
<td>(Offered Summer Quarter only.)</td>
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</table>
445 Non-Euclidean Geometry (2½)
(Offered Summer Quarter only.)

464, 465, 466 Numerical Analysis I, II, III (3,5,5)

481 Calculus of Probabilities (5)

482 Classical Methods of Statistical Inference (5)

483 Theory of Correlation (5)

484 Chi-Tests (5)

498 Special Topics in Mathematics (2-5)
(Offered when demand is sufficient.)

501, 502 Foundations of Mathematics (3,3)
Fundamental concepts and methods of mathematics; the axiomatic method; the logical foundations of mathematics.

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.

510 Seminar in Algebra (*, maximum 5)

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.

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.

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.

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.

530 Seminar in Analysis (*, maximum 5)

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.

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.

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.)

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.)

550 Seminar in Geometry (*, maximum 5)

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.

558, 559, 560 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.

590 Seminar in Probability and Statistics (*, maximum 5)
Reports by students and staff on contemporary research.

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).

600 Research (*)
Prerequisite, permission.

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)
R457 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

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Instructors</th>
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<tbody>
<tr>
<td>321</td>
<td>Physical Climatology (5)</td>
<td>Church</td>
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<tr>
<td>322</td>
<td>Regional Climatology (5)</td>
<td>Church</td>
</tr>
<tr>
<td>329</td>
<td>Microclimatology (3)</td>
<td>Church</td>
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<tr>
<td>340, 341</td>
<td>Physical Meteorology (5,5)</td>
<td>Feaglo</td>
</tr>
<tr>
<td>350</td>
<td>Meteorological Laboratory (5)</td>
<td>Reed</td>
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<td>360</td>
<td>Meteorological Instruments and Observations (5)</td>
<td>Badgley</td>
</tr>
<tr>
<td>414</td>
<td>Synoptic Meteorology (5)</td>
<td>Reed</td>
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<tr>
<td>441, 442</td>
<td>Introduction to Atmospheric Motions (5,5)</td>
<td>Feaglo, Reed</td>
</tr>
<tr>
<td>445</td>
<td>Atmospheric Thermodynamics (3)</td>
<td>Badgley</td>
</tr>
</tbody>
</table>
451, 452 Meteorological Laboratory (5,5)

462 Oceanographic Meteorology (6)
(Offered at Friday Harbor Summer Quarter only.)

492 Readings in Meteorology or Climatology (*)

493 Special Problems in Meteorology or Climatology (*)

494 Meteorological Statistics (*)

520 Seminar (2-5)

522 Advanced Regional Climatology (3)

528 Applied Meteorology and Climatology (3)

531 The Upper Atmosphere (3)

532 Atmospheric Electricity (3)

541, 542 Dynamic Meteorology (3,3)

543, 544 Atmospheric Wave Theory (3,3)

546, 547 Atmospheric Turbulence (3,3)

551 Special Methods of Atmospheric Analysis (3, maximum 10)

560 Theory of Meteorological Instruments (3)

570 Seminar on Cloud Physics (2)

571 Seminar on Atmospheric Radiation (3)

572 Seminar on Polar Meteorology (3)

593 Laboratory in Experimental Meteorology (3, maximum 6)

600 Research (*)

Thesis (*)
THE GRADUATE SCHOOL

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) Irvin
380 Advanced Chamber Music (1, maximum 6) Staff
384, 385, 386 Conducting (1,2,1) Kirchner, Munro, Welke
401 Contemporary Idioms (3) 

407, 408, 409 Music History and Literature (3,3,3) 

417 Music of the Middle Ages (3) 

421 Modal Counterpoint (3) 

422 Tonal Counterpoint (3) 

428 Beethoven (3) 

430 Vocal or Instrumental Instruction (2-3, maximum 18) 

434, 435, 436 Piano Teaching (2,2,2) 

437 Rococo and Preclassic Music (3) 

440 Wind Sinfonietta (2, maximum 6) 

(Offered Summer Quarter only.) 

447 Schumann (3) 

450 Vocal or Instrumental Instruction (2-3, maximum 18) 

452 Musical Form (3) 

453 Orchestration (3) 

460 Sinfonietta (1, maximum 9) 

464, 465 Opera Direction and Production (4,4) 

467 History of Keyboard Music (3) 

474 The Curriculum in Music Education (3) 

480 Opera Theatre (2, maximum 6) 

481 Harmonic Analysis (3) 

484, 485, 486 Conducting (2,1,1) 

487, 488 History of Opera (3,3) 

490 Collegium Musicum (1-2, maximum 6) 

491 Composer's Laboratory (3, maximum 18) 

495 Choral Conducting (3) 

497, 498 History of Choral Music (3,3) 

500 Methods of Musical Research (3) 

507 Seminar in Renaissance and Baroque Music (3, maximum 6) 

508 Seminar in Classic and Romantic Music (3, maximum 6) 

509 Seminar in Modern Music (3, maximum 6) 

514 Psychological Foundations of Music (3) 

524, 525, 526 Seminar in Music Education (3,3,3) 

547 Seminar in American Music (3, maximum 6) 

550 Vocal or Instrumental Instruction (3, maximum 12) 

561 Problems in Choral and Orchestral Scoring (2-5) 

566 Opera Direction and Production (4 or 6, maximum 12) 

568, 569 Historiography and Criticism (3,3) 

577, 578 Seminar in Theory and Notation (3,3) 

579 Seminar in Musicology (3, maximum 6) 

MUSIC 91

McKay

Irvine, Terry, McKay

Irvine

Babb

Verrall

Woodcock

Staff

Woodcock, Moore

Terry

Welke

Woodcock

Staff

Woodcock

Verrall

Chapple

Rosinbum

Kinsella

Normann

Chapple, Rosinbum, Babb

Beale

Munro, Chapple

Munro, Irvine

Bostwick, Heinitz, Terry

McKay, Verrall

Munro

Munro, Terry

Irvine

Normann

Normann

Kinsella

Fee, $37.50. Prerequisite, 30 credits in the same branch of performance.

Verrall

Rosinbum

Irvine

Irvine

Irvine

Irvine

Selected topics in music history, literature, and theory. Prerequisite, permission.
THE GRADUATE SCHOOL

584, 585, 586 Advanced Conducting (1-3, 1-3, 1-3) Cheapple
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 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) Frolander
(Offers Summer Quarter only in alternate years; offered 1959.)
452 Sedimentary Processes (3) Staff
453 Sedimentary Techniques (2) Staff
461 Applications of Oceanography (3) Fleming

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 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
<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>460</td>
<td>Introduction to the Philosophy of Science (5)</td>
<td>5</td>
<td>Miller</td>
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<td>Philosophy of Mind (3)</td>
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<td>Philosophy of History (5)</td>
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<td>467</td>
<td>Philosophy of Religion (5)</td>
<td>5</td>
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<td>469</td>
<td>Existentialist Philosophy (3)</td>
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<td>470</td>
<td>Advanced Logic (5)</td>
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<td>Smullyan</td>
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<td>484</td>
<td>Reading in Philosophy (1-4, maximum 12)</td>
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<td>490</td>
<td>Philosophy of Leibniz (3)</td>
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<td>521</td>
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<td>Miller</td>
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<td>(Not offered 1957-58.)</td>
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<td>Seminar in Recent Philosophy (2)</td>
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<td>Seminar in Ethics (2)</td>
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<td>Seminar in Philosophy of Art (2)</td>
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<td>Rader</td>
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<td>Smullyan</td>
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<td>556</td>
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<td>Seminar in Philosophy of History (2)</td>
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<td>567</td>
<td>Seminar in Philosophy of Religion (2)</td>
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<td>584</td>
<td>Reading in Philosophy (1-4)</td>
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<tr>
<td></td>
<td>Intensive reading in the philosophical literature.</td>
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<td>587</td>
<td>Contemporary Analytic Philosophy (3)</td>
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<td>Melden</td>
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<td>Research (1-6)</td>
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<td>Prerequisite, permission.</td>
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<td>Thesis (*)</td>
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</table>

**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

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<tr>
<th>Course Code</th>
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<tr>
<td>451</td>
<td>Workshop in Health Education for the Classroom Teacher (Men and Women) (2½)</td>
<td>Waters</td>
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<tr>
<td>453</td>
<td>Methods and Materials in Health Teaching (Men and Women) (3)</td>
<td>Waters</td>
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<tr>
<td>465</td>
<td>The School Health Education Program (Men and Women) (3)</td>
<td>Mills, Reeves</td>
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<td>503</td>
<td>Seminar in Health Education (Men and Women) (3)</td>
<td>Waters</td>
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<tr>
<td>600</td>
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<td></td>
<td>Thesis (Men and Women) (*)</td>
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#### PHYSICAL EDUCATION

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<tr>
<td>318</td>
<td>Analysis of Rhythm (Women) (3)</td>
<td>de Vries, Wilson</td>
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<tr>
<td>322</td>
<td>Kinesiology (Men and Women) (3)</td>
<td>Cutler</td>
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<tr>
<td>340</td>
<td>Administration of Intramural Sports (Men) (3)</td>
<td>Stevens, Staff</td>
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<tr>
<td>345</td>
<td>Principles of Physical Education (Men and Women) (3)</td>
<td>Torney</td>
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<tr>
<td>351</td>
<td>Theatre Dance (Men and Women) (2)</td>
<td>de Vries</td>
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<tr>
<td>355</td>
<td>Modern Dance Workshop (Men and Women) (2, maximum 6)</td>
<td>de Vries</td>
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<tr>
<td>435</td>
<td>Adapted Activities (Men and Women) (3)</td>
<td>Cutler, Waters</td>
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<tr>
<td>447</td>
<td>Tests and Measurements (Men and Women) (3)</td>
<td>Cutler</td>
</tr>
<tr>
<td>450</td>
<td>The School Physical Education Program (Men and Women) (Men, 3; women, 2)</td>
<td>Peek, Wilson</td>
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<td>459-460</td>
<td>Dance Production (Women) (2-2)</td>
<td>de Vries</td>
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<td>N466</td>
<td>Coaching (Women) (0)</td>
<td>Kidwell, Staff</td>
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<td>480</td>
<td>Principles of Movement (Women) (3)</td>
<td>Broer, Fox</td>
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<td>493</td>
<td>Problems in Athletics (Men) (3)</td>
<td>Torney</td>
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<td>501</td>
<td>Seminar in Physical Education (Men and Women) (3)</td>
<td>Broer, Torney, Wilson</td>
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<td>502</td>
<td>Problems in Physical Education (Men and Women) (2½)</td>
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<td>506</td>
<td>The Curriculum (Men and Women) (3)</td>
<td>Kunde</td>
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<td>507</td>
<td>Supervision in Physical Education (Men) (2½)</td>
<td>Peek</td>
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<td>547</td>
<td>Seminar in Research Procedures (Men and Women) (3)</td>
<td>Broer, Fox</td>
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<tr>
<td>600</td>
<td>Research (Men and Women) (2-5)</td>
<td>Broer, Fox, Kunde, Reeves, Torney, Staff</td>
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<td>A. Health education</td>
<td>D. Recreation education</td>
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<td></td>
<td>B. Physical education</td>
<td>E. Tests and measurements</td>
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<td></td>
<td>C. Physiology of exercise</td>
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<td>Thesis (Men and Women) (*)</td>
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#### RECREATION EDUCATION

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<tr>
<td>344</td>
<td>Organization and Administration of Camp Programs (Men and Women) (3)</td>
<td>Kunde, Stallings</td>
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<tr>
<td>426</td>
<td>Field Work in Recreation (Women) (5)</td>
<td>Kidwell</td>
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<tr>
<td>454</td>
<td>Recreation Field Work (Men) (3)</td>
<td>Kunde</td>
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<tr>
<td>504</td>
<td>Administration of Recreation (Men and Women) (5)</td>
<td>Kunde</td>
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<tr>
<td>524</td>
<td>Seminar in Community Resources and Organization for Recreation (Men and Women) (3)</td>
<td>Kunde</td>
</tr>
<tr>
<td></td>
<td>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.</td>
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<tr>
<td>600</td>
<td>(See Physical Education 600.)</td>
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<tr>
<td></td>
<td>Thesis (Men and Women) (*)</td>
<td>Staff</td>
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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

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<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>320</td>
<td>Introduction to Modern Physics (3)</td>
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<td>323</td>
<td>Introduction to Nuclear Physics (3)</td>
<td>Manley</td>
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<tr>
<td>325, 326, 327</td>
<td>Electricity and Magnetism (3,3,4)</td>
<td>Streib</td>
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<td>350</td>
<td>Heat and Introduction to Thermodynamics and Kinetic Theory (3)</td>
<td>Streib</td>
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<td>367, 368, 369</td>
<td>Special Problems (*, *, *)</td>
<td>Staff</td>
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<tr>
<td>371, 372</td>
<td>Properties of Matter (3,3)</td>
<td>Staff</td>
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<td>(Offered first time Autumn Quarter, 1958.)</td>
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<tr>
<td>461, 462, 463</td>
<td>Introduction to Atomic &amp; Nuclear Physics (3,3,3)</td>
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<td>471, 472, 473</td>
<td>Laboratory in Atomic &amp; Nuclear Physics (3,3,3)</td>
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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)
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**

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<th>Course Code</th>
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<tr>
<td>311</td>
<td>Theories of Modern Government (5)</td>
<td>Harbold</td>
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<td>362</td>
<td>Introduction to Public Law (5)</td>
<td>Cole</td>
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<td>411</td>
<td>The Western Tradition of Political Thought (5)</td>
<td>Harbold</td>
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<td>412</td>
<td>American Political Thought (5)</td>
<td>Harbold</td>
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<td>413</td>
<td>Contemporary Political Thought (5)</td>
<td>Harbold</td>
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<tr>
<td>414</td>
<td>Oriental Political Thought (5)</td>
<td>Hsiao</td>
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<td>415</td>
<td>Analytical Political Theory (5)</td>
<td>Harbold</td>
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<td>418</td>
<td>The Evolution of Western Political Institutions (5)</td>
<td>Harbold</td>
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<tr>
<td>460</td>
<td>Introduction to Constitutional Law (5)</td>
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<td>511, 512, 513</td>
<td>Seminar in Readings in Political Science (3,3,3)</td>
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<tr>
<td>514</td>
<td>Seminar in Problems of Political Theory (3)</td>
<td>Harbold</td>
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<td>515</td>
<td>Scope and Methods in Political Science (3)</td>
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<tr>
<td>562, 563, 564</td>
<td>Public Law (3,3,3)</td>
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**GOVERNMENT, POLITICS, AND ADMINISTRATION**

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<td>350</td>
<td>Government and Interest Groups (5)</td>
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<tr>
<td>351</td>
<td>The American Democracy (5)</td>
<td>Gottfried</td>
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<td>353</td>
<td>Theory and Practice of Government in the State of Washington (3)</td>
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<td>360</td>
<td>The American Constitutional System (3)</td>
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<td>370</td>
<td>Government and the American Economy (5)</td>
<td>Gottfried</td>
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<tr>
<td>376</td>
<td>State and Local Government and Administration (5)</td>
<td>Webster</td>
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<td>378</td>
<td>Rural Government (5)</td>
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<td>450</td>
<td>Political Parties and Elections (5)</td>
<td>Bone</td>
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<td>451</td>
<td>The Legislative Process (5)</td>
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<td>452</td>
<td>Political Processes and Public Opinion (5)</td>
<td>Gottfried</td>
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<tr>
<td>470</td>
<td>Introduction to Public Administration (5)</td>
<td>Staff</td>
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<tr>
<td>471</td>
<td>Administrative Management (5)</td>
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<tr>
<td>472</td>
<td>Introduction to Administrative Law (5)</td>
<td>Shipman</td>
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<td>475</td>
<td>Problems of Municipal Government and Administration (5)</td>
<td>Webster</td>
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<td>550, 551, 552</td>
<td>Seminar in Politics (3,3,3)</td>
<td>Bone</td>
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<td>570-571-572</td>
<td>The Administrative Process (3-3-3)</td>
<td>Shipman</td>
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<td>573-574-575</td>
<td>Public Management (3-3-3)</td>
<td>Shipman</td>
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- **511, 512, 513 Seminar in Readings in Political Science (3,3,3):** Important writings of the masters in political science; the political classics.
- **514 Seminar in Problems of Political Theory (3):** Selected topics, historical and conceptual, national, regional, and universal.
- **515 Scope and Methods in Political Science (3):** 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):** General legal concepts applicable to the conduct of governmental activities.
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

3353 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

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>301</td>
<td>Statistical Methods</td>
<td>5</td>
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<td>305</td>
<td>Abnormal Psychology</td>
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<td>306</td>
<td>Child Psychology</td>
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<td>307</td>
<td>Psychology of Adolescence</td>
<td>3</td>
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<td>308</td>
<td>Genetic Psychology</td>
<td>5</td>
</tr>
<tr>
<td>309</td>
<td>Psychology of Exceptional Children</td>
<td>3</td>
</tr>
<tr>
<td>331</td>
<td>Applied Psychology</td>
<td>3</td>
</tr>
<tr>
<td>336</td>
<td>Industrial Psychology for Engineers</td>
<td>3</td>
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<tr>
<td>345</td>
<td>Social Psychology</td>
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<td>400</td>
<td>Psychology of Learning</td>
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<td>401, 402</td>
<td>Contemporary Psychology Theory</td>
<td>3, 3</td>
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<td>403</td>
<td>Psychology of Motivation</td>
<td>3</td>
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<td>405</td>
<td>Personality</td>
<td>5</td>
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<tr>
<td>406</td>
<td>Experimental Psychology</td>
<td>5</td>
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<tr>
<td>407-408</td>
<td>History of Psychology</td>
<td>3-3</td>
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<tr>
<td>409AJ</td>
<td>Training of the Mentally Retarded</td>
<td>5</td>
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</table>

Offered jointly with the College of Education.
409BJ  Psychology of the Mentally Retarded (5)  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)  Baer

501  Problems in Learning Theory (3)  McKeever

509  Problems in Developmental Psychology (3)  Bijou

514-515  Experimental Design (3-3)  Edwards

516  Introduction to Multivariate Psychological Measurement (5)  Horst

517  Factor Analysis (5)  Horst

518  Test Construction (5)  Horst

520  Seminar (2)  Staff

523  Seminar in the History of Psychology (2)  Esper

524  Seminar in Physiological Psychology (2)  Horton, Loucks

525  Seminar in Genetic and Comparative Psychology (2)  Horton

527  Seminar in Social Psychology (2)  Edwards

528  Seminar in Experimental Psychology (2)  Hermans

529  Seminar in Clinical Psychology (2)  Bijou, Strother

530  Seminar in Theory (2)  Staff

531  Seminar in Learning and Motivation (2)  Staff

544-545  Psychology of Social Attitudes (3-3)  Edwards

581  Individual Testing (Children) (5)  Sarason

582  Individual Testing (Adults) (5)  Heathers
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

<table>
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<th>Credits</th>
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<tr>
<td>401, 402</td>
<td>Introduction to Romance Linguistics (2,2)</td>
<td>Dorfman</td>
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<tr>
<td>460</td>
<td>The Literature of the Renaissance in English (5)</td>
<td>Kellar</td>
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<td>505, 506, 507</td>
<td>Romance Linguistics (2,2,2)</td>
<td>Dorfman</td>
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<td>521, 522, 523</td>
<td>Phonemic Analysis and Description (2,2,2)</td>
<td>Dorfman</td>
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<td>531</td>
<td>Problems in Romance Linguistics (2-5, maximum 10)</td>
<td>Staff</td>
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<td>572, 573</td>
<td>Romance Language Teachers' Seminar (2½, 2½)</td>
<td>Simpson</td>
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<td>581, 582, 583</td>
<td>Problems and Methods of Literary History (2,2,2)</td>
<td>Nostrand, Weiner</td>
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<td>584, 585, 586</td>
<td>Seminar in Romance Culture (3,3,3)</td>
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<td>590</td>
<td>Research in Comparative Romance Literature (2-5, maximum 20)</td>
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<td>599</td>
<td>Research in Romance Linguistics (2-5, maximum 15)</td>
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<td>Thesis (*)</td>
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CATALAN

535 Catalan Language and Literature (5)  
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 Thomas (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)  
(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 Montaigue in English (3)  
Keller

417 Racine and Moliere in English (3)  
Chessex

418 Literature of the Enlightenment in English (3)  
Hanzeli

421, 422, 523 Prose (3,3,3)  
Keller, Hanzoli, 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: Moliere. (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, Hanzoli, 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  
B. Renaissance  
C. Classic period

D. Eighteenth century  
E. Nineteenth century  
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)  Staff
Thesis (*)

PORTUGUESE

390 Supervised Study (2-5, maximum 20)  C. Wilson

PROVENCAL

534 Old Provencal (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)  Aylton
(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)  Aylton
(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  
B. Renaissance  
C. Golden age  
D. Eighteenth century  
E. Nineteenth century  
F. Twentieth century  
G. Spanish colonial literature  
H. Latin America

541, 542, 543 History of the Spanish Language (2,2,2) 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
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).

M A S T E R O F A R T S. 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.

D O C T O R O F P H I L O S O P H Y. 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.

C O U R S E S

310 General Sociology (5) Larson, Staff
331 Population Problems (5) Staff
352 The Family (5) Boworman
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>353</td>
<td>Social Factors in Marriage (3)</td>
<td>Bowerman</td>
</tr>
<tr>
<td>362</td>
<td>Race Relations (5)</td>
<td>Barth</td>
</tr>
<tr>
<td>365</td>
<td>Urban Community (5)</td>
<td>Cohen</td>
</tr>
<tr>
<td>371</td>
<td>Criminology (5)</td>
<td>Hayner, Schrag</td>
</tr>
<tr>
<td>389</td>
<td>Reading in Selected Fields (2-5, maximum 15)</td>
<td>Staff</td>
</tr>
<tr>
<td>410</td>
<td>History of Sociological Thought (5)</td>
<td>Staff</td>
</tr>
<tr>
<td>411, 412, 413</td>
<td>Systematic Sociology (3,3,3)</td>
<td>Dodd</td>
</tr>
<tr>
<td>414</td>
<td>Sociological Theory (5)</td>
<td>Lundberg</td>
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<tr>
<td>415</td>
<td>Theory of Social Organization (5)</td>
<td>Staff</td>
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<tr>
<td>420</td>
<td>Methods of Sociological Research (5)</td>
<td>Faris</td>
</tr>
<tr>
<td>421</td>
<td>Methodology: Case Studies and Interviewing (3)</td>
<td>Camilleri</td>
</tr>
<tr>
<td>423</td>
<td>Advanced Social Statistics (5)</td>
<td>Bowerman, Camilleri</td>
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<tr>
<td>425</td>
<td>Graphic Techniques in the Social Sciences (5)</td>
<td>Schmid</td>
</tr>
<tr>
<td>426</td>
<td>Methodology: Quantitative Techniques in Sociology (3)</td>
<td>Bowerman</td>
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<tr>
<td>427</td>
<td>Statistical Classification and Measurement (3)</td>
<td>Camilleri</td>
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<tr>
<td>428-429</td>
<td>Sampling and Experimentation (3-3)</td>
<td>Camilleri</td>
</tr>
<tr>
<td>430</td>
<td>Human Ecology (5)</td>
<td>Cohen, Schmid</td>
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<td>440</td>
<td>Primary Interaction and Personal Behavior (5)</td>
<td>Faris</td>
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<tr>
<td>442</td>
<td>Public Opinion (3)</td>
<td>Larsen, Miyamoto</td>
</tr>
<tr>
<td>443</td>
<td>Mass Communication (3)</td>
<td>Larson</td>
</tr>
<tr>
<td>445</td>
<td>Social Movements (3)</td>
<td>Miyamoto</td>
</tr>
<tr>
<td>446</td>
<td>Social Adjustment of the Worker (3)</td>
<td>Miller</td>
</tr>
<tr>
<td>447</td>
<td>Social Control (5)</td>
<td>Lundberg</td>
</tr>
<tr>
<td>448</td>
<td>Sociometric Analysis and Group Structure (5)</td>
<td>Schrag</td>
</tr>
<tr>
<td>450</td>
<td>Contemporary American Institutions (5)</td>
<td>Miller</td>
</tr>
<tr>
<td>451</td>
<td>Social Change and Trends (5)</td>
<td>Miller</td>
</tr>
<tr>
<td>455</td>
<td>Housing in the American Community (5)</td>
<td>Cohen</td>
</tr>
<tr>
<td>458</td>
<td>Institutional Forms and Processes (5)</td>
<td>Faris</td>
</tr>
<tr>
<td>460</td>
<td>Social Differentiation (5)</td>
<td>Staff</td>
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<tr>
<td>463</td>
<td>American Negro Community (3)</td>
<td>Barth</td>
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<tr>
<td>466</td>
<td>Industrial Sociology (5)</td>
<td>Miller</td>
</tr>
<tr>
<td>467</td>
<td>Industry and the Community (3)</td>
<td>Miller</td>
</tr>
<tr>
<td>472</td>
<td>Juvenile Delinquency (5)</td>
<td>Hayner, Schrag</td>
</tr>
<tr>
<td>473</td>
<td>Penology (5)</td>
<td>Hayner, Schrag</td>
</tr>
</tbody>
</table>

N510, N511, N512: Departmental Seminar (0,0,0) 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) Prerequisites, 223, 414, and 420, or equivalents.

528: Seminar in Selected Statistical Problems in Social Research (3) Prerequisites, 230 or 430, and 15 credits in social science.

530: Seminar in Social Interaction (3) Prerequisites, 331, and 15 credits in social science or permission.

531: Seminar in Small Group Research (3) Prerequisites, 230 or 430, and 15 credits in social science or permission.

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.

543: Communications Seminar (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.
566, 567 Industrial Sociology Seminar (3,3)  
Research training in industrial sociology. Readings and field projects. Prerequisite, 466 or equivalent.

571 Correctional Institutions (3)  
Prerequisite, 371 or equivalent.

572 Analysis of Criminal Careers (3)  
Prerequisite, 371 or equivalent.

573 Crime Prevention (3)  
Prerequisite, 371 or equivalent.

574 Seminar in Methods of Criminological Research (3)  
Prerequisite, permission.

599 Reading in Selected Fields (2-5, maximum 15)  
Open only to qualified graduate students by permission.

600 Research (2-5)  
Open only to qualified graduate students by permission.

Thesis (*)  
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.
522 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 1957-58.) Prerequisite, 440.

RADIO-TV SPEECH

361 Advanced Radio-TV Speech (3) Bird

SPEECH CORRECTION

470, 471 Speech Correction (5, 5) Carroll

473 Diagnostic Methods in Speech Correction (5) Wingate
Prerequisite, 471.

474 Clinical Practice in Speech Correction (1-5, maximum 15) Palmer

475 Stuttering (2) Carroll

476 Language Development of the Child (3) Staff
(Offered alternate years; offered 1957-58.)

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) Carroll
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 1957-58.) 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) Carroll
(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) (Offered alternate years; offered 1958-59.) Phillips
487 Audiometry (2) Hanley
488 Hearing Aid Evaluation and Selection (2) (Offered alternate years; offered 1958-59.) Hanley

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) Nilson, Rahskopf
499 Undergraduate Research (2-5) Staff
Prerequisite, permission. Field must be indicated in registration.
A. Voice and phonetics
B. Public address
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

ZOOLEG

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) Whitoley
Functional aspects of protoplasmic structures. Prerequisite, Zoology 400 or permission.
508L Cellular Physiology Laboratory (2) Whitoley
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)  
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)  
Il1g, 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)  
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)  
Prerequisite, permission.  
Whiteley

516L Chemical Embryology Laboratory (2)  
Must be accompanied by 516.  
Whiteley

517 Chemical Embryology (3)  
Prerequisite, permission.  
Whiteley

517L Chemical Embryology Laboratory (2)  
Must be accompanied by 517.  
Whiteley

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)  
Ilig  
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.
BUSINESS ADMINISTRATION

537L Comparative Invertebrate Physiology Laboratory (2) Florey
Exercises in kymographic, oscilloscopic and other recording of mechanical, electrical, and metabolic phenomena of invertebrate organ function. Must be accompanied by 537. Pre-requisite, 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, 434, 436, 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) Illig
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:

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Policy and Administration 560 or 561</td>
<td>3</td>
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<tr>
<td>Policy and Administration 590, 591, or 596</td>
<td>3</td>
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<tr>
<td>Accounting 591 or 592</td>
<td></td>
</tr>
<tr>
<td>Thesis or General Business 570, 571-572</td>
<td>9</td>
</tr>
<tr>
<td>Electives (at least 6 credits in 500 series other than policy and administration, accounting controls, and General Business 570, 571-572)</td>
<td>18</td>
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</table>

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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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>310</td>
<td>Intermediate Accounting (5)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>320</td>
<td>Income Tax I (3)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>330</td>
<td>Cost Accounting (5)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>340</td>
<td>Accounting Systems (3)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>350</td>
<td>Budgetary Control (2)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>351</td>
<td>Distribution Cost Analysis (2)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>360</td>
<td>Advanced Accounting (5)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>420</td>
<td>Income Tax II (3)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>470</td>
<td>Auditing I (5)</td>
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<td>471</td>
<td>Auditing II (3)</td>
<td></td>
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<td>480</td>
<td>Government Accounting I (3)</td>
<td></td>
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<td>485</td>
<td>Consolidations and Mergers (3)</td>
<td></td>
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<tr>
<td>486</td>
<td>Fiduciary Accounting (2)</td>
<td></td>
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<tr>
<td>490</td>
<td>C.P.A. Problems (3)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>495</td>
<td>Advanced Accounting Theory (3)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>520, 521</td>
<td>Seminar (3,3,3)</td>
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<td>Staff</td>
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</tbody>
</table>

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 stocks, 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>591, 592</td>
<td>Seminar in Administrative Controls (3,3)</td>
<td></td>
<td>Staff</td>
</tr>
</tbody>
</table>

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.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>604</td>
<td>Research (*) (maximum 10)</td>
<td></td>
<td>Staff</td>
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</tbody>
</table>

Prerequisite, permission.

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td></td>
<td></td>
<td>Staff</td>
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</tbody>
</table>

**BUSINESS AND ITS ENVIRONMENT**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>552</td>
<td>Legal Aspects of Business Administration (3)</td>
<td></td>
<td>Staff</td>
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</tbody>
</table>

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.

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>562</td>
<td>Responsibilities of Business Leadership II (3)</td>
<td></td>
<td>Staff</td>
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</tbody>
</table>

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.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>590</td>
<td>Business History (3)</td>
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<td>Staff</td>
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</table>

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.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>593</td>
<td>Seminar in Business Fluctuations (3)</td>
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<td>Staff</td>
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</tbody>
</table>

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 utili-
zation of statistical methods in administrative control. Group discussion, lecture, and read-
ing 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 inter-
national 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 corpo-
ration 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 dis-
cussion 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
## BUSINESS ADMINISTRATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Instructors</th>
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<tbody>
<tr>
<td>350</td>
<td>Trade Problems of the Far East (5)</td>
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<tr>
<td>420</td>
<td>Foreign Trade Practices (5)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>470</td>
<td>Problems in Foreign Operations Management (5)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>520, 521</td>
<td>Seminar (3,3)</td>
<td></td>
<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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<td>604</td>
<td>Research (*, maximum 10)</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>Prerequisite, permission.</td>
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<td></td>
<td>Thesis (*)</td>
<td></td>
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<tr>
<td></td>
<td>GENERAL BUSINESS</td>
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<tr>
<td>439</td>
<td>Business Fluctuations (5)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>462</td>
<td>Responsibilities of Business Leadership I (3)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>570</td>
<td>Seminar in Business Research (3)</td>
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<td>Staff</td>
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<td>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.</td>
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<tr>
<td>571-572</td>
<td>Business Studies (3-3)</td>
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<td>Staff</td>
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<td>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.</td>
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<td>604</td>
<td>Research (*, maximum 10)</td>
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<tr>
<td></td>
<td>Prerequisite, permission.</td>
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<td></td>
<td>Thesis (*)</td>
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<tr>
<td></td>
<td>HUMAN RELATIONS IN BUSINESS AND INDUSTRY</td>
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<tr>
<td>460</td>
<td>Human Relations in Business and Industry (5)</td>
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<td></td>
<td>INSURANCE</td>
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<tr>
<td>360</td>
<td>Life Insurance for the Individual (5)</td>
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<td>Staff</td>
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<tr>
<td>370</td>
<td>Property Insurance (5)</td>
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<tr>
<td>375</td>
<td>Casualty Insurance (5)</td>
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<td>Staff</td>
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<tr>
<td>460</td>
<td>Life Insurance for Business (5)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>520</td>
<td>Seminar (3)</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>604</td>
<td>Research (*, maximum 10)</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>Prerequisite, permission.</td>
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<td></td>
<td>Thesis (*)</td>
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<td>Staff</td>
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<tr>
<td></td>
<td>MARKETING</td>
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<tr>
<td>351</td>
<td>Principles of Salesmanship (2)</td>
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<tr>
<td>371</td>
<td>Wholesaling (5)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>381</td>
<td>Retailing (5)</td>
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<tr>
<td>391</td>
<td>Advertising (5)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>401</td>
<td>Sales Management (5)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>411</td>
<td>Group Activities in Marketing (5)</td>
<td></td>
<td>Staff</td>
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<tr>
<td>421</td>
<td>Marketing Research (5)</td>
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<tr>
<td>431</td>
<td>Retail Planning and Control (5)</td>
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<tr>
<td>441</td>
<td>Retail Sales Promotion (3)</td>
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<tr>
<td>491</td>
<td>Marketing Problems (5)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>520, 521</td>
<td>Seminar (3,3,3)</td>
<td></td>
<td>Staff</td>
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<tr>
<td></td>
<td>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.</td>
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</tr>
</tbody>
</table>
604 Research (*, maximum 10)  
Prerequisite, permission.
The 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)  
Prerequisite, permission.

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)  
Prerequisite, permission.

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)  
Prerequisite, permission.

REAL ESTATE
410 Real Estate Appraisals, Brokerage, and Management (5)  
Staff
604 Research (*, maximum 10)  
Prerequisite, permission.

The Thesis (*)  
Staff
TRANSPORTATION

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 techniques 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
Metallotherapy 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 preparations, considering morphology of tooth, masticatory stress, physical properties of material, and location and size of restoration. Variant techniques of manipulation of plastics; analysis of failures in plastics.

562 Gold Foil Restorations (4) Stibbs, Staff
Tissue reactions to operative procedures; response of dental pulp to thermal change; age changes in 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 (3) 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 preparing the ridges for dentures; tissue reaction and wound healing; postoperative care; patient information. Clinical operations using procedures and equipment for denture construction.

562 Removable Partial Dentures (4) Wykhuis, Young
A seminar-clinic in removable partial denture treatments. Discussion of diagnosis and treatment planning; stressing mucoa, 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor</th>
</tr>
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<tbody>
<tr>
<td>401</td>
<td>Advanced Educational Psychology</td>
<td>3</td>
<td>Fea</td>
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<tr>
<td>402</td>
<td>Child Study and Development</td>
<td>3</td>
<td>Staff</td>
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<tr>
<td>403</td>
<td>Psychology of Elementary School Subjects</td>
<td>3</td>
<td>Staff</td>
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<tr>
<td>404</td>
<td>Education of Exceptional Children</td>
<td>5</td>
<td>Hayden</td>
</tr>
<tr>
<td>405</td>
<td>Problems of Adolescence</td>
<td>5</td>
<td>Staff</td>
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<tr>
<td>406</td>
<td>Character Education</td>
<td>3</td>
<td>Staff</td>
</tr>
<tr>
<td>408</td>
<td>Mental Hygiene for Teachers and Administrators</td>
<td>3</td>
<td>Staff</td>
</tr>
<tr>
<td>409A1</td>
<td>Training of the Mentally Retarded</td>
<td>5</td>
<td>Staff</td>
</tr>
</tbody>
</table>

Offered jointly with the Department of Psychology. (Offered Summer Quarter only.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Offered By</th>
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<tbody>
<tr>
<td>409BJ</td>
<td>Psychology of the Mentally Retarded (5)</td>
<td>Staff</td>
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<tr>
<td>410</td>
<td>Educational Sociology (3)</td>
<td>Jessup</td>
</tr>
<tr>
<td>415</td>
<td>Principles of Safety Education (3)</td>
<td>Corbally</td>
</tr>
<tr>
<td>415D</td>
<td>Principles of Safety Education: Driver Education (5)</td>
<td>Corbally</td>
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<tr>
<td>417</td>
<td>Adult Education (3)</td>
<td>Jessup</td>
</tr>
<tr>
<td>420</td>
<td>Theory and Technique of Kindergarten and Primary Teaching (3)</td>
<td>MacDonald</td>
</tr>
<tr>
<td>421</td>
<td>Remedial Education (3)</td>
<td>Fea</td>
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<tr>
<td>422</td>
<td>Remedial Education Clinic (3)</td>
<td>Fea</td>
</tr>
<tr>
<td>425</td>
<td>Remedial Reading (3)</td>
<td>Fea</td>
</tr>
<tr>
<td>430</td>
<td>Public School Administration (3)</td>
<td>Strayer</td>
</tr>
<tr>
<td>431</td>
<td>School Finance (3)</td>
<td>Strayer</td>
</tr>
<tr>
<td>433</td>
<td>Elementary School Organization and Administration (3)</td>
<td>Jessup</td>
</tr>
<tr>
<td>434</td>
<td>High School Organization and Administration (3)</td>
<td>Strayer</td>
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<tr>
<td>435</td>
<td>Administration and Supervision of Junior High Schools (3)</td>
<td>Staff</td>
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<tr>
<td>437</td>
<td>School Supervision (3)</td>
<td>Jessup</td>
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<tr>
<td>439</td>
<td>Pupil Personnel and Progress Reporting (3)</td>
<td>Staff</td>
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<td>445V</td>
<td>Principles and Objectives of Vocational Education (3)</td>
<td>Baily</td>
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<td>447</td>
<td>Principles of Guidance (3)</td>
<td>Salyer</td>
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<td>448</td>
<td>Improvement of Guidance Techniques (3)</td>
<td>Salyer</td>
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<td>455</td>
<td>Auditory and Visual Aids in Teaching (3)</td>
<td>Haydon</td>
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<tr>
<td>456</td>
<td>Auditory and Visual Aids in Teaching (3)</td>
<td>Haydon</td>
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<tr>
<td>457</td>
<td>Audio-visual Aids Management (3)</td>
<td>Haydon</td>
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<tr>
<td>460J</td>
<td>Field Training in Health Education (5)</td>
<td>Vavra</td>
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<tr>
<td>461</td>
<td>Elementary School Curriculum (3)</td>
<td>Jessup</td>
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<tr>
<td>466</td>
<td>Workshop in Curriculum Improvement (1-15, maximum 15)</td>
<td>Draper</td>
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<tr>
<td>467</td>
<td>Principles and Techniques of Curriculum Improvement (3)</td>
<td>Draper</td>
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<tr>
<td>470</td>
<td>Historical Backgrounds of Educational Methods (3)</td>
<td>Staff</td>
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<tr>
<td>474</td>
<td>Workshop in the Improvement of Teaching (5)</td>
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<tr>
<td>475</td>
<td>Improvement of Teaching (3)</td>
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<tr>
<td>475A</td>
<td>Improvement of Teaching: Secondary Mathematics (3)</td>
<td>Staff</td>
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<tr>
<td>475B</td>
<td>Improvement of Teaching: Arithmetic (3)</td>
<td>Vopni</td>
</tr>
<tr>
<td>475H</td>
<td>Improvement of Teaching: Language Arts (3)</td>
<td>Fea</td>
</tr>
<tr>
<td>475I</td>
<td>Improvement of Teaching: Industrial Education (3)</td>
<td>Baily</td>
</tr>
<tr>
<td>475lj</td>
<td>Improvement of Teaching: Latin (5)</td>
<td>Grummel</td>
</tr>
<tr>
<td>475M</td>
<td>Improvement of Teaching: Social Studies (3)</td>
<td>Boroughs</td>
</tr>
<tr>
<td>475S</td>
<td>Improvement of Teaching: Science (3)</td>
<td>Vopni</td>
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<tr>
<td>476D</td>
<td>Materials and Methods of Teaching Typewriting (2½) (Offered Summer Quarter only.)</td>
<td>Staff</td>
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<tr>
<td>476E</td>
<td>Materials and Methods of Teaching Office and Clerical Practice (2½) (Offered Summer Quarter only.)</td>
<td>Staff</td>
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<tr>
<td>476H</td>
<td>Workshop in Current Problems of Distributive Education (2½, maximum 5) (Offered Summer Quarter only.)</td>
<td>Staff</td>
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<tr>
<td>476K</td>
<td>Coordination of Distributive Education and Diversified Occupational Programs (2-3, maximum 3) (Offered Summer Quarter only.)</td>
<td>Staff</td>
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<tr>
<td>476L</td>
<td>Materials and Methods of Teaching Gregg Shorthand and Transcription (2½) (Offered Summer Quarter only.)</td>
<td>Staff</td>
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<tr>
<td>476M</td>
<td>Principles and Problems of Business Education (2½) (Offered Summer Quarter only.)</td>
<td>Staff</td>
</tr>
<tr>
<td>476N</td>
<td>Materials and Methods of Teaching Bookkeeping and General Business Subjects (2½) (Offered Summer Quarter only.)</td>
<td>Staff</td>
</tr>
<tr>
<td>477</td>
<td>The Teaching of Reading (3)</td>
<td>Fea</td>
</tr>
</tbody>
</table>
480 History of Education (5)
482 Advanced Tools and Materials (3)
483 Organization and Administration of Industrial Education (3)
484 Comparative Education (5)
485 Advanced General Shop for Industrial Education Teachers (3)
486 Trends in Industrial Education (3)
487 Instructional Analysis for Industrial Education Teachers (3)
488 Philosophy of Education (3)
489 Current Problems in Industrial Education (3)
490 Educational Statistics (5)
491 Advanced Educational Measurements (3)
501 Seminar in Educational Psychology (3)
510 Trends in Organization and Administration of Advanced Educational Measurements (3)
525 Seminar in Elementary Education (3)
531 Seminar in Diagnostic and Remedial Work in Education (3)
532 Seminar in Educational Sociology (3)
533 Seminar in Educational Psychology (3)
534 Seminar in Educational Sociology (3)
535 Seminar in Educational Psychology (3)
536 Seminar in Educational Sociology (3)
537 Seminar in Educational Psychology (3)
538 Seminar in Educational Sociology (3)
539 Seminar in Educational Psychology (3)
540 Seminar in Educational Sociology (3)
541 Seminar in Educational Psychology (3)
542, 543 Guidance and Counseling (3,3)
544 Seminar in Guidance (5)
545 Development and Organization of Higher Education (3)
547 Seminar in Guidance (5)
548 Philosophy of Education (3)
549 Current Problems in Educational Psychology (3)
550 Educational Statistics (5)
551 College Problems (3)
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.

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.

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.

An analysis of 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.

Research in the field of extraclass activities with emphasis on evaluation. Fusion and correlation with curriculum areas will be studied. Prerequisite, 467.

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.

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.

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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300, 301, 302</td>
<td>Aerodynamics (3,3,3)</td>
<td>Staff</td>
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<tr>
<td>320</td>
<td>Aerodynamics Laboratory (3)</td>
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<tr>
<td>330, 331, 332</td>
<td>Aircraft Structural Analysis (3,3,3)</td>
<td>Dill, Weikel</td>
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<td>350</td>
<td>Aircraft Structural Laboratory (2)</td>
<td>Dill, Weikel</td>
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<td>360</td>
<td>Aircraft Engines (3)</td>
<td>Eastman</td>
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<td>N390-N391-392</td>
<td>Seminar (0-0-1)</td>
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<tr>
<td>404</td>
<td>Introduction to Theoretical Aerodynamics (3)</td>
<td>Ganzor, Street</td>
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<td>410, 411, 412</td>
<td>Aircraft Design (3,3,3)</td>
<td>Staff</td>
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<td>422</td>
<td>Aerodynamics Laboratory (3)</td>
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<td>425</td>
<td>Flight Test Laboratory (3)</td>
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<td>441</td>
<td>Advanced Structural Design (3)</td>
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<td>461</td>
<td>Jet Propulsion (3)</td>
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<td>462</td>
<td>Propellers and Moving Wing Systems (3)</td>
<td>Eastman</td>
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<td>470</td>
<td>Analytical Problems in Aeronautics (3)</td>
<td>Staff</td>
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<tr>
<td>480</td>
<td>Elementary Dynamics (3)</td>
<td>Ganzor, Martin</td>
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<td>481</td>
<td>Elementary Aero-elasticity (3)</td>
<td>Ganzor, Martin</td>
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<tr>
<td>499</td>
<td>Special Projects (2-5, maximum 10)</td>
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<tr>
<td>505</td>
<td>Aerodynamics of Incompressible Fluids (3)</td>
<td>Street</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>506</td>
<td>Aerodynamics of Incompressible Fluids (3)</td>
<td>Street</td>
</tr>
<tr>
<td></td>
<td>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.)</td>
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<tr>
<td>508</td>
<td>Aerodynamics of Compressible Fluids (3)</td>
<td>Street</td>
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<tr>
<td></td>
<td>Thermodynamics of ideal gases; isentropic flow in one dimension, shock waves, equations of motion in nonviscous flow; airfoils and wings; similarity laws.</td>
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<tr>
<td>509</td>
<td>Aerodynamics of Compressible Fluids (3)</td>
<td>Street</td>
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<tr>
<td></td>
<td>Theory of characteristics; equations in the hodograph plane, exact solutions; linearized supersonic flow over wings and bodies of revolution; laminar compressible boundary layer. (Prerequisite, 505.)</td>
<td></td>
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<tr>
<td>513</td>
<td>Heat Transfer in Aeronautics (3)</td>
<td>Street</td>
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<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>516</td>
<td>Stability and Control (3)</td>
<td>Ganzor</td>
</tr>
<tr>
<td></td>
<td>Aerodynamics of control; the general problem of dynamic stability; the influence of aerodynamic parameters on flying characteristics.</td>
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</tr>
<tr>
<td>N520-N521-522</td>
<td>Seminar (0-0-1)</td>
<td>Staff</td>
</tr>
<tr>
<td>530</td>
<td>Theory of Elastic Structures (3)</td>
<td>Martin, Weikel</td>
</tr>
<tr>
<td></td>
<td>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.)</td>
<td></td>
</tr>
<tr>
<td>533</td>
<td>Theory of Plasticity (3)</td>
<td>Martin</td>
</tr>
<tr>
<td></td>
<td>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.)</td>
<td></td>
</tr>
</tbody>
</table>
CHEMICAL ENGINEERING

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 over-stresses in complex structures. Prerequisites, 530, 533, 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 Aeroelasticity (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, Moulton

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 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 (3) McCarthy


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 390.

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, denitrification, 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, aerotransfer and ORP controls. Functional design of 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

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, Sorgov
485 Applied Structural Analysis (3) Miller
491 Advanced Professional Design (2-5, maximum in one field, 15) Staff

560 Photoelasticity (3) Sorgov
Introduction of stress determination using polarized light and transparent plastics. To gain familiarity with the polarscope, 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, Sorgov
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) Sorgov
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) Sorgov
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) Sorgov
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) Millor

582 Advanced Structures (3) Millor
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.

588 Advanced Structures (3) Millor
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) Staff
To be taken concurrently with 312.
312 Electric Transients Laboratory (1) Staff
To be taken concurrently with 311.
331 Fields and Materials (5) Staff
333 Vacuum Tubes and Electronics (4) Staff
To be taken concurrently with 334.
ELECTRICAL ENGINEERING

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
To be taken concurrently with 497.

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, susceptibility variation methods, frequency standards, and standing wave detectors. Includes two three-hour laboratories per week. Prerequisite, 470.

NS20-NS52-522 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

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 tube; 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) 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, and 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 Thesis (*) 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. McMINTN, 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

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>305</td>
<td>Production Tooling (1)</td>
<td></td>
<td>Kenny, Zylstra</td>
</tr>
<tr>
<td>306</td>
<td>Production Techniques (1)</td>
<td></td>
<td>Schaller, Snyder</td>
</tr>
<tr>
<td>307</td>
<td>Production Planning (1)</td>
<td></td>
<td>Schaller, Snyder</td>
</tr>
<tr>
<td>312</td>
<td>Machine Tool Fundamentals (3)</td>
<td></td>
<td>Kenny, Zylstra</td>
</tr>
<tr>
<td>320</td>
<td>Thermodynamics (5)</td>
<td></td>
<td>Childs, McMinn, Nordquist</td>
</tr>
<tr>
<td>324</td>
<td>Experimental Thermodynamics (3)</td>
<td></td>
<td>Crain, Firey, McIntyre, Shouman</td>
</tr>
<tr>
<td>325</td>
<td>Thermodynamics for Nonmajors (3)</td>
<td></td>
<td>Childs, Nordquist, Shouman, Thomas</td>
</tr>
<tr>
<td>328</td>
<td>Elementary Thermodynamics (3)</td>
<td></td>
<td>Hendrickson</td>
</tr>
<tr>
<td>329</td>
<td>Refrigeration (3)</td>
<td></td>
<td>Hendrickson</td>
</tr>
<tr>
<td>340</td>
<td>Engineering Materials (3)</td>
<td></td>
<td>Balise, Day, Mills, Meadow</td>
</tr>
<tr>
<td>341</td>
<td>Aircraft Materials (2)</td>
<td></td>
<td>Schaller</td>
</tr>
<tr>
<td>342</td>
<td>Industrial Materials and Processes (3)</td>
<td></td>
<td>Mills</td>
</tr>
<tr>
<td>361, 362</td>
<td>Machine Design (3,3)</td>
<td></td>
<td>Balise, Crain, Day, Kieling, Morrison</td>
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<tr>
<td>367</td>
<td>Dynamics of Machines (3)</td>
<td></td>
<td>Balise, Morrison, Nordquist</td>
</tr>
<tr>
<td>368</td>
<td>Kinematics (3)</td>
<td></td>
<td>Day, Kieling, Morrison</td>
</tr>
<tr>
<td>403</td>
<td>Tool Design (3)</td>
<td></td>
<td>Zylstra</td>
</tr>
<tr>
<td>410</td>
<td>Engineering Administration (3)</td>
<td></td>
<td>Owens, Schaller</td>
</tr>
<tr>
<td>411</td>
<td>Engineering Economy (3)</td>
<td></td>
<td>Schaller, Zylstra</td>
</tr>
<tr>
<td>414</td>
<td>Industrial Safety (2)</td>
<td></td>
<td>Zylstra</td>
</tr>
<tr>
<td>415</td>
<td>Quality Control (3)</td>
<td></td>
<td>Owens, Zylstra</td>
</tr>
<tr>
<td>417</td>
<td>Methods Analysis (3)</td>
<td></td>
<td>Owens</td>
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<tr>
<td>418</td>
<td>Work Simplification (2)</td>
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<td>Waibler</td>
</tr>
<tr>
<td>424</td>
<td>Power Plants (5)</td>
<td></td>
<td>Crain, Hendrickson</td>
</tr>
<tr>
<td>425</td>
<td>Air Conditioning (3)</td>
<td></td>
<td>Childs, Crain, Nordquist</td>
</tr>
<tr>
<td>426</td>
<td>Thermodynamics for Nonmajors (5)</td>
<td></td>
<td>Hendrickson, McMinn</td>
</tr>
<tr>
<td>428</td>
<td>Refrigeration (3)</td>
<td></td>
<td>Childs, Firey, Waibler</td>
</tr>
<tr>
<td>430</td>
<td>Introduction to Heat Transfer (3)</td>
<td></td>
<td>Childs, Firey, Mills</td>
</tr>
<tr>
<td>432</td>
<td>Thermodynamics of Fluid Flow (3)</td>
<td></td>
<td>Balise</td>
</tr>
<tr>
<td>436</td>
<td>Friction and Lubrication (3)</td>
<td></td>
<td>Balise</td>
</tr>
<tr>
<td>443</td>
<td>Instrumentation (3)</td>
<td></td>
<td>Balise, Day, Morrison</td>
</tr>
<tr>
<td>463</td>
<td>Mechanical Engineering Analysis I (3)</td>
<td></td>
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</tr>
<tr>
<td>466</td>
<td>Machine Design (4)</td>
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</tbody>
</table>
140 THE GRADUATE SCHOOL

468 Machine Design (3) Balise, Day, Morrison, Kieling
469 Dynamics of Machinos (3) Balise, Morrison, Nordquist
481 Internal Combustion Engines (3) Firoy, Guidon
482 Internal Combustion Engine Laboratory (3) Firoy, Guidon
483 Internal Combustion Engine Design (3) Firoy, Guidon
487 Tracer Techniques in Mechanical Engineering Measurements (3) Firoy
490, 491, 492 Naval Architecture (3,3,3) Rowlands

521 Thermodynamics (3) McNinn, Nordquist, Waibler
A critical study of the fundamental concepts of thermodynamics: nonflow and steady-flow processes; enthalpy; point properties; reversibility; v OPS 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

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-rotocess, 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

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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>440</td>
<td>Glass Technology (3)</td>
<td>E. E. Mueller</td>
</tr>
<tr>
<td>450</td>
<td>Pyroprocessing of Nonmetallics (3)</td>
<td>Bauer</td>
</tr>
<tr>
<td>460</td>
<td>Ceramic Coatings for Metals (3)</td>
<td>E. E. Mueller</td>
</tr>
<tr>
<td>470</td>
<td>Refractories (3)</td>
<td>E. E. Mueller</td>
</tr>
<tr>
<td>500</td>
<td>Ceramic Vitrology (3)</td>
<td>E. E. Mueller</td>
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</table>

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.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>501</td>
<td>Process Ceramics: Production Control (3)</td>
<td>Campbell</td>
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</table>

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.

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<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>502</td>
<td>Process Ceramics: Unit Process Control (3)</td>
<td>Campbell</td>
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</tbody>
</table>

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.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>503</td>
<td>Process Ceramics High Temperature Topics (3)</td>
<td>Campbell</td>
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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.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>510</td>
<td>Advanced Ceramic Equilibria (3)</td>
<td>E. E. Mueller</td>
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</tbody>
</table>

Deviation of phase equilibrium relations in ceramics, studies of crystalline solutions, and analytical treatment of multicomponent phase equilibrium systems.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>511</td>
<td>Theoretical Physical Ceramics (3)</td>
<td>J. I. Mueller</td>
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</table>

Theory and application of colloidal phenomena to the use of ceramic raw materials; colloidal state; colloidal crystal structure; surface phenomena; electokinetics; base exchange. Prerequisite, 312.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>512</td>
<td>Theoretical Physical Ceramics (3)</td>
<td>J. I. Mueller</td>
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</tbody>
</table>

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.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>513</td>
<td>Applied Physical Ceramics (3, maximum 6)</td>
<td>J. I. Mueller, Staff</td>
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</tbody>
</table>

Application of physical ceramic principles to the control of ceramic production; instrumentation studies. Prerequisite, 512.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>520</td>
<td>Seminar (1, maximum 6)</td>
<td>Staff</td>
</tr>
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</table>

Required for all graduate students.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>521</td>
<td>Identification of Ceramic Materials (3)</td>
<td>J. I. Mueller</td>
</tr>
</tbody>
</table>

Theory and use of X-ray diffraction techniques for qualitative identification. Prerequisite, Physics 355 or equivalent.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>522</td>
<td>Structure and Analysis of Ceramic Materials (3)</td>
<td>J. I. Mueller</td>
</tr>
</tbody>
</table>

Theory and laboratory practice in use of X-ray diffraction for quantitative analysis; structure determinations. Prerequisite, 521 or equivalent.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>523</td>
<td>Identification and Structure Problems (3, maximum 6)</td>
<td>J. I. Mueller</td>
</tr>
</tbody>
</table>

Laboratory practice in X-ray diffraction techniques applied to ceramic research. Prerequisite, 522 or equivalent.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>590</td>
<td>Industrial Minerals Research (*)</td>
<td>Staff</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tr>
<td>600</td>
<td>Research (*)</td>
<td>Staff</td>
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Special problems investigated under staff direction; new products and processes; ceramic resources of the Pacific Northwest.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>Thesis (*)</td>
<td></td>
<td>Staff</td>
</tr>
</tbody>
</table>

**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.
MINERAL ENGINEERING

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; genera-
   tion 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 param-
   eter 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 tech-
   niques; 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 thermo-
   dynamics. 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. Pr 
   requisite, 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

306 Mine Excursion (1, maximum 2)  
322 Methods of Mining (4)  
325 Mineral Land Valuation (2)  
330 Mine Surveying (2)  
331 Mine Mapping (1)  
361 Mineral Dressing: Preparation (3)  
362 Mineral Dressing: Concentration (4)  
425 Barodynamics (2)  
426 Exploration and Development of Mineral Deposits (3)  
432 Mine Engineering (5)  
433 Mine Ventilation (3)  
463 Mineral Dressing: Flotation (3)  
464 Mineral Dressing: Hydrometallurgy (4)  
465 Mineral Dressing: Microscopy (2)  
466 Mineral Dressing Practices (2)  
467 Mineral Dressing Design (2)  
476 Coal Preparation (2)  
478 Coal Preparation Machinery (2)  
581J Mineral Industry Economics (3)  

Offered jointly with the Division of Metallurgical Engineering.

483 Mining Laws (1)  
485 Industrial Minerals (3)  
520 Seminar (1, maximum 6)  

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, 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 (*)

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)
Markworth

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)
Erickson

470 Forest Products Industries (5)
Bryant

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)      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 of instructor.  

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.  

522 Advanced Silviculture (3)          Scott  
A detailed study of the literature dealing with the more recent applications of silviculture in world forestry.  

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, 423 or equivalent, and permission.  

540 Advanced Forest Engineering (5)     Pearce  
Logging organization and management; logging cost analysis and budgeting. Prerequisite, permission of instructor.  

560 Forest History and Policy (3)       Markworth  
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  

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, filmstrips, 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

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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.
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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<td>General Anatomy (4)</td>
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<td>328-329</td>
<td>Gross Anatomy (6-4)</td>
<td>Blandau, Everett</td>
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<td>330</td>
<td>Microscopic Anatomy (4)</td>
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<td>331</td>
<td>Neuroanatomy (2)</td>
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<td>350-351</td>
<td>Human Function and Structure (6-6)</td>
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<td>Gross Anatomy (10-6)</td>
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<td>404</td>
<td>Human Embryology (3)</td>
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<td>405-406</td>
<td>Microscopic and Submicroscopic Anatomy (3-5)</td>
<td>Bennett</td>
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<td>409</td>
<td>Basis of Neurology (3,5, or 8)</td>
<td>Bennett</td>
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<td>510</td>
<td>Cytochemistry (4)</td>
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<td>Biological X-ray Structure Analysis (3)</td>
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<td>Seminar in Molecular and Submicroscopic Anatomy (2)</td>
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<td>Brain Dissection (2)</td>
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<td>Prenatal Anatomy I (4)</td>
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<td>Prenatal Anatomy IV (4)</td>
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<td>550</td>
<td>Biological Polarization Microscopy (4)</td>
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<td>555</td>
<td>Mammalian Reproduction (3)</td>
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<td>557</td>
<td>Seminar (1-3, maximum 9)</td>
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<td>560</td>
<td>Quantitative Optical Methods in Cytology (3)</td>
<td>Thornburg</td>
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<td>581, 582, 583, 584</td>
<td>Surgical Anatomy I, II, III, IV (4,4,4,4)</td>
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<td>600</td>
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<td>Thesis (*)</td>
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</table>
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

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<thead>
<tr>
<th>Course</th>
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<th>Instructor(s)</th>
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<td>483</td>
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<td>Medical Students' Elective (*)</td>
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<td>520</td>
<td>Seminar (1-3, maximum 9)</td>
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<tr>
<td>521</td>
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<td>Dandliker</td>
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<tr>
<td>562</td>
<td>Physical Biochemistry (2)</td>
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<td>Dandliker</td>
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<td>563, 564</td>
<td>Proteins (2,2)</td>
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<td>Dandliker, Neurath, Wilcox</td>
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<td>565, 566, 567</td>
<td>Enzymes and Enzyme Action (2,2,2)</td>
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<td>Fischer, Huennckens</td>
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<td>568</td>
<td>Biochemistry of Lipides (2)</td>
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<td>Hanahan</td>
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<td>569</td>
<td>Topics in Bio-organic Chemistry (2)</td>
<td></td>
<td>Huennckens, Wilcox</td>
</tr>
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<td>570</td>
<td>Biochemical Aspects of Disease (2)</td>
<td></td>
<td>Krabbs</td>
</tr>
<tr>
<td>583</td>
<td>Advanced Biochemistry Laboratory (3)</td>
<td></td>
<td>Staff</td>
</tr>
<tr>
<td>600</td>
<td>Research (*)</td>
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<td>Staff</td>
</tr>
</tbody>
</table>

Prerequisite, permission.
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: Nitrosobacteriae, Rhodobacteriae, Caulobacteriae, Actinomyctetes, Myxobacteriae, Chlamydiobacteriae, Caryophanaes, 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 (5,6-6-6,16) Staff
441-442-443 General and Special Pathology (5-5-5) Staff
446-447 Laboratory Procedures (*-*+) (See Conjoint Courses, page 154.) Staff
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)  
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)  
Assignments according to need and background. By arrangement, for fellows and graduate students.

600 Research (*)  
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.

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.

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.)
304-305 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
521 Biophysics Seminar (2-5) Young
522 Biophysics of External Respiration (2-5) Carlson, Young
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
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, Schor
Study and use of research instruments applicable to the nervous system (stimulators, amplifiers, and oscilloscopes), the cardiovascular system (einemfluorograph, electro- and stetho-cardiograph, oximeter, strain gauge manometers, etc.), and respiratory and metabolic activity (flow meters, minute volume integrator, infrared and paramagnetic gas analyzers, cardiotachometer, 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
# COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>Biostatistics</td>
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<td>420</td>
<td>Principles of Public Health I</td>
<td>2</td>
</tr>
<tr>
<td>421</td>
<td>Principles of Public Health II</td>
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<td>425</td>
<td>Epidemiology of Communicable Diseases</td>
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<td>440</td>
<td>Environmental Health I</td>
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<td>450</td>
<td>Measurement and Control of Air Pollution</td>
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<td>453</td>
<td>Industrial Hygiene Techniques</td>
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<td>Field Training in Health Education</td>
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<td>School and Community Health Programs</td>
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<td>475</td>
<td>Clerkships and Seminar (*)</td>
<td></td>
</tr>
<tr>
<td>476</td>
<td>Advanced Biometry</td>
<td>5</td>
</tr>
<tr>
<td>477</td>
<td>Statistical Methods in Biological Assay</td>
<td>3</td>
</tr>
<tr>
<td>480</td>
<td>Public Health Problems (*)</td>
<td>6</td>
</tr>
<tr>
<td>482</td>
<td>Field Practice in Public Health</td>
<td>2-6</td>
</tr>
<tr>
<td>483</td>
<td>Field Practice in Public Health</td>
<td>6</td>
</tr>
<tr>
<td>484</td>
<td>Field Practice in Public Health</td>
<td>3</td>
</tr>
<tr>
<td>485J</td>
<td>School Health Problems</td>
<td>2</td>
</tr>
<tr>
<td>492J</td>
<td>Problems in International Health</td>
<td>2</td>
</tr>
<tr>
<td>496</td>
<td>Concept of the Child</td>
<td>3</td>
</tr>
<tr>
<td>497</td>
<td>Medical Students' Elective (*)</td>
<td></td>
</tr>
<tr>
<td>502J</td>
<td>Applied Group Development Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

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.

## 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>350-351</td>
<td>Human Function and Structure</td>
<td>6-6</td>
<td>Skahen, Staff</td>
</tr>
</tbody>
</table>

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, Krobs, 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) De'sher, 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
Hereditary, constitutional, 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 557. 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.
The Department of Surgery offers courses leading to the degree of Master of Science. The purpose of this program is not to train students in the art of surgery or in surgical techniques, but to encourage basic science research in surgical problems on a graduate level.

Departmental requirements for candidacy include an M.D. degree from an approved medical school and preferably a year of internship in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

Candidates must earn a minimum of 45 credits, including not less than 15 credits of course work, exclusive of research, in surgery and allied graduate courses. A minor is to be taken in one of the basic sciences—anatomy, biochemistry, microbiology, pathology, pharmacology, or physiology and biophysics. The thesis must be based upon research carried out under the supervision of a member of the full-time teaching staff. The student must appear at an oral examination in which his thesis is defended and knowledge of his major and minor fields is demonstrated.

The examiners will consist of a committee appointed by the Department of Surgery.

**COURSES**

520 Seminar (5)  Harkins, Merendino, Nyhus
Conferences, seminars, and round-table discussions of advanced surgical topics and recent literature in the field.

581, 582, 583, 584 Surgical Anatomy I, II, III, IV (4,4,4,4) (See Conjoint Courses, page 154.)

590 Surgical Experimental Techniques (5)  Harkins, Merendino, Nyhus
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, 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.
NURSING 157

MASTER OF ARTS. The requirements for the Master of Arts are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course work in major field</td>
<td>18</td>
</tr>
<tr>
<td>Nursing 521</td>
<td>2</td>
</tr>
<tr>
<td>Education 591</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>10</td>
</tr>
<tr>
<td>Course work in minor field</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>45</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course work in major field</td>
<td>18</td>
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<tr>
<td>Nursing 521</td>
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<td>Education 591</td>
<td>3</td>
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<tr>
<td>Thesis</td>
<td>10</td>
</tr>
<tr>
<td>Supporting courses from allied fields</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>45</td>
</tr>
</tbody>
</table>

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) Offered jointly with the Department of Public Health and Preventive Medicine.
492J Problems in International Health (2) 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) Leary
501 Development of Nursing Procedures (2) Wasson
502J Applied Group Development Principles (3) Burke, Vavra
505 Seminar in Administration of Schools of Nursing (3) Hoffmann, Tschudin
506 Seminar in Nursing Service Administration (3) Smith

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.

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.

Discussion, analysis of situations in administration of schools of nursing. Prerequisite, 455 or equivalent.

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 psychophysiological 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 (*)
Thesis (*)

PHARMACOGNOSY
405 Advanced Pharmacognosy (3) Tyler
406 Medicinal Plants (2) Tyler
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 (*)
Thesis (*)

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 (*)
Thesis (*)

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

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Field of Social Work (3)</td>
<td>Parsons, Lawrence, Lecturers</td>
</tr>
<tr>
<td>302</td>
<td>Introduction to Child Welfare (2)</td>
<td>Lawrence, Parsons</td>
</tr>
<tr>
<td>304</td>
<td>Case Work Interviewing (2)</td>
<td>Reiss, Lawrence</td>
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<tr>
<td>306</td>
<td>Public Welfare Programs in the United States (3)</td>
<td>Parsons, Casey</td>
</tr>
<tr>
<td>502</td>
<td>Development of Social Service Programs (2)</td>
<td>Howery, Walter, Lawrence</td>
</tr>
<tr>
<td>509</td>
<td>Readings in Social Work (*, maximum 6)</td>
<td>Staff</td>
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<tr>
<td>510</td>
<td>Social Case Work (2)</td>
<td>Abrahamson, Gronewold, Reiss</td>
</tr>
<tr>
<td>511</td>
<td>Social Case Work (2)</td>
<td>Abrahamson, Gronewold, Reiss</td>
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<tr>
<td>512</td>
<td>Social Case Work (2)</td>
<td>Abrahamson, Gronewold, Reiss</td>
</tr>
<tr>
<td>515</td>
<td>Field Work (4, maximum 12)</td>
<td>Macdonald, Staff</td>
</tr>
<tr>
<td>520</td>
<td>Seminar (*, maximum 6)</td>
<td>Staff</td>
</tr>
<tr>
<td>521</td>
<td>Social Group Work (2)</td>
<td>Walter</td>
</tr>
<tr>
<td>530</td>
<td>Advanced Case Work (2)</td>
<td>Abrahamson, Hunt</td>
</tr>
<tr>
<td>531</td>
<td>Advanced Case Work (2)</td>
<td>Abrahamson, Hunt</td>
</tr>
</tbody>
</table>
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) Howory
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: Edward 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. Pre-requisite 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 Com-
mission, 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 coopera-
tive 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 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
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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

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 ALL 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.)

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
THOMAS BALMER
MRS. A. SCOTT BULLITT
JOSEPH DRUMHELLER
MRS. J. HERBERT GARDNER
CHARLES M. HARRIS

HELEN E. HOAGLAND, Secretary
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RICHARD B. AMANDES, LL.M.

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)

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)

Fletcher, Robert, 1956, Associate Professor of Law
(Personal Property, Code Pleading, Constitutional Law, Future Interests)

Gallagher, Marian Gould, 1944 (1953), Professor of Law; Law Librarian
(Legal Bibliography, Legal Research and Writing)

Gose, J. Gordon, 1944 (1946), Professor of Law
(Business Associations, Wills and Administration, Corporation Finance, Taxation)

Harsch, Alfred, 1930 (1940), Professor of Law
(Taxation, Estate Planning, Legislation, State and Local Taxes)

Johnson, Ralph W., 1955 (1956), Associate Professor of Law
(Agency, Natural Resources, Real Property, Damages, Personal Property)
Kehoe, Adlore R., 1957, Lecturer in Law
(Estate Planning)

Levy, Ernst, 1937 (1952), Professor Emeritus of History, Political Science and Law

Meisenholder, Robert, 1954, Professor of Law
(Business Associations, Evidence, Code Pleading, Federal Jurisdiction)

Morris, Arval, 1955 (1956), Assistant Professor of Law
(Constitutional Law, Criminal Law, Local Government Law, Problems in Constitutional Law)

Nottelmann, Rudolph H., 1927, Professor of Law
(Equity, Trusts and Fiduciary Administration, Comparative Law, Restitution)

Peck, Cornelius J., 1954 (1956), Professor of Law
(Torts, Administrative Law, Labor Law, Labor Relations)

Richards, John W., 1931 (1937), Professor of Law
(Torts, Evidence, Admiralty)

Rieke, Luvern V., 1949 (1958), Professor of Law
(Contracts, Domestic Relations, Government Regulation of Business)

Shattuck, Warren L., 1935 (1941), Professor of Law
(Contracts, Credit Transactions, Mortgages, Suretyship)

Stevens, George Neff, 1952, Dean of the School of Law; Professor of Law
(Legal Administration, Office Management and Professional Responsibility)

Taylor, Robert L., 1941 (1945), Professor of Law
(Commercial Transactions, Agency, Insurance, Corporation Finance)

Trautman, Philip A., 1936 (1957), Assistant Professor of Law
(Legal Research and Writing, Conflict of Laws, Trial and Appellate Practice, Administrative Law)

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
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
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
Rohlfs, 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
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
GENERAL INFORMATION

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.

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 Residence Halls 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 extracurricular (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.

<table>
<thead>
<tr>
<th>Law School Aptitude Test Score</th>
<th>Grade-Point Average (on a 4.00 basis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.S.A.T. Points</td>
<td>G.P.A.</td>
</tr>
<tr>
<td>605 and above</td>
<td>3.32 and above</td>
</tr>
<tr>
<td>555 - 604</td>
<td>3.11 - 3.31</td>
</tr>
<tr>
<td>530 - 529</td>
<td>2.92 - 3.10</td>
</tr>
<tr>
<td>501 - 529</td>
<td>2.78 - 2.91</td>
</tr>
<tr>
<td>478 - 500</td>
<td>2.65 - 2.77</td>
</tr>
<tr>
<td>451 - 477</td>
<td>2.54 - 2.64</td>
</tr>
<tr>
<td>430 - 450</td>
<td>2.47 - 2.53</td>
</tr>
<tr>
<td>403 - 429</td>
<td>2.31 - 2.46</td>
</tr>
<tr>
<td>355 - 402</td>
<td>2.17 - 2.30</td>
</tr>
<tr>
<td>200 - 354</td>
<td>2.00 - 2.16</td>
</tr>
<tr>
<td></td>
<td>Below 2.00</td>
</tr>
</tbody>
</table>

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, IB 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, IB 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
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
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

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: $640.00-$660.00
- 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) .................................. Rieke, Shattuck
110 Legal Administration (3) ................................ Stevens
120 Personal Property (4) .................................. Johnson, Fletcher
121 Real Property (3-3) .................................. Cross, Johnson
132 Criminal Law and Procedure (2-3) .................. Cosway, Morris
140 Torts (3-3-4) ........................................... Peck, Richards
141 Agency (3) .............................................. Johnson, Taylor
160, 161, 162 Legal Research and Writing (1,2,1) .......... Gallagher, Trautman, Amandes, Staff

**SECOND YEAR**

200 Commercial Transactions (4-3) .................. Cosway, Taylor
201 Business Associations (3-3) ......................... Gose, Meisenholder
210 Evidence (3-3) ......................................... Meisenholder, Richards
212 Equity (3-3) ........................................... Cross, Nottelmann
213 Jurisdiction, Venue, and Code Pleading (4) ........ Fletcher, Meisenholder
230 Constitutional Law (2-2-3) .......................... Fletcher, Morris
231 Taxation (2-3) ......................................... Harsch, Gose
234 Administrative Law (4) ................................ Peck, Trautman

**THIRD YEAR**

**Property**

320 Trusts and Fiduciary Administration (3-3) ........ Nottelmann
*321 Land Transactions (2-3) .......................... Cross
322 Future Interests (3) .................................. Fletcher

* Will not be offered 1958-59.
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<tr>
<th>Course Code</th>
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<td>324*</td>
<td>Landlord and Tenant (3)</td>
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<td>Estate Planning (2-2)</td>
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<td>301</td>
<td>Corporation Finance and Related Tax Problems (2-2)</td>
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<td>302</td>
<td>Creditors' Rights (3)</td>
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**SUMMER, 1958**

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<td>342b</td>
<td>Admiralty (3)</td>
<td>Richards</td>
</tr>
<tr>
<td>§343a-b</td>
<td>Conflict of Laws (3-2)</td>
<td>Stumberg</td>
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<tr>
<td>349a</td>
<td>Wills (3)</td>
<td>Richards</td>
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**SUMMER, 1959 (Tentative)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>†120a</td>
<td>Personal Property (4)</td>
<td>Staff</td>
</tr>
<tr>
<td>‡§132a-b</td>
<td>Criminal Law and Procedure (2-3)</td>
<td>Staff</td>
</tr>
</tbody>
</table>

* 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, Dominic 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
Clann, 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. ........................................................................ Treheway, Joseph H.
Hendel, Douglas R. ................................................................. Tuai, 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 C.
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.
Thorpe, 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

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
Caroldene 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. Springer
4th prize—Barry A. Schneiderman

Law Class of 1939 Scholarship
Robert Myers Westberg

Last Week Award
Eugene J. Craig
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

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. Stoebuck

Allen L. Carr
Joseph J. Farris
Robert G. Griffin
A. Eugene Hammemaster
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

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. Sayler
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 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
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  Committees

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  Housing
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  Associated Students

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  Processing of Applications
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## CALENDAR

*All fees must be paid at the time of registration.*

### AUTUMN QUARTER, 1958

<table>
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<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPT. 23</td>
<td>Instruction begins, Medicine III and IV, Term 1 (8 a.m.)</td>
</tr>
<tr>
<td>OCT. 1</td>
<td>Instruction begins, Medicine I and II (8 a.m.)</td>
</tr>
<tr>
<td>NOV. 8</td>
<td>Instruction ends, Medicine IV (1 p.m.)</td>
</tr>
<tr>
<td>NOV. 10</td>
<td>Instruction begins, Medicine IV, Term 2 (8 a.m.)</td>
</tr>
<tr>
<td>NOV. 11</td>
<td>State Admission Day holiday, Medicine I and II</td>
</tr>
<tr>
<td>NOV. 20</td>
<td>Instruction ends, Medicine III (5 p.m.)</td>
</tr>
<tr>
<td>NOV. 21</td>
<td>Instruction begins, Medicine III, Term 2 (8 a.m.)</td>
</tr>
<tr>
<td>NOV. 26</td>
<td>Thanksgiving recess (5 p.m. to 8 a.m.)</td>
</tr>
<tr>
<td>DEC. 15-19</td>
<td>Examinations, Medicine I and II</td>
</tr>
<tr>
<td>DEC. 19</td>
<td>Instruction ends, Medicine I and II (5 p.m.)</td>
</tr>
<tr>
<td>DEC. 23</td>
<td>Christmas recess begins, Medicine III and IV (5 p.m.)</td>
</tr>
<tr>
<td>JAN. 5</td>
<td>Christmas recess ends, Medicine III and IV (8 a.m.)</td>
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### WINTER QUARTER, 1959

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<tr>
<td>JAN. 5</td>
<td>Instruction begins, Medicine I and II (8 a.m.)</td>
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<tr>
<td>JAN. 10</td>
<td>Instruction ends, Medicine IV (1 p.m.)</td>
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<tr>
<td>JAN. 12</td>
<td>Instruction begins, Medicine IV, Term 3 (8 a.m.)</td>
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<tr>
<td>FEB. 4</td>
<td>Instruction ends, Medicine III (5 p.m.)</td>
</tr>
<tr>
<td>FEB. 5</td>
<td>Instruction begins, Medicine III, Term 3 (8 a.m.)</td>
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<tr>
<td>FEB. 23</td>
<td>Washington’s Birthday and Founder’s Day holiday</td>
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<tr>
<td>FEB. 28</td>
<td>Instruction ends, Medicine IV (1 p.m.)</td>
</tr>
<tr>
<td>MAR. 2</td>
<td>Instruction begins, Medicine IV, Term 4 (8 a.m.)</td>
</tr>
<tr>
<td>MAR. 16-20</td>
<td>Examinations, Medicine I and II</td>
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<tr>
<td>MAR. 20</td>
<td>Instruction ends, Medicine I and II (5 p.m.)</td>
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### SPRING QUARTER, 1959

<table>
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<tbody>
<tr>
<td>MAR. 30</td>
<td>Instruction begins, Medicine I and II (8 a.m.)</td>
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<tr>
<td>APR. 7</td>
<td>Instruction ends, Medicine III (5 p.m.)</td>
</tr>
<tr>
<td>APR. 8</td>
<td>Instruction begins, Medicine IV, Term 4 (8 a.m.)</td>
</tr>
<tr>
<td>APR. 18</td>
<td>Instruction ends, Medicine IV (1 p.m.)</td>
</tr>
<tr>
<td>APR. 20</td>
<td>Instruction begins, Medicine IV, Term 5 (8 a.m.)</td>
</tr>
<tr>
<td>MAY 30</td>
<td>Memorial Day holiday</td>
</tr>
<tr>
<td>JUNE 8-12</td>
<td>Examinations, Medicine I, II, and III</td>
</tr>
<tr>
<td>JUNE 12</td>
<td>Instruction ends, Medicine I, II, III, and IV (5 p.m.)</td>
</tr>
<tr>
<td>JUNE 13</td>
<td>Commencement</td>
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### AUTUMN QUARTER, 1959

<table>
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<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>SEPT. 22</td>
<td>Instruction begins, Medicine III and IV, Term 1 (8 a.m.)</td>
</tr>
<tr>
<td>SEPT. 30</td>
<td>Instruction begins, Medicine I and II (8 a.m.)</td>
</tr>
<tr>
<td>NOV. 7</td>
<td>Instruction ends, Medicine IV (1 p.m.)</td>
</tr>
<tr>
<td>NOV. 9</td>
<td>Instruction begins, Medicine IV, Term 2 (8 a.m.)</td>
</tr>
<tr>
<td>NOV. 11</td>
<td>State Admission Day holiday, Medicine I and II</td>
</tr>
<tr>
<td>NOV. 19</td>
<td>Instruction ends, Medicine III (5 p.m.)</td>
</tr>
</tbody>
</table>
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. 18—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, President
John L. King, Vice-President
Thomas Balmer
Mrs. A. Scott Bullitt
Joseph Drumheller
Mrs. J. Herbert Gardner
Charles M. Harris

Seattle
Seattle
Seattle
Spokane
La Conner
Entiat

HELEN E. HOGLAND, Secretary
NELSON A. WAHLSTROM, Treasurer

OFFICERS OF ADMINISTRATION
Charles E. Odegaard, Ph.D. ........................................ President of the University
Frederick P. Thieme, Ph.D. ........................................ Assistant to the President
Ethelyn Toner, B.A. .................................................. Registrar
Nelson A. Wahlstrom, B.B.A. ..................................... Comptroller and Treasurer
Ernest M. Conrad, B.B.A. .......................................... Business Manager
Donald K. Anderson, B.A. ......................................... Dean of Students
George N. Aagaard, M.D. ........................................... Dean of the School of Medicine

BOARD OF HEALTH SCIENCES
Charles E. Odegaard, Ph.D. ........................................ President of the University
George N. Aagaard, M.D. ........................................... Dean of the School of Medicine; Chairman of the Board
Maurice J. Hickey, M.D., D.M.D. ................................. Dean of the School of Dentistry
Henry A. Burd, Ph.D. ................................................ Acting Dean of the Graduate School
Paul C. Cross, Ph.D. ................................................ Professor of Chemistry; Executive Officer
Jack E. Orr, Ph.D. ..................................................... Dean of the College of Pharmacy
William E. Reynolds, M.D. ......................................... University Health Officer
Mary S. Tschudin, R.N., M.S. ..................................... Dean of the School of Nursing
Lloyd S. Woodburne, Ph.D. ........................................ Dean of the College of Arts and Sciences

MARY ADAMS, Secretary

OFFICERS OF THE SCHOOL OF MEDICINE
George N. Aagaard, M.D. ........................................... Dean
Richard J. Blandau, M.D., Ph.D. .................................. Assistant Dean
James W. Haviland, M.D. ......................................... Assistant Dean
Mary Adams, B.A. .................................................. Assistant to the Dean

HEALTH SCIENCES ADMINISTRATIVE OFFICERS
Jean Ashford, B.A.................................................... Acting Librarian
William R. Cook, B.S. ............................................. Personnel
Derwin R. de Mers .................................................. Business Manager
James H. Farnsworth, M.S. ....................................... Director of Scientific Stores
Donald F. Hiscox, B.F.A. ......................................... Administrative Assistant
Richard L. Johnson ................................................ Buyer
George A. Lehman, B.S. ......................................... Plant Engineer
FACULTY

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

Aagaard, George N., 1954
Dean of the School of Medicine
B.S., 1934, M.B., 1936, M.D., 1937, Instructor of Anatomy

BlanDau, Richard J., 1949
Assistant Dean of the School of Medicine
A.B., 1935, Linfield College; Ph.D., 1939, Brown; M.D., 1948, Rochester

Haviland, James W., 1947
Assistant Dean of the School of Medicine
A.B., 1932, Union College (New York); M.D., 1936, Johns Hopkins

Nolan, Donald E., 1951
Administrative Consultant
M.D., 1936, Minnesota

Sherwood, Kenneth K., 1947
Administrative Consultant
B.S., 1923, B.M., 1925, M.D., 1926, Minnesota

BASIC SCIENCES

ANATOMY

Bennett, Henry Stanley, 1948
Professor of Anatomy; Executive Officer of the Department of Anatomy
A.B., 1932, Oberlin College; M.D., 1936, Harvard

BlanDau, Richard J., 1949 (1951)
Professor of Anatomy; Assistant Dean, School of Medicine
A.B., 1935, Linfield College; Ph.D., 1939, Brown; M.D., 1948, Rochester

Boderner, Charles W., 1956
Instructor in Anatomy
B.A., 1951, Pomona College; M.A., 1952, Claremont Graduate School; Ph.D., 1956, Cornell

Bogarits, George M., 1956
Clinical Associate in Anatomy
M.D., 1938, Duke

Bonica, John J., 1950
Clinical Associate in Anatomy
M.D., 1942, Marquette

Boyden, Edward A., 1955 (1956)
Research Professor of Anatomy

DeMarsh, Quin B., 1947 (1955)
Clinical Associate Professor of Anatomy
B.S., 1935, Washington; M.S., 1937, M.B., 1939, M.D., 1940, Northwestern

Emmel, Harry Elwin, 1948
Clinical Associate in Anatomy
B.A., 1936, Willamette; M.D., 1940, Oregon

Everett, Newton B., 1946 (1948)
Professor of Anatomy
B.S., 1937, M.S., 1938, North Texas State College; Ph.D., 1942, Michigan

Finlayson, Elias L., 1948
Clinical Associate in Anatomy
B.A., 1928, Brigham Young; M.D., 1933, Jefferson Medical College

Fitzmaurice, Bertrand T., 1946
Clinical Associate in Anatomy
B.S., 1930, Washington; M.D., 1934, Northwestern

Greenwald, Gilbert S., 1956
Instructor in Anatomy
A.B., 1949, California; M.A., 1951, California; Ph.D., 1954, California

Griffith, Charles A., 1956
Clinical Associate in Anatomy

Hampton, James C., 1937
Instructor in Anatomy
B.S., 1930, Idaho; M.S., 1952, Idaho; Ph.D., 1957, Washington

Heath, Sherburne W., 1952 (1953)
Clinical Associate in Anatomy
A.B., 1941, Whitman College; M.D., 1945, Marquette

Henry, Frank C., 1961
Clinical Associate in Anatomy
A.B., 1934, James Millikin (Illinois); M.D., 1940, Illinois

Jensen, Lyle H., 1949
Associate Professor of Anatomy
B.A., 1939, Walla Walla College; Ph.D., 1943, Washington

Klemperer, Wolfgang, 1948
Clinical Associate in Anatomy
M.D., 1936, Cornell

Lasher, Earl Parsons, 1946 (1955)
Clinical Assistant Professor of Anatomy
B.A., 1931, B.M., 1934, Cornell
LINDAHL, Wallace W., 1947 (1953) 
Clinical Instructor in Anatomy 
B.S., 1931, Washington State College; 
M.D., 1938, Northwestern

LUFT, John H., 1956 (1958) 
Assistant Professor of Anatomy and 
Senior Research Fellow, National 
Institute 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

ROOSEN-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

SCHAFF, 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

THORNHURST, 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 
B.S., 1947, Geneva (Switzerland)

GOLDWORTHY, 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

**THE SCHOOL OF MEDICINE**

KELLER, Patricia J., 1955 (1956) 
Research Assistant Professor of Medicine 
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 Q., 1954 (1956) 
Research Instructor in Biochemistry 
A.B., 1950, Vassar; Ph.D., 1954, Yale

MURACHI, Takashi, 1957 
Research Associate in Biochemistry 
B.S., 1958, Washington University

NEURATH, Hans, 1950 
Professor of Biochemistry; Executive 
Officer of the Department of 
Physiology in 
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 Anatomy 
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 F., 1958 
Clinical Instructor in Microbiology 
B.S., 1953, Long Island; A.M., 1949, 
Boston; Ph.D., 1952, Washington State 
College

CHAMBERS, Velma C., 1956 (1958) 
Research Instructor and Instructor in 
Microbiology 
B.S., 1953, Stanford; M.D., 1940, Oregon

DOUGLAS, Howard Clark, 1941 (1958) 
Professor of Microbiology 
A.B., 1936, Ph.D., 1949, California

DUCROW, Esther, 1940 (1954) 
Instructor in Microbiology 
B.S., 1934, M.S., 1932, 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., 1925, M.A., 1926, Ph.D., 1931, California

ORLICK, Erving L., 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., 1930, Cornell; Ph.D., 1954, Yale

RIGDWAY, 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.S., 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 C., 1951
Clinical Instructor in Pathology
B.S., 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, Neil, 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

HAIN, 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., 1925, Dartmouth; M.D., 1923, 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

KRADEL, 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)

LICZETE, 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, Chicago

MARTIN, George M., 1957
Instructor in Pathology
B.S., 1949, M.D., 1953, Washington

MASSON, 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., 1938
Asstistant 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

SCHULBERG, Irving I., 1953 (1958)
Clinical Assistant Professor of Pathology
B.A., 1937, M.D., 1940, Southern California

SREEBRY, Leo M., 1957
Associate Professor of Pathology

TESLUK, Henry, 1956
Clinical Assistant Professor of Pathology
A.B., 1941, M.D., 1943, Cornell

TOOLEY, Edward M., 1949
Clinical Instructor in Pathology
A.B., 1939, M.D., 1937, Kansas

WAGNER, Bernard M., 1938
Assistant Professor of Pathology
M.D., 1944, Hahnemann Medical College

WIESGENSTEIN, 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

HORITA, Akira, 1954
Assistant Professor of Pharmacology

LUCSIS, Ted Albert, 1947 (1955)
State Taxonomist; 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

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., 1933, Freiburg (Germany); M.D., 1938, Adelaide (Australia); M.D., 1951, Washington

WEST, Theodore C., 1949 (1955)
Assistant Professor of Pharmacology

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, John J., 1955 (1958)
Research Instructor in Physiology and Biophysics

KAWAHATA, Aikoh, 1958
Research Associate
M.D., 1935, Kyoto University
School of Medicine (Japan)

LEE, John, 1957
Research Instructor

MCREA, 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., 1949, 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

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)
Assistant 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

BRUSSE, Peter A., 1957
Research Instructor in Public Health and Preventive Medicine; Campus Sanitary Engineer

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)

COTHRAH, 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

FARBER, Lloyd M., 1949
Clinical Assistant Professor of Public Health and Preventive Medicine
A.B., 1930, M.D., 1936, C.F.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

HOLDSCHIN, Richard, 1955
Clinical Associate in Public Health and Preventive Medicine
B.S., 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

HOFMANN, 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

KRAUTZ, Frederick W., 1956
Clinical Associate in Public Health and Preventive Medicine
M.D., 1924, Maryland

KUSIAN, Rosa 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

LAWRENCE, Wallace, 1957
Clinical Associate Professor of Public Health and Preventive Medicine
A.B., 1933, M.A., 1935, M.D., 1939, Johns Hopkins; M.P.H., 1951, Johns Hopkins

LENNIEZ, Sanford P., 1951
Clinical Assistant Professor of Public Health and Preventive Medicine
B.S., 1928, Wayne 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

NORTHRUP, Cedric, 1947 (1954)
Clinical Assistant Professor in Public Health and Preventive Medicine
B.A., 1930, M.D., 1936, Oregon

ORMRUD, 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

SHEARING, 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
B.A., 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
WILKEY, John R., 1949 (1952)
Affiliate in General Practice
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.S., 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.D., 1937, Northwestern

CALLELL, 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

DREWLOW, 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

GOIN, 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

GUTTENBAUER, Judson A., 1955
Affiliate in General Practice
B.S., 1940, M.D., 1950, Washington

HAGGLAND, Paul E., 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., 1936, 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, Indiana

KRETZLER, Harry H., 1949
Affiliate in General Practice
B.S., 1921, M.D., 1923, Nebraska

LEIBOLD, Edwin F., 1952
Affiliate in General Practice
B.A., 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.D., 1927, Washington; M.D., 1925, Washington University

LOCKRIDGE, Thaddeus L., 1954
Affiliate in General Practice
B.A., 1936, Montana; M.D., 1942, Pennsylvania

LOHR, 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.C., 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

SCHABLE, Arthur L., 1949
Affiliate in General Practice
B.S., 1930, Valparaiso (Indiana); M.S., M.D., 1933, 1934, 1935, Northwestern

SCHUYLER, Carl J., 1949
Affiliate in General Practice
B.S., 1932, College of Puget Sound; M.D., 1936, Louisville

SCHUYLER, 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, 1949, 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
# THE SCHOOL OF MEDICINE

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<th>Name</th>
<th>Year/Year(s)</th>
<th>Degree</th>
<th>School/Institution</th>
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<tr>
<td>BINGHAM, James B.</td>
<td>1947 (1952)</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>B.S., 1935, M.D., 1937, Wisconsin</td>
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<tr>
<td>BOBROFF, Arthur</td>
<td>1950 (1955)</td>
<td>Clinical Instructor in Medicine</td>
<td>A.B., 1940, New York; M.D., 1944, Louisville</td>
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<tr>
<td>BOGERS, James M.</td>
<td>1947</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>A.B., 1922, M.D., 1925, Michigan</td>
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<tr>
<td>BRANDBORG, Lloyd L.</td>
<td>1956</td>
<td>Assistant in Medicine; Research Fellow</td>
<td>B.A., 1950, California; M.D., 1955, Chicago</td>
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<tr>
<td>BRIDGES, William C.</td>
<td>1948</td>
<td>Clinical Instructor in Medicine</td>
<td>B.S., 1938, Washington; M.D., 1940, Yale</td>
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<tr>
<td>BROWN, Harold W.</td>
<td>1937</td>
<td>Assistant in Medicine</td>
<td>B.S., 1951, College of Idaho; M.D., 1936, Washington</td>
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<tr>
<td>BRUCE, Robert A.</td>
<td>1950 (1954)</td>
<td>Associate Professor of Medicine</td>
<td>B.S., 1938, Boston; M.S., 1940, M.D., 1943, Rochester</td>
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<td>BRUENNER, Bertram F.</td>
<td>1947 (1955)</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>B.S., 1926, M.D., 1929, Minnesota</td>
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<td>BRYER, William B.</td>
<td>1953</td>
<td>Clinical Associate in Medicine</td>
<td>M.D., 1925, Budapest (Hungary)</td>
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<td>BURNELL, James M.</td>
<td>1950 (1954)</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>M.D., 1949, Stanford</td>
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<td>BURNETT, William H., Jr.</td>
<td>1954</td>
<td>Clinical Assistant in Medicine</td>
<td>A.B., 1943, Kenyon College; M.D., 1947, Pittsburgh</td>
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<tr>
<td>CAMPBELL, Alexander D.</td>
<td>1947 (1953)</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>B.A., 1930, Whitman College; M.D. 1934, Johns Hopkins</td>
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<td>CAPACCIO, George D.</td>
<td>1947</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>M.D., 1931, Virginia</td>
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<td>CARPENTER, Robert R.</td>
<td>1958</td>
<td>Assistant in Medicine</td>
<td>B.S., 1953, Pittsburgh; M.D., 1957, Rochester</td>
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<td>CASSERD, Fredrick, Jr.</td>
<td>1955</td>
<td>Clinical Associate in Medicine</td>
<td>B.S., 1947, Washington; M.D., 1950, Oregon</td>
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<tr>
<td>CLARKE, Edmund R., Jr.</td>
<td>1950</td>
<td>Clinical Associate in Medicine</td>
<td>B.A., 1940, Denver; M.D., 1943, Colorado</td>
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<td>CLEMENTS, Randolph, Jr.</td>
<td>1957</td>
<td>Clinical Associate in Medicine</td>
<td>M.D., 1949, Texas</td>
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<td>CLEVELAND, Fred Edward</td>
<td>1951 (1954)</td>
<td>Clinical Assistant Professor of Medicine; Lecturer in Nursing</td>
<td>B.S., 1937, M.D., 1941, Virginia</td>
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<td>COBB, Leonard A.</td>
<td>1957</td>
<td>Assistant in Medicine</td>
<td>B.S., 1940, Cornell; M.D., 1952, Washington</td>
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<tr>
<td>COBURN, Jack W.</td>
<td>1958</td>
<td>Assistant in Medicine</td>
<td>B.S., 1953, Redlands; M.D., 1957, California at Los Angeles</td>
</tr>
<tr>
<td>COLEMAN, Daniel</td>
<td>1950 (1953)</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>M.D., 1945, Jefferson Medical College</td>
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## MEDICINE

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<th>Name</th>
<th>Year</th>
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<th>School/Institution</th>
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<tr>
<td>AAGAARD, George N.</td>
<td>1954</td>
<td>Professor of Medicine</td>
<td>B.S., M.D., M.D., 1937, Minnesota</td>
</tr>
<tr>
<td>AHERN, James</td>
<td>1951 (1954)</td>
<td>Clinical Assistant Professor of Medicine</td>
<td>B.S., 1938, Washington; M.D., 1945, Chicago</td>
</tr>
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<td>ANDRUS, William W.</td>
<td>1955</td>
<td>Clinical Associate in Medicine</td>
<td>M.D., 1953, Harvard</td>
</tr>
<tr>
<td>ARONSON, Samuel F.</td>
<td>1957 (1958)</td>
<td>Clinical Associate Professor of Medicine</td>
<td>B.S., 1931, Washington; M.D., 1936, Northwestern</td>
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<td>ARST, Daniel B.</td>
<td>1955</td>
<td>Clinical Associate in Medicine</td>
<td>A.B., 1939, Municipal University of Wichita; M.D., 1944, Kansas</td>
</tr>
<tr>
<td>BAILEY, Richard J.</td>
<td>1954</td>
<td>Clinical Affiliate in Medicine</td>
<td>M.S., 1926, M.D., 1927, Minnesota</td>
</tr>
<tr>
<td>BAKKE, John L.</td>
<td>1951 (1956)</td>
<td>Assistant Professor of Medicine</td>
<td>B.S., 1943, Washington State College; M.D., 1945, Harvard</td>
</tr>
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<td>BAKKEN, Elsie L.</td>
<td>1952</td>
<td>Clinical Assistant in Medicine</td>
<td>B.A., 1947, Santa Barbara College; M.S., 1951, Pennsylvania</td>
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<td>BALEW, Donald H.</td>
<td>1957</td>
<td>Assistant in Medicine</td>
<td>B.A., 1951, Washington; M.D., 1955, Michigan</td>
</tr>
<tr>
<td>BANNICK, Edwin G.</td>
<td>1947</td>
<td>Clinical Professor of Medicine</td>
<td>B.S., 1918, M.D., 1920, Iowa</td>
</tr>
<tr>
<td>BARNES, Robert H., Jr.</td>
<td>1950 (1952)</td>
<td>Clinical Assistant Professor in Medicine</td>
<td>B.S., 1949, Virginia Military Institute; M.D., 1943, Virginia</td>
</tr>
<tr>
<td>BARRETT, Beach</td>
<td>1955 (1958)</td>
<td>Clinical Instructor in Medicine</td>
<td>M.D., 1940, Cornell; M.D., 1952, Washington</td>
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<tr>
<td>BEALL, Gildon N.</td>
<td>1957</td>
<td>Assistant in Medicine</td>
<td>B.S., 1950, M.D., 1953, Washington</td>
</tr>
<tr>
<td>BECUNN, Warren C.</td>
<td>1957</td>
<td>Assistant in Medicine; Research Fellow</td>
<td>B.S., 1949, Haverford College; M.D., 1953, Temple</td>
</tr>
</tbody>
</table>
COLLINS, John D., 1947 (1956)
Clinical Assistant Professor of Medicine
B.S., 1933, Washington; M.D., 1937, Northwestern

COLWILL, Jack M., 1958
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CROSBIE, James, 1952 (1954)
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DAVIS, Kenneth III, 1956
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DARVILL, Jr., Fred T., 1954 (1956)
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DECKER, Harold T., 1957
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DEMARSH, Quin, 1947 (1952)
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B.S., 1935, Washington; M.S., 1937, B.M., 1939, M.D., 1940, Northwestern

DODGE, Arnold L., 1947
Assistant Professor of Medicine
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DONOHUE, Dennis M., 1952 (1958)
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DUNNING, Marecille F., 1952 (1955)
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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., 1939, California; M.S., 1953, Ph.D., 1955, Washington

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EGGERS, Rolf van Kerval, 1947 (1954)
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B.A., B.S., 1930, North Dakota; M.D., 1933, Chicago

ELGEE, Neil J., 1952 (1957)
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EVANS, Ernest M., 1949
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EVANS, Robert S., 1951
Associate Professor of Medicine
B.S., 1934, Washington; M.D., 1938, Harvard

EVANS, Thomas O., 1958
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B.S., 1953, M.D., 1956, Washington

EVER, 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

FEILER, David D., 1952 (1956)
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FERGUS, Emily B., 1953 (1958)
Clinical Instructor in Medicine
A.B., 1946, Mount Holyoke; M.D., 1950, Pittsburgh

FEY, Louis D., 1947
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B.S., 1934, Washington; M.B., 1938, M.D., 1939, Northwestern

FINCH, Clement A., 1949 (1955)
Professor of Medicine
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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., 1930, 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., 1939, M.D., 1940, 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
B.S., 1951, Western Reserve

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., 1930, Washington State College; M.D., 1934, Washington University

GABRIO, Beverly W., 1952 (1956)
Clinical Instructor in Medicine
B.A., 1939, M.D., 1942, 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

GREENE LEAF, Richard Cranch, 1950
Clinical Assistant Professor
B.S., 1939, Yale; M.D., 1942, Columbia

GUUNDERSEN, 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  

HALLET, Wilbur Y., 1954  
Assistant in Medicine and Research Fellow  
M.D., 1953, Rochester  

HALSEY, Jadwiga 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  
Assistants in Medicine  
A.B., 1951, 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.D., 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  

JOBBI, Emil, 1947  
Clinical Instructor in Medicine; Lecturer  
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., 1953  
Clinical Instructor in Medicine  
B.A., 1943, M.D., 1946, Oregon  

KATZMAN, 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., 1949 (1955)  
Professor of Medicine  
B.S., 1936, Trinity College; M.D., 1940, Cornell  

KLAIBER, Edward L., 1957  
Assistant in Medicine  
A.B., 1932, 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  
B.S., 1930, M.D., 1928, 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  
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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  

LYMAN, 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

LINDSLEY, Michael A., 1955 (1958)  
Clinical Instructor in Medicine  
B.S., 1950, M.D., 1953, Rochester

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

MARTIN, Carroll J., 1952 (1957)  
Clinical Assistant Professor of Medicine  
B.S., 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,  
Northwestern

MORGAN, Edward H., 1951 (1957)  
Clinical Assistant Professor of Medicine;  
Lecturer in Nursing  
B.A., 1951, M.D., 1953, Northwestern

MORLEDFE, 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)  
Assistant 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, Avery M., 1947  
Clinical Instructor in Medicine  
B.S., 1937, Washington; M.D., 1941,  
Oregon

NELSEN, Robert L., 1952 (1957)  
Clinical Instructor  
M.D., 1951, Harvard

NOLAN, Donald E., 1951  
Clinical Assistant Professor of Medicine;  
Administrative Assistant  
M.D., 1951, 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

PAIXON, Chauncey G., 1956 (1957)  
Clinical Associate in Medicine  
M.D., 1950, Jefferson Medical College

PERSALL, 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.S. 1937, Bryn Mawr; M.D., 1941, Johns Hopkins


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

PIUM, Fred, 1953 Associate Professor of Medicine (Neurology) A.B., 1944, Dartmouth; M.D., 1947, Coth

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.D., 1939, M.D., 1940, Johns Hopkins

RADKE, Ryle A., 1955 (1958) Clinical Assistant Professor of Medicine M.D., 1954, 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

ROYJS, 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


SCHMIDT, Richard P., 1956 Assistant Professor of Surgery (Neuro-anatomy) and Medicine (Neurology) B.S., 1942, Kent State; M.D., 1945, Louisville


SCOTT, Michael J., 1952 (1955) Clinical Instructor in Medicine B.S. 1946, Creighton

SCRINER, 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, Harvard

SHEEHY, Thomas E., 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


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


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, Missouri

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 E., 1957 Assistant in Medicine B.S., 1952, Cincinnati; M.S., 1956, Chicago

STEvens, Alexander, 1951 (1957) Clinical Associate 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


TANNER, Donald C., 1950 (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

VOGTLIN, Walter L., 1947
Clinical Assistant Professor of Medicine

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., 1939, 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

WOLEE, 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., 1933, North Dakota; M.D., 1937, Northwestern

OBSTETRICS AND
GYNECOLOGY

AFONSO, Jose Filipe de Sanches, 1954 (1957)
Instructor in Obstetrics and Gynecology
M.D., 1952, Oporto (Portugal)

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

COTTING, 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, 1938
Assistant in Obstetrics and Gynecology
B.A., 1953, M.D., 1956, Washington

GABRIEL, Wesley F., 1954 (1957)
Clinical Associate in Obstetrics and Gynecology
A.B., 1939, 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
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

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 Assistant 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., 1953, 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

MACAMY, 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

NISO, 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

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 McIlhaney, 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, Amberst; M.D., 1943, 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, 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., 1937
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
LABBE, Robert, 1957
Research Assistant Professor of Pediatrics
B.S., 1940; M.D., 1943, Oregon

LEWIS, Donald, 1956
Clinical Assistant Professor of Pediatrics
B.S., 1947; M.D., 1951, Northwestern

LUC, 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 Assistant 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., 1930, 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., 1939, 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 (1955)
Clinical Assistant Professor of Pediatrics
B.A., 1941, Amherst College; M.D., 1944, Cornell
PHYSICAL MEDICINE AND REHABILITATION

BOWING, Shirley M., 1958
Instructor in Occupational Therapy; Head, Division of Occupational Therapy
B.S., 1943, Minnesota; M.A., 1955, Iowa

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 University

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 (1938)
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

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 Affiliate 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., 1937, M.D., 1938, Loyola

DORPAT, Theodore L., 1953 (1958)
Assistant Professor of Psychiatry
B.S., 1948, Whitworth; M.D., 1952, Washington

DRAFER, 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

FOODYE, Wilbert E., 1953 (1954)
Clinical Instructor in Clinical Psychology
B.S., 1948, M.S., 1951, Ph.D., 1953, Washington

GABLE, Charles M., 1956
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

HEDRICKS, Roger C., 1949 (1958)
Clinical Assistant Professor of Psychiatry
M.D., 1941, Rush Medical College
HOEDEMATER, 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
B.D., 1945, Rochester

HURLEY, Albert M., 1952 (1956)
Clinical Instructor in Psychiatry
B.S., 1942, St. Joseph College; M.D., 1946, Marquette

IVERSON, Carrol 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., 1946, 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 Psychiatry
B.A., 1941, 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

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., 1955, 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., 1926, Washington; B.M., 1941, M.D., 1943, M.S., 1949, Northwestern

PETERS, William F., 1953 (1956)
Clinical Instructor in Psychiatry
B.S., 1950, Temple

POPE, Bernard J., 1956
Clinical Associate in Psychiatry
M.D., 1938, St. Louis

POSELL, Edward A., 1949 (1953)
Clinical Affiliate in Psychiatry
B.S., 1911, 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

STOLZEHEISE, Ralph M., 1948
Clinical Instructor in Psychiatry
A.B., 1926, Willamette; M.D., 1934, Oregon

STRAUB, Glenn T., 1953 (1956)
Instructor in Psychiatry
M.D., 1946, Washington

STROther, Charles R., 1949
Professor of Clinical Psychology in the School of Medicine
B.S., 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

WELT, Walter B., 1952 (1958)
Clinical Instructor in Psychiatry
(Social Work)
A.B., 1930, M.S.W., 1937, Washington

Clinical Assistant Professor of Psychiatry
B.A., 1943, M.D., 1946, Utah

WHITING, Adolph M., 1951
Clinical Instructor in Psychiatry
B.S., 1945, 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

THE SCHOOL OF MEDICINE

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

BRECHER, 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., 1952, Harvard

CARLILE, Thomas Burnham, 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., B.B., 1931, M.D., 1932, Minnesota

ROESCH, William C., 1953
Clinical Instructor in Radiology
A.B., 1943, 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
FACULTY

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, Orliss 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


BETZTA, Francesco, 1956 Assistant in Surgery M.D., 1946, Pavia, Italy; M.D., 1950, Washington


BLACKMAN, James, 1948 Consultant in Surgery A.B., 1928, Kalamazoo College (Michigan); M.D., 1932, Johns Hopkins


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., 1945, Nebraska


BUCHMAN, Helen, 1956 Research Associate in Surgery B.Sc., 1945, British Columbia; M.A., 1948, California

BUCKER, 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 T., 1957 Clinical Associate in Orthopedic Surgery B.S., 1938, Washington; M.D.C.M., 1942, McGill

CAMMOCK, Earl E., 1956 Assistant in Surgery A.B., 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., 1948 Consultant in Orthopedic Surgery M.D., 1907, Pennsylvania


CHAPMAN, Warren H., 1957 Clinical Associate in Urology B.S., 1956 Massachusetts Institute of Technology; M.D., 1952, Chicago

CHIS, Carl E., 1932 (1958) Clinical Instructor in Surgery B.S., 1936, M.D., 1941, Nebraska


COMPTON, David W., 1949 Clinical Associate in Anesthesiology B.S., 1937, Washington; M.D., 1941, Pennsylvania


DAY, Sherman W., Jr., 1955 Clinical Associate in Surgery B.S., 1944, Anesthetology; M.D., 1947, M.S., 1952, Northwestern

DeFREE, 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.S., 1949, British Columbia; M.D., 1953, Washington  

DILLARD, David H., 1953  
Instructor in Surgery  
A.B., 1946, Whitman College; M.D., 1950, Johns Hopkins  

DIRSTONE, Morris J., 1947  
Clinical Associate in Surgery  
Ph.G., 1926, Washington State College;  
B.S., 1922, 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 Surgery  
M.D., 1948, Colorado  

EDMARK, K. William, Jr., 1955  
Clinical Instructor in Surgery  
B.S., 1946, Chicago; M.D., 1950, Harvard  

EMHEL, Harry E., 1948  
Clinical Associate in Orthopedic Surgery  
B.A., 1944, Hampden Sydney College (Virginia); M.D., 1948, Virginia  

EGGERS, Harold E., 1948 (1956)  
Clinical Instructor in Urology  
B.S., 1933, M.D., 1937, Nebraska  

EVAN, Matthew H., 1948  
Clinical Associate in Surgery  
B.S., 1941, St. Louis  

FAUNAU, Clyde L., 1957  
Assistant in Surgery  
A.B., 1947, Swarthmore, M.D., 1951, Pennsylvania  

FINLEY, John W., 1953 (1958)  
Clinical Instructor in Surgery  
B.S., 1944, Idaho; M.D., 1948, Harvard  

FLASHMAN, Forrest L., 1950  
Clinical Associate in Orthopedic Surgery  
M.D., 1941, Northwestern  

FLORER, Robert E., 1948 (1958)  
Clinical Instructor in Surgery  
B.S., 1940, Idaho; M.D., 1946, Harvard  

FOLTZ, Eldon L., 1950  
Assistant Professor of Surgery  
B.S., 1937, M.A., 1938, Clark (Massachusetts); Ph.D., 1949, Wisconsin  

FLOEGER, Robert, 1951 (1958)  
Assistant Professor of Orthopedic Surgery  
B.S., 1938, Western Kentucky State Teachers College; M.D., 1941, Louisville  

FLOYD, Robert D., 1947 (1948)  
Senior Consultant in Surgery  
M.D., C.M., 1947, McGill (Canada)  

FOXWORTHY, Laurel R., 1949  
Clinical Associate in Ophthalmology  
M.S., 1937, M.D., 1939, Indiana  

FREDERICKSON, James, 1956  
Assistant in Surgery  
B.A., 1949, Rutgers; M.D., 1953, Columbia  

GLODY, Park W., 1956  
Clinical Associate in Orthopedics  
B.S., 1945, W. Washington; M.D., 1948, Pennsylvania  

GOFF, William 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., 1951 (1955)  
Clinical Instructor in Surgery  
B.S., 1942, M.D., 1945, Harvard  

GUSTAFSON, Ivan J., 1951 (1955)  
Clinical Associate in Surgery  
B.S., 1942, Washington State College;  
M.D., 1950, Oregon  

HAFFLIN, Gilbert N., 1948 (1949)  
Clinical Associate in Ophthalmology  
B.S., 1932, M.D., 1936, Northwestern  

HALL, Donald T., 1948  
Clinical Instructor in Surgery  
B.S., 1934, Washington; M.D., 1935, Harvard  

HARKINS, Henry Nelson, 1947  
Professor of Surgery; Executive Officer of the Department of Surgery  
B.S., 1925, M.D., 1928, 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., 1929, M.D., 1928, M.S., 1927, Ph.D., 1933, Northwestern  

HAVERSTOCK, Richard T., 1948  
Clinical Associate in Urology  
B.S., 1934, M.D., 1938, 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, Whittier College; M.D., 1945, Marquette  

HENRY, Frank C., 1949 (1952)  
Clinical Associate in Anesthesiology  
A.B., 1936, M.D., 1937, Michigan; M.S., 1934, Michigan  

HERMANN, Siegfried F., 1948  
Senior Consultant in Surgery  
B.S., 1916, M.D., 1919, M.A., 1920, Minnesota  

HERRON, Paul W., 1956  
Assistant in Surgery  
B.S., 1950, Washington State College; M.D., 1950, University of Washington  

HILLMAN, Van K., 1952  
Clinical Associate in Surgery  
B.S., 1937, M.D., 1941, Northwestern  

HOUSEHOLDER, James R., 1955  
Instructor in Anesthesiology  
M.D., 1948, Iowa  

HUTCHINSON, J. Carl, 1946 (1948)  
Clinical Instructor in Surgery  
B.S., 1922, M.D., 1929, Northwestern; M.D., 1945, Minnesota  

HUTCHINSON, William B., 1948  
Consultant in Surgery; Lecturer in MB  
B.S., 1931, Washington; M.D., 1936, McGill (Canada)  

JARVIS, Fred J., 1948  
Consultant in Surgery  
B.A., 1926, M.D., 1932, Iowa
LEWIS, John D., 1958
Consultant in Surgery
Associate Professor of Surgery; Head of the Division of Ophthalomology
B.A., 1931, Harvard; M.D., 1935, Johns Hopkins

LEAVITT, Darrell G., 1948
Clinical Instructor in Orthopedic Surgery
B.S., 1924, M.D., 1927, Oregon

LEAVITT, Harry L., 1948
Consultant in Orthopedic Surgery
B.S., 1953, Oregon; M.D., 1930, Michigan

LECOQ, Edward A., 1948
Consultant in Orthopedic Surgery
B.A., 1926, M.D., 1929. Oregon

LECOQ, 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, Glen 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., 1938
Clinical Associate in General Surgery
B.S., 1943, 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

MARTIN, Kenneth L., 1956
Clinical Associate in Ophthalmology
B.S., 1948, M.D., 1950, Oregon

MARTINIS, Andrew J., 1957
Assistant in Surgery
B.S., 1924, 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., 1925, Washington; M.D., 1937, Oregon

McELMEE, Eugene F., 1947 (1949)
Clinical Associate in Otolaryngology
B.A., 1930, College of St. Thomas (Minnesota); B.A., 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., 1929, 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, W. 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., 1948, Wisconsin; M.D., 1921, Rush Medical College

MURPHY, Thomas O., 1958
Consultant in Surgery
B.S., 1921, Washington; M.D., 1926, Oregon

NELSON, Lucien E., 1954
Clinical Assistant Professor of Urology
M.D., 1932, College of Medical Evangelists

NELSON, Jack N., 1948 (1956)
Clinical Assistant Professor of Urology
M.D., 1932, College of Medical Evangelists

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

OLCEAN, Albert C., 1956 (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 (1956)
Clinical Instructor in Surgery
B.S., 1936, State Teachers’ College 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, John 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, Weyman 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.D., 1941, M.D., 1942, Northwestern

SAUNTRY, John P., 1956
Clinical Associate in General Surgery
B.S., 1948, M.D., 1951, Washington

SCHENKMAN, Louis J., 1953 (1956)
Clinical Instructor in Urology
B.A., 1942, North Carolina; M.D., 1945, Long Island Collere

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., 1948, Kent State (Ohio); M.D., 1945, Louisville

SHERIDAN, Alfred L., 1949 (1949)
Clinical Associate in Surgery
B.S., 1938, Washington; M.D., 1943, Northwestern

SHIACH, John M., 1949
Clinical Associate in Ophthalmology
B.A., 1938, M.D., 1933, Oregon

SHARE, Milton J., 1956
Instructor in Anesthesiology
B.A., 1934, British Columbia (Canada); M.D., 1939, Alberta (Canada)
SHELDLS, 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  
Consultant 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.S., 1932, Park College (Missouri); M.D., 1935, Harvard; M.S., 1941, Michigan

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  
Research Instructor in Surgery  
B.S., 1922, Washington; M.D., 1926, Washington University; M.S., 1934, Virginia

TAYLOR, Murray E., 1952 (1955)  
Assistant 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  

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

TUEL1., Joseph I., 1948  
Consultant in Orthopedic Surgery  
B.S., 1929, M.D., 1932, Oregon

TURLBULL, 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  
Consultant in Surgery (Ophthalmology)  
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

WINTERSHEID, Loren C., 1957  
Assistant in Surgery  
B.A., 1948, Williams College; 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


SCHOOL OF MEDICINE


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. 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.


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.


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—UNDERGRADUATE CARDIOVASCULAR TRAINING: R. A. Bruce, Chairman; W. G. Guntheroth, E. P. Benditt, K. A. Merendino, R. F. Rushmer, T. C. West.


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MEDICAL THESIS: J. M. Dille, Chairman; H. S. Bennett, F. Plum.

MICROSCOPE: B. S. Henry, Chairman; J. H. Luft, W. Thorburg.


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
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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 spon-
sored jointly by the Departments of Pediatrics, Public Health and Preventive
Medicine, and Psychiatry.

The state mental hospitals are affiliated in the elective externship training pro-
gram 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 Univer-
sity 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 regis-
tration 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
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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:

<table>
<thead>
<tr>
<th>Course</th>
<th>QUARTER CREDITS</th>
<th>SEMESTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>English (Composition)</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Biology</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry (Inorganic)</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry (Organic)</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Physics</td>
<td>12</td>
<td>8</td>
</tr>
</tbody>
</table>

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.

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 non-science 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**

<table>
<thead>
<tr>
<th>Category</th>
<th>Fee (in $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident students</td>
<td></td>
</tr>
<tr>
<td>Per quarter</td>
<td>100.00</td>
</tr>
<tr>
<td>Per term for third-year students</td>
<td>75.00</td>
</tr>
<tr>
<td>Per term for fourth-year students</td>
<td>60.00</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Category</th>
<th>Fee (in $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonresident students</td>
<td></td>
</tr>
<tr>
<td>Per quarter</td>
<td>165.00</td>
</tr>
<tr>
<td>Per term for third-year students</td>
<td>123.75</td>
</tr>
<tr>
<td>Per term for fourth-year students</td>
<td>99.00</td>
</tr>
</tbody>
</table>

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

Paid by second-year students in Winter Quarter only: 5.00

Transcript Fee

For each additional copy: .50

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time resident students</td>
<td>$438.00</td>
</tr>
<tr>
<td>Full-time nonresident students</td>
<td>768.00</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double room and meals in Men's Residence Halls</td>
<td>600.00</td>
</tr>
<tr>
<td>Room and meals in Women's Residence Halls</td>
<td>540.00-630.00</td>
</tr>
<tr>
<td>Room and meals in fraternity or sorority house</td>
<td>660.00-700.00</td>
</tr>
</tbody>
</table>

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

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# SECOND-YEAR SCHEDULE, 1958-59

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*Surgical Lecture—Friday, February 27, March 6, 13 at 4 p.m.*

**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

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### THIRD-YEAR LECTURE SCHEDULE, 1958-59

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### FOURTH-YEAR CLERKSHIP SCHEDULE, 1958-59

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<td>Surgery Clerkship and one week of pulmonary disease</td>
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<td>P.M. Psychiatry Clerkship</td>
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**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

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<td>Medical Ethics and Economics Sept. 27-Nov. 22 (9 lectures)</td>
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<td>Surgery 480 Dec. 6-June 6 (22 lectures)</td>
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<td>Medical Ethics and Economics Apr. 4-June 6 (7 lectures)</td>
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<td>13-12</td>
<td>Conjoint Clinical Conference Sept. 27-May 16 (30 conferences)</td>
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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. Klein 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, GS11 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, predental, 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.)
THE DEPARTMENTAL PROGRAMS

497 Medical Students' Elective (*)
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 (*)
For medical students. Prerequisite, permission.

499 Undergraduate Research (*)
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 (*)
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, 56, 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) Staff
Kraut
Prerequisite, permission.

562 Physical Biochemistry (2) Staff
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) Staff
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) Staff
Fischer, Huennekens, 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) Staff
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) Staff
Huennekens, 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.
THE DEPARTMENTAL PROGRAMS

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 non dental students, permission.

300 Fundamentals of Bacteriology (*) Staff
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 (*) Staff
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 (*) Staff
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, Chlamydobacteriales, Caryophanaceae, and Borrelomyxaceae. (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.
### 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)  
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)  
Lecture, laboratory, and laboratory conference instruction in the basic principles and basic laboratory techniques of physiology. For students of pharmacy. Prerequisite, 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)  
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)  
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)  
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 (*)  
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 (*)  
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 (*)  
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)  
Review of physical principles applicable to medicine. Elective for medical students. Graduate students by permission.

492 Selected Topics in Physiology and Biophysics (2)  
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)  
Application of physiological principles in analysis of cardiopulmonary function. Prerequisite, 401-402 or permission.

494 Neurological Study Unit (2)  
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 (*)  
Topics in physiology and biophysics chosen according to the interests of the group.

498 Undergraduate Thesis (*)  
For medical students. Prerequisite, permission.

499 Undergraduate Research (*)  
For medical students. Prerequisite, permission.

COURSES FOR GRADUATES ONLY

520 Physiology Seminar (2-5)  
Selected topics in physiology.

521 Biophysics Seminar (2-5)  
Selected topics in biophysics.
Biophysics of External Respiration (2-5)  

Heat Transfer and Temperature Regulation (2-5)  
Prerequisite, B.S. in physical science or permission.

Membrane Potentials (2-5)  

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.

Physiological Control Systems (2-5)  
Theories of nonlinear mechanics and their applications to physiological control systems. Prerequisite, B.S. in physical science or permission.

Basic Principles of Physiological Instrumentation (2-5)  
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.

Applied Physiological Instrumentation (2-5)  
Carlson, Patton, Rushmer, Schor
Study and use of research instruments applicable to the nervous system (stimulators, amplifiers, and oscilloscopes), the cardiovascular system (cinelumograph, electro- and stetho-cardiograph, oximeter, strain gauge manometers, etc.), and respiratory and metabolic activity (flow meters, minute volume integrator, infrared and paramagnetic gas analyzers, cardiotachometer, thermocouples, gradient calorimeter). Prerequisites, 352 and permission.

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.

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.

Research (*)  
Prerequisite, permission.

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.)

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.

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.

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.

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.

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.
THE DEPARTMENTAL PROGRAMS

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, 440 or permission.

450 Measurement and Control of Air Pollution (2) Kusian, Pate, Breysse
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, Breysse
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, 460J 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 (*)
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 (*)
For medical students. Prerequisite, permission.

499 Undergraduate Research (*)
Prerequisite, permission.

COURSE FOR GRADUATES ONLY

502J Applied Group Development Principles (3) Burko, 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 (*-*) Ellerbrook, Scribner, 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)  
Deisher, Tjossem, Staff  
An advanced course for students who desire a more complete understanding of the child through integration of the viewpoints of pediatrics, public health, psychology, psychiatry, nutrition, social work, and nursery education. Offered by the Departments of Pediatrics and Public Health and Preventive Medicine. For nonmedical students. Prerequisite, permission.

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 medical 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.
THE DEPARTMENTAL PROGRAMS

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 terms 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 to 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, osccilometric 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Anatomy 301</td>
<td>4</td>
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<tr>
<td>Chemistry 100 or 110, 120</td>
<td>8 or 9</td>
</tr>
<tr>
<td>Mathematics 120</td>
<td>2</td>
</tr>
<tr>
<td>Microbiology 301</td>
<td>5</td>
</tr>
<tr>
<td>Physics 170, 170L</td>
<td>6</td>
</tr>
<tr>
<td>Psychiatry 267</td>
<td>2</td>
</tr>
<tr>
<td>Sociology 110</td>
<td>5</td>
</tr>
<tr>
<td>Speech 100</td>
<td>5</td>
</tr>
<tr>
<td>Zoology 208</td>
<td>5</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
<th>Credits</th>
<th>Third Quarter</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Chem. 100 or 100 General</td>
<td>4-3</td>
<td>Chem. 120 General and Organic</td>
<td>5</td>
<td>Engl. 103 Composition</td>
<td>3</td>
</tr>
<tr>
<td>Engl. 101 Composition</td>
<td>3</td>
<td>Engl. 102 Composition</td>
<td>3</td>
<td>Physics 170 &amp; 170L</td>
<td>6</td>
</tr>
<tr>
<td>Math. 120 Introduction</td>
<td>2</td>
<td>Speech 100 Basic Speech Improvement</td>
<td>5</td>
<td>Introduction to Health Science</td>
<td>6</td>
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<tr>
<td>Approved Electives</td>
<td>4-5</td>
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<td>2</td>
<td>Sociol. 110 Survey</td>
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<tr>
<td>ROTC</td>
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**Second Year**

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<thead>
<tr>
<th>First Quarter</th>
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<tr>
<td>Health Educ. 292 First</td>
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<td>Micro. 301 General</td>
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<td>Anat. 301 General</td>
<td>4</td>
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<tr>
<td>Aid &amp; Safety</td>
<td>3</td>
<td>Psychiatry 267 Introduction to Mental Hygiene</td>
<td>2</td>
<td>Zool. 208 Physiology</td>
<td>5</td>
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<tr>
<td>Psychol. 100 General</td>
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<td>Psychol. 101 Adjustment</td>
<td>5</td>
<td>Approved Electives</td>
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<td>2-3</td>
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**Third Year**

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<th>Credits</th>
<th>Third Quarter</th>
<th>Credits</th>
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<td>Approved Electives</td>
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<td>Approved Electives</td>
<td>5</td>
<td>Path. 310 General</td>
<td>4</td>
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<td>15-16</td>
<td></td>
<td>16</td>
<td>Approved Electives</td>
<td>3</td>
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</table>

|               | 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

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

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

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.

<table>
<thead>
<tr>
<th></th>
<th>Tuition</th>
<th>Incidental Fee</th>
<th>ASUW Fee</th>
<th>Total</th>
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<tbody>
<tr>
<td>Resident</td>
<td>$65.00</td>
<td>$37.50</td>
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<td>Nonresident</td>
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<td>$82.50</td>
<td>$8.50</td>
<td>$216.00</td>
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</table>

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, BS16 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 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.

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.
THE DEPARTMENTAL PROGRAMS

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 (*)  
**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 (*)  
499 Undergraduate Research (*)

**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

ALKSNIE, 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.S., Washington State College

DUNBAR, June H., Nome Alaska University of Colorado

DUNCAN, Elmore E., Mossyrock B.A., Pacific Lutheran College

EGGLIN, Johann G., Germany B.A., 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

GLESSON, Francis G., Longview B.A., University of Washington

GORLES, 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

LIHANE, Juhu, 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

ALSKNIS, Zaiga
B.S., University of Washington

ANDERBERG, Merlyn L., Spokane
B.A., Reed College

ANDERSON, AL KSNIS, BIRKELAND, BODEMAN, BIGELOW, BIGELOW, BIRKELAND, Ivar W., Jr., Bellevue
B.A., University of Washington

BODEMAN, William H., Aberdeen, S.D.
Jamestown College

B.S., University of Idaho

WEBB, Vivien E., Edmonds
B.S., University of Washington

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

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GORDON, Arthur S., Pasadena, Calif.
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WHITENACK, Donald C., Vancouver
B.S., University of Washington

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WYNA, Robert E., Poplar, Montana
B.A., University of Washington

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B.S., University of Oregon

HAYDEN, Daniel T., Zenith
B.S., University of Washington

HAYDEN, Daniel T., Zenith
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Black Hills Teachers College
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HENRY, Robert R., Ardmore, Okla.
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University of Washington

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University of California

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B.A., University of Washington

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B.A., Gonzaga University

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B.S., U.S. Military Academy
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University of Washington

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University of Washington

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University of Grenoble

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B.A., Central Washington College of Education

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Van DerHOEFEJ, Kenneth D., Seattle
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Bob Jones University

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Degrees of Doctor of Medicine conferred June 15, 1957

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HOLMES, Frederick F., Tacoma College of Puget Sound University of Kansas Medical Center, Kansas City, Kansas

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LAUVINSON, George F., Jr., Seattle University of Washington U.S. Army-Walter Reed Hospital, Washington, D.C.

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ROSTER OF STUDENTS

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RANIGER, Dan E., Ellensburg
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B.S., University of Washington
Harbor General Hospital, Torrance, Calif.

RICE, Orlin W., Bremerton
University of Washington
Cincinnati General Hospital, Cincinnati, Ohio

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ROCKEY, Dean M., Olympia
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U.S. Army-Tripler Hospital, Honolulu, T.H.

ROSER, Donald M., McCleary
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SCHUYLER, William J., Seattle
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U.S.P.H.S. Hospital, Seattle

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U.S. Navy Hospital, San Diego, Calif.

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Minneapolis General Hospital, Minneapolis, Minn.

ROSTER OF STUDENTS IN MEDICAL TECHNOLOGY

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Degree of Bachelor of Science in Medical Technology conferred June 7, 1956
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McLENNAN, R. Marlene, Everett

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Degree of Bachelor of Science in Medical Technology conferred June 15, 1957
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LOE, Mary E., Seattle
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UYEDA, Fuzako, Tacoma

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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.

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CALENDAR

AUTUMN, WINTER, SPRING, AND SUMMER QUARTERS
(Autumn Quarter, 1958, through Winter Quarter, 1961)

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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.

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 no later than December 12. Students in resident attendance Autumn Quarter who failed to complete Advance Registration must apply in person at the Registrar's Office for a Registration Appointment or Permit to register between November 24 and December 12. Deadline for applying for Registration Appointment or Permit is December 12.

Dec. 5
Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

Dec. 29-31
In-Person Registration for ALL new students.

Dec. 31
Last day to register for Winter Quarter, 1959.

Jan. 6-9
Change of registration by appointment only.

ACADEMIC PERIOD

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

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<tr>
<td>MAR. 23-MONDAY</td>
<td>Instruction begins for clinical divisions</td>
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<td>MAY 22-FRIDAY</td>
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<td>JUNE 7-SUNDAY</td>
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<td>JUNE 12-FRIDAY</td>
<td>Instruction ends for other nursing students</td>
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<tr>
<td>JUNE 13-SATURDAY</td>
<td>Commencement</td>
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### SUMMER QUARTER, 1959

**REGISTRATION PERIOD**

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

<table>
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<th>Date</th>
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<tr>
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</table>

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 resi-
dence Spring Quarter, 1959, and those attending Spring
Quarter, 1959, who failed to complete Advance Regis-
tration. Appointments or Permits to register may be
obtained by writing to or calling at the Registrar's Office
beginning June 8. Deadline for applying for Registration
Appointment or Permit is September 15.
Aug. 31 Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

Sept. 14-25 In-Person Registration for freshmen entering directly from high school and for new transfer students with less than sophomore standing.

Sept. 14-29 In-Person Registration for new transfer students with at least full sophomore standing.

Sept. 29 Last day to register for Autumn Quarter, 1959.

Oct. 1-6 Change of registration by appointment only.

ACADEMIC PERIOD

Sept. 28—Monday Instruction begins (8 a.m.) for freshmen entering directly from high school and for new transfer students with less than sophomore standing

Sept. 30—Wednesday Instruction begins (8 a.m.) for all other students

Oct. 6—Tuesday Last day to add a course

Nov. 2—Monday Applications for bachelor’s degrees and certificates to be conferred through Summer Quarter, 1960, due at Registrar’s Office

Nov. 11—Wednesday State Admission Day holiday

Nov. 25—Wednesday Last day to submit applications for advanced credit examinations

Nov. 25-30 Thanksgiving recess (6 p.m. to 8 a.m.)

Dec. 12—Saturday Advanced credit examinations

Dec. 14-18 Final examinations

Dec. 18—Friday Quarter ends

WINTER QUARTER, 1960

REGISTRATION PERIOD

Oct. 26-Nov. 20 Advance Registration only for students in residence Autumn Quarter, 1959. A service fee of $15.00 will be 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 no later than March 11. Students in resident attendance Winter Quarter who failed to complete Advance Registration must apply in person at the Registrar's Office for a Registration Appointment or Permit to register between February 23 and March 11. Deadline for applying for Registration Appointment or Permit is March 11.

**FEB. 26**  
Deadline for ALL new students to submit Applications for Admission with complete credentials. Registration Appointment will be mailed with Official Notice of Admission.

**MAR. 22-24**  
In-Person Registration for ALL new students.

**MAR. 24**  
Last day to register for Spring Quarter, 1960.

**MAR. 29—APR. 1**  
Change of registration by appointment only.

**ACADEMIC PERIOD**

**MAR. 28—MONDAY**  
Instruction begins

**APR. 1—FRIDAY**  
Last day to add a course

**MAY 6—FRIDAY**  
Last day to submit applications for advanced credit examinations

**MAY 20—FRIDAY**  
Governor's Day

**MAY 21—SATURDAY**  
Advanced credit examinations

**MAY 30—MONDAY**  
Memorial Day holiday
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 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 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.
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.

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

In-Person Registration for ALL new students.

Last day to register for Winter Quarter, 1961.

Change of registration by appointment only.

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

Quarter ends
ADMINISTRATION

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Assistant to the President
Registrar
Comptroller and Treasurer
Business Manager
Dean of Students
Dean of the School of Nursing

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

Batuey, Marjorie Viola, 1956 (1958), Assistant Professor of Psychiatric Nursing
Diploma, 1947, Sacred Heart Heart 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

Brekenridge, 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
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

Cobb, Mary Marguerite, 1953 (1958), Assistant Professor of Public Health Nursing

Cross, Harriet, 1932 (1941), Assistant Professor of Nursing
Diploma, 1921, Columbia Hospital, Wisconsin; B.S., 1925, 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, Pennsylvania

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, 1958, Assistant Professor of Medical Nursing

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

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

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

Laxson, Lois Elizabeth, 1955, Clinical Instructor in Medical Nursing
B.A., 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

Lilleoeren, Inez Ingeborg, 1953, Instructor in Operating Room Nursing
B.S.N., 1950, Washington

Little, Dolores Emma, 1951 (1958), Assistant Professor in Surgical Nursing

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 Ista, 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

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

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 C., 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 C., 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

Kiriuk, 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
Moores, 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., 1925; 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

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

Shaffrath, Louise E., Lecturer in Nursing

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

Vanamaker, 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, Orliss, 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
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 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 potentials. 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:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>One foreign language</td>
<td>2</td>
</tr>
<tr>
<td>Language arts or foreign language</td>
<td>2*1</td>
</tr>
<tr>
<td>Social science</td>
<td>1</td>
</tr>
<tr>
<td>Elementary algebra</td>
<td>1</td>
</tr>
<tr>
<td>Plane geometry</td>
<td>1</td>
</tr>
<tr>
<td>Laboratory science</td>
<td>1</td>
</tr>
<tr>
<td>Advanced mathematics or laboratory science</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total number academic units</strong></td>
<td>11</td>
</tr>
<tr>
<td>Free electives</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total number units required</strong></td>
<td>16</td>
</tr>
</tbody>
</table>

*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:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3 units</td>
</tr>
<tr>
<td>One foreign language</td>
<td>2 units</td>
</tr>
<tr>
<td>Elementary algebra</td>
<td>1 unit</td>
</tr>
<tr>
<td>Plane geometry or second-year algebra</td>
<td>1 unit</td>
</tr>
<tr>
<td>One laboratory science</td>
<td>1 unit</td>
</tr>
<tr>
<td>Social science</td>
<td>1 unit</td>
</tr>
<tr>
<td>Electives</td>
<td>7 units</td>
</tr>
</tbody>
</table>

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 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 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 regulations 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.
GENERAL INFORMATION

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
- **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 to 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
- **Athletic admission ticket (optional for ASUW members)**: $3.00-$5.00

Breakage Ticket Deposit

- **Required in some laboratory courses; ticket is returnable for full or partial refund**: $3.00

Grade Sheet Fee

- **One grade sheet is furnished each quarter without charge; the fee, payable in advance, is charged for each additional copy**: $.25

Transcript Fee

- **One transcript is furnished without charge; the fee, payable in advance, is charged for each additional copy**: $.50

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.
GENERAL INFORMATION

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

Special Fees and Deposits
- Breakage ticket 3.00
- Microscope Rental Fee 3.50
- Books and Supplies 75.00

Board and Room
- Room and meals in 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 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:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities 101, 102, 103</td>
<td>15</td>
</tr>
<tr>
<td>English 101, 102, 103</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 100 or 110, 120</td>
<td>8 or 9</td>
</tr>
<tr>
<td>Health Education 110 or 175</td>
<td>2</td>
</tr>
<tr>
<td>Nursing 101, 102</td>
<td>4</td>
</tr>
<tr>
<td>Electives (Humanities, Social Sciences)</td>
<td>7 or 6</td>
</tr>
<tr>
<td>Physical Education activities (including 112, 114)</td>
<td>3</td>
</tr>
</tbody>
</table>

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):

<table>
<thead>
<tr>
<th>FIRST QUARTER CREDITS</th>
<th>SECOND QUARTER CREDITS</th>
<th>THIRD QUARTER CREDITS</th>
<th>FOURTH QUARTER CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing 365</td>
<td>2</td>
<td>Biological or</td>
<td>3</td>
</tr>
<tr>
<td>Biological or</td>
<td>Physical science</td>
<td>Sociology 310</td>
<td>5</td>
</tr>
<tr>
<td>Biophysical science</td>
<td></td>
<td>Electives</td>
<td>2</td>
</tr>
<tr>
<td>English 101</td>
<td></td>
<td>Social work</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 100</td>
<td>3</td>
<td>Social work</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Total credits: 120
PROGRAMS IN NURSING

FIFTH QUARTER CREDITS
Social science electives 5
Electives 10

Sixth Quarter Credits
Nursing 361 2
Electives 14

Seventh Quarter Credits
Nursing 366 2
Nursing 419 3
Electives 8

Eighth Quarter Credits
Nursing 405 3
Nursing 406 5
Nursing 459 2

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.
PROGRAMS IN NURSING

291 Principles and Practice of Elementary Nursing (5) *Brandt, Enos, Hay, Mack*
Elementary nursing techniques; practice in elementary nursing. Two lectures, two-two hour classes, and one-day 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, Liljeroen, Pederson*
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; eyes, 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 Practico 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, Pederson*
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) *Pederson, 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, Liljeroen*
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, Pederson, 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, Ulrich*
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, Ulrich, 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) *Wittm"
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 or 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
Consideration given to the amount and type of previous experience. In general, 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, liaison with 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.

501 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.

253 Selected Psychiatric Nursing Practice (3) Patrick
Basic concepts of treatment, rehabilitation, prevention, and control. Lectures and demonstrations.

252 Introduction to Nursing Care and Treatment of Tuberculosis (2) Patrick
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.

251 Selected Psychiatric Nursing Practice (5) Hilde
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.

250 Introduction to Psychiatry and Psychiatric Nursing (5) Hilde
Basic concepts of treatment, rehabilitation, prevention, and control. Lectures and demonstrations.

254 Selected Tuberculosis Nursing Practice (2) 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 Basic Nursing Affiliate Students

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 Selecte5ed 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.

**457 Application of Fundamentals of Administration to Nursing (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 (3)**
- **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.

**456 In-Service Education in Nursing (3)**
- **Smith**
- Programs for in-service education in nursing involving various groups of workers in different institutions and agencies.

**457 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.

**485J School Health Problems (2)**
- **Loehly**
- 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.

503 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 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
## CONTENTS

### Administration
- Board of Regents
- Officers of Administration
- College of Pharmacy Faculty

### Calendar

### General Information
- College Facilities
- Admission
- Veterans
- Required Tests and Examinations
- Registration
- Tuition and Fees
- Estimate of Yearly Expenses
- Student Activities and Services

### The Programs in Pharmacy
- Bachelor of Science in Pharmacy
- Advanced Degrees
- Courses

### 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, President
WINLOCK W. MILLER, Vice-President
GRANT ARMSTRONG
THOMAS BALMER
DONALD G. CORBETT
CHARLES F. FRANKLAND
MRS. J. HERBERT GARDNER

Helen Hoagland, Secretary

OFFICERS OF ADMINISTRATION

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
JACK E. ORR, Ph.D., Dean of the College of Pharmacy
FOREST J. GOODRICH, Ph.D., Dean Emeritus of the College of Pharmacy

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

HUSTRIC, 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 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.)

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. (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 12, 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 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. (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
Mar. 21—Friday  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  Instruction begins
Apr. 4—Friday  Last day to add a course
May 23—Friday  Governor's Day
MEMORIAL DAY HOLIDAY

BACCALAUREATE SUNDAY

INSTRUCTION ENDS

COMMENCEMENT

SUMMER QUARTER, 1958

REGISTRATION PERIOD

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>June 4-June 6</td>
<td>Registration for all students. (Registration appointments for 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.)</td>
</tr>
<tr>
<td>June 16-June 20</td>
<td>Instruction begins</td>
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<tr>
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<td>Last day to add a course for the first term</td>
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<td></td>
<td>Last day to add a course for the full quarter</td>
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<tr>
<td></td>
<td>Independence Day holiday</td>
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<td></td>
<td>First term ends</td>
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<tr>
<td></td>
<td>Second term begins</td>
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<tr>
<td></td>
<td>Last day to add a course for the second term</td>
</tr>
<tr>
<td></td>
<td>Instruction ends</td>
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AUTUMN QUARTER, 1958

REGISTRATION PERIOD

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Sept. 8-Sept. 30</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 12-Sept. 30</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 15-Sept. 26</td>
<td>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.)</td>
</tr>
<tr>
<td>Sept. 15-Sept. 30</td>
<td>Registration for now 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.)</td>
</tr>
</tbody>
</table>
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. 28—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
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:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Credits</th>
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<tbody>
<tr>
<td>English 101, 102, 103 Composition</td>
<td>Mathematics 105 College Algebra</td>
</tr>
<tr>
<td>Chemistry 109 or 110, 150, 160 Gen...10-11</td>
<td>Physical Education 110 or 175 Health</td>
</tr>
<tr>
<td>Mathematics 104 Plane Trigonometry</td>
<td>Education or Personal Health</td>
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<tr>
<td>5</td>
<td>2</td>
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</table>

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 or students residing outside the state of Washington or the territory of Alaska 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 units (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

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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-profes-

sional 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 equiv­

alent 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

table, 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. Applica­

tions 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, includ­

ing 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 peti­

tion 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.
GENERAL INFORMATION

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

<p>| | |</p>
<table>
<thead>
<tr>
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<tr>
<td>Full-time resident student</td>
<td>183.00</td>
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<tr>
<td>Full-time nonresident student</td>
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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

Board and Room

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<tr>
<td>Room and meals in Men’s Residence Halls</td>
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</tr>
<tr>
<td>Room and meals in Women’s Residence Halls</td>
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<td>Room and meals in student cooperative house</td>
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<td>Room and meals in fraternity or sorority house</td>
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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.

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 unfit for 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.

<table>
<thead>
<tr>
<th>AUTUMN QUARTER CREDITS</th>
<th>WINTER QUARTER CREDITS</th>
<th>SPRING QUARTER CREDITS</th>
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<tbody>
<tr>
<td>First Year</td>
<td></td>
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<tr>
<td>Pharm. 101– Principles</td>
<td>Pharm. –102– Principles</td>
<td>Pharm. –103 Principles</td>
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<td>Pharm. 104 Hist. Pharm.</td>
<td>Bot. 111 Elementary</td>
<td>Chem. 160 General</td>
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<td>Engl. 103 Composition</td>
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<td>Micro. 301 General Micro.</td>
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<td>Pharm. 313– Adv.</td>
<td>Pharm. –314– Professional– Pharm. 318 Pharm. Acctg.</td>
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<td>Pharmacognosy</td>
<td>Pharm. –315– Professional</td>
<td>Pharm. –315 Prof.</td>
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<td>Pharm. 382 Modern</td>
<td>Micro. 301 General</td>
<td>Management</td>
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</table>

The following five-year curriculum will begin Autumn Quarter, 1957.

**First Year (Prepharmacy)**

See page (12)

**Second Year**

<table>
<thead>
<tr>
<th>AUTUMN QUARTER CREDITS</th>
<th>WINTER QUARTER CREDITS</th>
<th>SPRING QUARTER CREDITS</th>
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<td>Bot. 111 Elementary</td>
<td>Pharm. Chem. 232 &amp; 242</td>
<td>Pharm. 204 Orientation</td>
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<td>Organic</td>
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<tr>
<td>Gen.</td>
<td>103 &amp; 109 General</td>
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<tr>
<td>ROTC</td>
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<td>Micro. 301 General</td>
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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, 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. galenical 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,
THE PROGRAMS IN PHARMACY

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intelligent use, safety, and effectiveness. Cosmetics and related preparations are included. For nonmajors.

204 Orientation and History (2) Orr
A study of the profession of pharmacy, its development and its literature. (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. Pre-
requisites, -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. Pre-
requisite, -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 Pharmaceutical 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)
Plain
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)
Plain
Principles of prescription compounding and dispensing, including a study of some com-
mercially-prepared modern pharmaceuticals. Prerequisite, 332. (First time offered, Autumn Quarter, 1961.)

420 Manufacturing Pharmacy (3)
Plain
A study of the techniques and equipment in preparing pharmaceutical products on a small 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 physi-
ological properties. Prerequisite, Chemistry 239 or 333.

483 Hospital Pharmacy (3-5)
Plain
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)   
Plein
Theories of solvent extraction and the use of solvents applied to pharmaceutical manufacturing. Prerequisite, permission.

600 Research (*)   
Hall, Plein, 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 113.)

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 130. (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 111.)

231, 232 Organic Chemistry (3,3)   
Staff
For students in premedicne 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)   
Hall, Plenric
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.
THE PROGRAMS IN PHARMACY

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, 101.

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; 153, freshman, 253, one-year 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); 224, intermediate fencing; 228, intermediate riding (fee); 230, skiing (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, 109, 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 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. 934
October, 1958

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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 September 19. 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 no later than December 12. Students in resident attendance Autumn Quarter who failed to complete Advance Registration, must apply in person at the Registrar's Office for a Permit to register between November 24 and December 12. Deadline for applying for a Permit is
**UNIVERSITY OF WASHINGTON**

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<th>Date</th>
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<tr>
<td><strong>December</strong></td>
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<td>12.</td>
<td>Appointments for completing the registration process in the School of Social Work will be scheduled automatically by that School.</td>
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<tr>
<td><strong>Dec. 5</strong></td>
<td>Deadline for ALL new students to submit Applications for Admission with complete credentials.</td>
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<td><strong>Dec. 29-31</strong></td>
<td>In-Person Registration for ALL new students.</td>
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<td><strong>Dec. 31</strong></td>
<td>Last day to register for Winter Quarter, 1959.</td>
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<td><strong>Jan. 6-9</strong></td>
<td>Change of registration by appointment only.</td>
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**ACADEMIC PERIOD**

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<tr>
<td><strong>Jan. 5-Monday</strong></td>
<td>Instruction begins</td>
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<td><strong>Jan. 9-Friday</strong></td>
<td>Last day to add a course</td>
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<td><strong>Feb. 23-Monday</strong></td>
<td>Washington's Birthday and Founder's Day holiday</td>
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<td><strong>Mar. 16-20</strong></td>
<td>Final examinations</td>
</tr>
<tr>
<td><strong>Mar. 20-Friday</strong></td>
<td>Instruction ends</td>
</tr>
</tbody>
</table>

**SPRING QUARTER, 1959**

**REGISTRATION PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jan. 26-Feb. 20</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Mar. 24-26</strong></td>
<td>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 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 Permit to register between February 24 and March 13. Deadline for applying for a Permit is March 13. Appointments for completing the registration process in the School of Social Work will be scheduled automatically by that School.</td>
</tr>
<tr>
<td><strong>Feb. 27</strong></td>
<td>Deadline for ALL new students to submit Applications for Admission with complete credentials.</td>
</tr>
<tr>
<td><strong>Mar. 24-26</strong></td>
<td>In-Person Registration for ALL new students.</td>
</tr>
<tr>
<td><strong>Mar. 26</strong></td>
<td>Last day to register for Spring Quarter, 1959.</td>
</tr>
<tr>
<td><strong>Mar. 31-Apr. 3</strong></td>
<td>Change of registration by appointment only.</td>
</tr>
</tbody>
</table>

**ACADEMIC PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mar. 30-Monday</strong></td>
<td>Instruction begins</td>
</tr>
<tr>
<td><strong>Apr. 3-Friday</strong></td>
<td>Last day to add a course</td>
</tr>
<tr>
<td><strong>May 22-Friday</strong></td>
<td>Governor's Day</td>
</tr>
<tr>
<td><strong>May 30-Saturday</strong></td>
<td>Memorial Day holiday</td>
</tr>
<tr>
<td><strong>June 7-Sunday</strong></td>
<td>Baccalaureate Sunday</td>
</tr>
<tr>
<td><strong>June 8-12</strong></td>
<td>Final examinations</td>
</tr>
<tr>
<td><strong>June 12-Friday</strong></td>
<td>Instruction ends</td>
</tr>
<tr>
<td><strong>June 13-Saturday</strong></td>
<td>Commencement</td>
</tr>
</tbody>
</table>
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.
Juniors ................................Tuesday, 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.
UNIVERSITY OF WASHINGTON

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, 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 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 Permit to register between November 23 and December 11. Deadline for applying for a Permit is December 11. 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.
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.

Deadline for ALL new students to submit Applications for Admission with complete credentials.

In-Person Registration for ALL new students.

Last day to register for Spring Quarter, 1960.

Change of registration by appointment only.

**ACADEMIC PERIOD**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 28-Monday</td>
<td>Instruction begins</td>
</tr>
<tr>
<td>Apr. 1-Friday</td>
<td>Last day to add a course</td>
</tr>
<tr>
<td>May 20-Friday</td>
<td>Governor's Day</td>
</tr>
<tr>
<td>May 30-Monday</td>
<td>Memorial Day holiday</td>
</tr>
<tr>
<td>June 5-Sunday</td>
<td>Baccalaureate Sunday</td>
</tr>
<tr>
<td>June 6-10</td>
<td>Final examinations</td>
</tr>
<tr>
<td>June 10-Friday</td>
<td>Instruction ends</td>
</tr>
<tr>
<td>June 11-Saturday</td>
<td>Commencement</td>
</tr>
</tbody>
</table>

**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.
UNIVERSITY OF WASHINGTON

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 September 13. 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, President
John L. King, Vice-President
Thomas Balmer
Mrs. A. Scott Bullitt
Joseph Drumheller
Mrs. J. Herbert Gardner
Charles M. Harris

Seattle
Seattle
Seattle
Seattle
Spokane
La Conner
Entiat

HeLEN E. HoagLAND, Secretary

NELSON A. WAHLSTROM, Treasurer

OFFICERS OF ADMINISTRATION

Charles E. Odegaard, Ph.D.  - President of the University
Frederick P. Thieme, Ph.D.  - Assistant to the President
Ethelyn Toner, B.A.  - Registrar
Nelson A. Wahlstrom, B.B.A.  - Comptroller and Treasurer
Ernest M. Conrad, B.B.A.  - Business Manager
Donald K. Anderson, B.A.  - Dean of Students
Victor I. Howery, Ph.D.  - Dean of the School of Social Work

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, Augustana 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
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 Sanitorium
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 Sanitorium
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, Eija, 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

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

Transcript Fee
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
The fee covers the cost of binding one copy for the University Library.

Doctor's degree candidates
The fee covers the cost of binding manuscript copies for the University Library and the cost of microfilm publication.

Graduation Fee

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 permission 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
GENERAL INFORMATION

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
THE SOCIAL WORK PROGRAMS

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, Mundt
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, Roiss
 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, Roiss
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